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BiblioBarrowIsland – An Annotated Bibliography of the Natural History of Barrow Island 1622 – 2004

COMPILED BY
JOANNE A. SMITH, LISA J. WRIGHT AND KEITH D. MORRIS

Department of Conservation and Land Management
Science Division
Wildlife Research Centre
PO Box 51 Wanneroo WA 6946

Abstract

This annotated bibliography contains information on 474 documents relating to the natural history of Barrow Island, one of Australia's most important biodiversity conservation reserves. Papers have been sorted into 41 broad categories including the biophysical environment, the native and introduced biota, environmental impact studies, and environmental management. Many of these documents are unpublished reports authored by staff of Western Australian government departments or were commissioned by the oil company West Australian Petroleum Pty Ltd (WAPET), later ChevronTexaco Australia (CVX), during the past forty years when a Petroleum Act production lease existed over the same area as a Class A Nature Reserve.

INTRODUCTION

Barrow Island, the second largest island of Western Australia (WA), is one of Australia's most important nature reserves. It supports 14 species of native mammals, over 100 species of birds, 54 species of reptiles and more than 400 species of plants. In addition, many troglobitic and stygobitic fauna are found in its caves and groundwater. Located 80 kilometres off the Pilbara coast west of Cape Preston and north of Onslow, this 233 km^2 island is unique in being a producing oilfield with over 900 wells and other items of associated infrastructure as well as being a very valuable biodiversity conservation reserve. It is the intact array of native

Turtle Bay, west coast of Barrow Island (Photograph courtesy of ChevronTexaco)

mammal species and the absence of rabbits, foxes, cats, rats and mice that makes Barrow Island an important zoological asset for Australia. Six of the 14 species of native mammals that occur there are listed as threatened pursuant to Western Australian and Australian Commonwealth legislation.

History

Aboriginal people inhabited what is now Barrow Island, prior to it becoming an island 6 000 to 8 000 years ago, but there is no evidence of occupation after rising sea levels separated Barrow from the mainland. The first English visitors in 1840 found 'no traces of natives'. The earliest reported European sighting of Barrow Island was by the crew of the ill-fated English ship *Tryal* which ran aground and sank on a reef to the north of Barrow in 1622. The French navigator Baudin thought it to be part of the mainland as he sailed along the north-west coast in 1803, naming several prominent landmarks on the island such as Cape Poivre, Flacourt Bay and Cape Dupuy. It wasn't until 1818 that Lieutenant PP King determined that Barrow was an island and he named it after John Barrow, Secretary of the Admiralty at that time. In 1840, Lieutenant JL Stokes in HMS *Beagle* explored and charted the east coast of Barrow Island. Improved geographical and hydrological knowledge resulted in 1899 when Commander Combe in HMS *Penguin* was commissioned to survey Mary Anne Passage, to the south of Barrow Island.

As the settlement of the Pilbara mainland expanded after the 1860s, Barrow was held under lease for turtle fishing and pastoralism, although there is no evidence that Barrow Island was ever used for grazing sheep, goats or cattle. The pearling industry was also expanding in the Pilbara and several pearling camps were located on Barrow Island. The well-known naturalist, JT Tunney collected mammals for the Western Australian Museum (WAM) and Lord Rothschild in 1900. In 1908, Barrow Island was declared an Aboriginal Reserve specifically for the treatment of venereal disease. However, these plans did not proceed and in the same year, the island was declared a reserve for 'Protection of flora and fauna'. In 1910, the reserve was declared Class A, that is, its purpose could not be changed without approval from both Houses of State Parliament. In 1917–18, FL Whitlock made two extended visits to the island reporting mainly on the bird life. He also reported for the first time the presence of the introduced black rat on some of the small islands close to the east coast of Barrow Island—these were probably introduced from pearling vessels.

In the 1950s, the island was visited by personnel associated with the testing of the first British nuclear weapon and was, for a while, considered as a potential site for these tests. By this time the value of Barrow Island to mammal conservation had been recognised and it was proposed that the native fauna could be herded to the southern end of the island, a fence constructed

Lufkin pump at sunset (Photograph courtesy of ChevronTexaco)

across it (a distance of approximately 10 km) and the atomic weapons detonated at the northernmost point. Fortunately this option was not pursued and the nuclear weapon tests were carried out in the Montebello Islands, 40 km to the north of Barrow. A joint Commonwealth Scientific and Industrial Research Organisation (CSIRO)/WAM expedition to Barrow and adjacent islands in 1958 collected six species of native mammal, including the first record of a fat-tailed antechinus for the island.

The well-known naturalist Harry Butler commenced his long association with Barrow Island in May 1964, and again in April 1965 when he spent several weeks on the island, recording wildlife and collecting specimens for the WAM. During these trips, which coincided with the start of an extensive drilling program by West Australian Petroleum (WAPET), he made the first Barrow Island collections of the brushtail possum, boodie, common rock-rat, water rat and two species of bat, as well as many reptile species. Since that time Butler has been a consultant to the oil company and has been responsible for developing and implementing the early environmental management operations on the island.

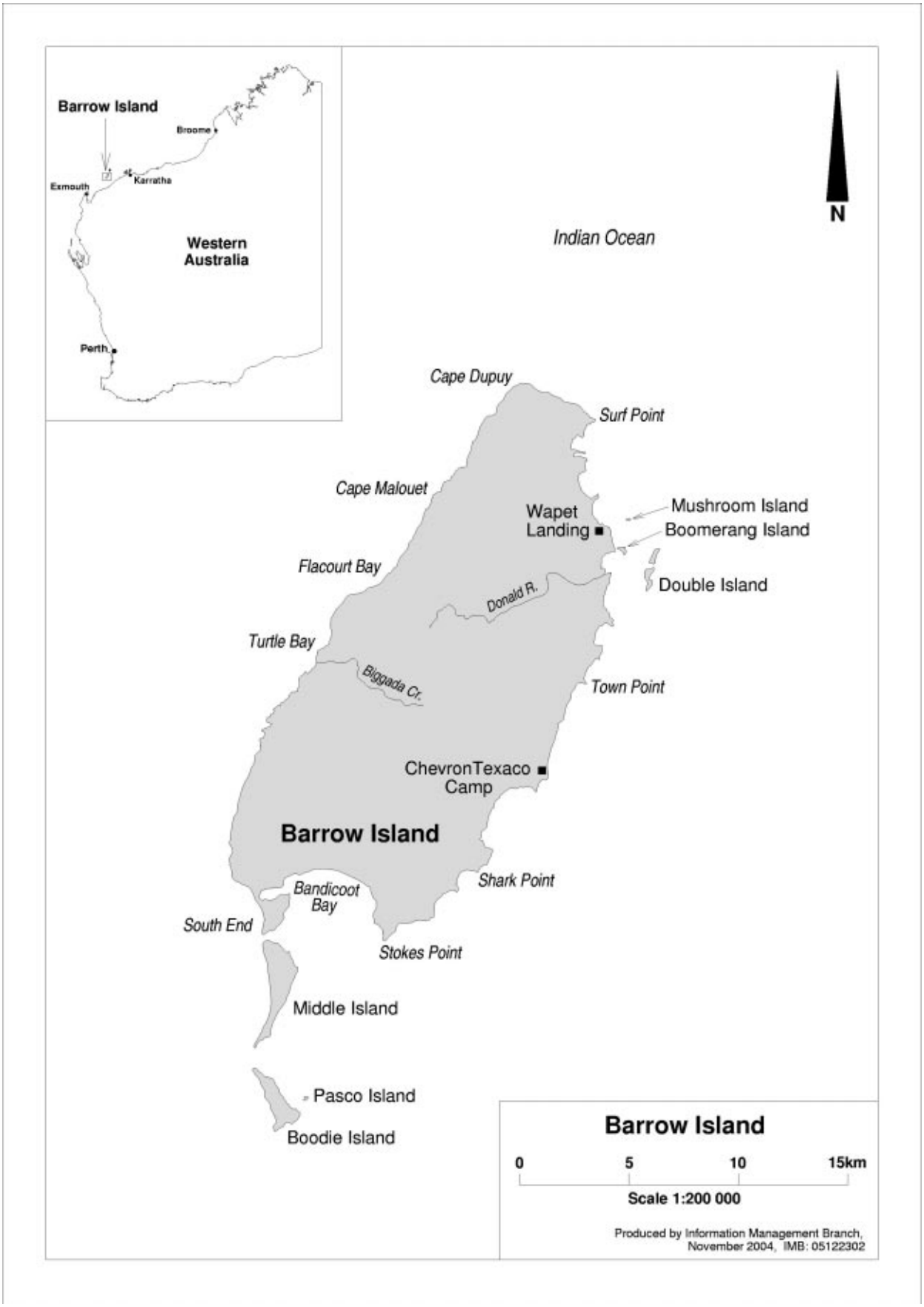
The oil industry

In 1953, after WAPET discovered oil at Rough Range, near Exmouth, an expanded program of oil exploration commenced along the nearby, and geologically similar, Pilbara coast and islands. The potential of Barrow Island as an oil reservoir was recognised in 1954 and extensive geological and seismic surveys commenced after the area was reopened in 1963, post atomic testing in the Montebellos. The first well was drilled in May 1964 and oil was produced soon after. Commercial operations began in 1967 and the first shipment of oil occurred in April that year. Now CVX operates the oilfield. Currently there are over 450 producing oil wells, more than 250 water injection wells and a number of other exploration wells, and more than 1000 km of roads on the island. There is also accommodation infrastructure to support the 150–200 personnel who work and live on the island in two-week shifts. In 2000, 668 000 kl of oil were produced. Barrow, having a long all weather airstrip is used as a transport hub for the other producing oilfields on nearby Thevenard and Varanus Islands and several offshore platform operations.

In February 2003, CVX prepared an environmental, social and economic (ESE) review of their proposal to develop the Gorgon gas field, 80 km off the west coast of Barrow Island. One of the options examined was to use Barrow Island as the site for a gas processing plant and shipping facility. Later in 2003 the Western Australian Government provided in-principle support for CVX to proceed with planning for this development on Barrow Island providing the necessary environmental reviews were undertaken and approved.

One of the first steps taken was to establish an independent Quarantine Expert Panel to provide advice to CVX on international best practice for the necessary

Drilling rig on Barrow Island (Photograph courtesy of ChevronTexaco)



Barrow Island, 80 km off the Pilbara coast, west of Cape Preston and north of Onslow, Western Australia.

quarantine measures required to protect the valuable biodiversity of Barrow Island should the Gorgon project be approved and proceed. Early recommendations of this expert panel were that adequate baseline studies be undertaken on the biodiversity of Barrow Island. To assist in the development of this it was further recommended that a bibliography on the natural history of Barrow Island be assembled and published, with copies of critical documents made available to the public through the WAM and Department of Conservation and Land Management (CALM) libraries. CALM was contracted to prepare the bibliography. The bibliography provided below comprises 474 documents and covers the historic, biophysical, climatic and environmental management aspects of Barrow Island to June 2004. To retain maximum benefit from the bibliography, regular updates need to be made as further documents become available.

METHODS

The bibliographic search started with titles extracted from the CALM Library Catalogue, CALM's Environmental Protection Section collection, the reference list from the Gorgon ESE Review and the original bibliographies on Barrow Island compiled by Harry Butler and Jacqueline Cox of WAPET. The references contained within these titles were checked and added if considered relevant. This process continued until as many relevant references as possible were identified. Searches were also conducted in online catalogues of other Libraries, such as the State Library of Western Australia and the National Library of Australia. Other online databases were also searched. This process was subjective to some extent. In addition to articles focussing on Barrow Island, this bibliography includes historical accounts, documents that mention Barrow Island only in passing, and the 'grey' literature and papers in obscure journals.

Journal articles, book chapters, reports and unpublished materials have been included. WAPET/CVX, CALM and other government department reports make up the majority of titles. Only those documents which are relevant to the scope of this bibliography have been included. Published journals are disseminated worldwide using online information systems such as Dialog, Biosis and Current Contents. URLs for site-specific information have also been included.

Fifty Australian and Western Australian legislative Acts and Regulations and Codes of Practice that pertain to Barrow Island have been included as a supplementary, but not exhaustive, list.

Copyright permission was sought from publishers and authors for the reproduction of abstracts or significant sentences from introductions or summaries. The copyright in some titles has expired as it has been 50 years since the death of the author, and in others copyright is held by the Crown. The remainder of the summaries were considered not significant enough to request permission to reproduce.

For convenience the references are listed alphabetically by author or corporate body. If no author has been attributed, the papers can be found at the beginning of the sequence organized by date and then title. Each title has been allocated an item number which relates back to the listed numbers under the broad subject categories.

Every effort has been made to obtain a copy of each reference and lodge it in the CALM Wildlife Science Library (Woodvale), WAM Library (Welshpool) and CVX Library (Perth). However in some cases this has not been possible, but the majority of titles can be viewed by prior appointment at one of the libraries mentioned above.

The bibliography will be updated as new materials become available. Updates can be obtained from the CALM Wildlife Science Library on request. Notification of relevant materials for inclusion should also be sent to the CALM Library.

ACKNOWLEDGEMENTS

A number of scientific experts were contacted to discuss the format and terminology to be used in this bibliography and the authors acknowledge the support from: Dr Andrew Burbidge, Harry Butler, Norm Caporn, Ursula Davies, Dr Stefan Eberhard, Dr Bill Humphreys, Russell Lagdon, Loisette Marsh, Dr Bob Prince, Dr John Scott, Dr Jeff Short and Dr Tony Start.

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ABORIGINAL SITES:

BIRDS:

CLIMATE:

ENVIRONMENTAL IMPACT:

FLORA AND VEGETATION (MARINE):

FLORA AND VEGETATION (TERRESTRIAL):

GAS PRODUCTION:

GEOMORPHOLOGY:

GORGON DEVELOPMENT:

HISTORY (DISCOVERY):

HISTORY (OILFIELD):

INDIGENOUS ISSUES:

INTRODUCED FAUNA CONTROL:

INTRODUCED INVERTEBRATES:

INTRODUCED MICROORGANISMS:

INTRODUCED PLANT CONTROL:

INTRODUCED PLANTS:

THREATENED BIRDS:

8, 32, 43, 89, 93, 104, 106, 111, 118, 119, 135, 168, 195, 202, 225, 246, 284, 300, 313, 335, 412, 413, 421

THREATENED INVERTEBRATES:

135, 142, 153, 154, 160, 162, 168, 202, 218, 219, 284, 313

THREATENED MAMMALS:

1, 18, 19, 19, 20, 23, 38, 39, 40, 41, 42, 43, 45, 48, 49, 51, 56, 69, 72, 73, 74, 75, 80, 84, 87, 88, 91, 93, 94, 95, 97, 100, 101, 104, 106, 110, 111, 113, 118, 119, 120, 127, 135, 142, 153, 154, 156, 158, 160, 162, 165, 166, 168, 170, 172, 174, 176, 177, 197, 200, 202, 206, 209, 211, 212, 214, 217, 225, 241, 244, 246, 250, 254, 255, 260, 263, 264, 265, 275, 276, 277, 282, 283, 284, 285, 286, 287, 288, 294, 296, 297, 298, 299, 300, 305, 313, 315, 316, 323, 324, 325, 334, 336, 338, 339, 341, 348, 349, 351, 352, 353, 354, 355, 356, 357, 358, 373, 383, 384, 392, 399, 405, 407, 408, 410, 411, 418, 420, 421, 424

THREATENED PLANTS:

33, 37, 135, 156, 158, 202, 284, 386, 403, 409

THREATENED REPTILES:

20, 43, 80, 104, 106, 135, 168, 202, 284, 285, 300, 318

THREATENING PROCESSES (MARINE):

4, 19, 19, 32, 45, 47, 48, 62, 63, 64, 80, 86, 99, 102, 115, 116, 116, 135, 136, 137, 138, 139, 140, 141, 142, 143, 151, 152, 153, 154, 156, 157, 158, 158, 159, 160, 162, 165, 167, 168, 179, 201, 202, 208, 225, 226, 242, 243, 246, 253, 257, 262, 285, 300, 304, 307, 309, 313, 314, 318, 326, 331, 336, 362, 362, 375, 376, 388, 399, 403, 405, 407, 409, 410

THREATENING PROCESSES (SUBTERRANEAN):

58, 66, 67, 102, 142, 151, 153, 154, 156, 160, 161, 162, 168, 179, 192, 202, 218, 219, 220, 225, 232, 234, 237, 238, 239, 240, 242, 246, 308, 313, 343, 403

THREATENING PROCESSES (TERRESTRIAL):

4, 18, 20, 33, 34, 35, 36, 37, 40, 41, 43, 55, 73, 74, 75, 82, 86, 90, 91, 96, 97, 98, 100, 101, 102, 109, 115, 117, 132, 133, 134, 142, 150, 151, 156, 157, 159, 160, 161, 166, 168, 179, 192, 196, 198, 199, 202, 212, 220, 221, 225, 230, 241, 242, 250, 253, 254, 271, 272, 273, 282, 283, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 306, 307, 308, 309, 312, 316, 349, 350, 352, 353, 355, 356, 358, 372, 375, 386, 404, 406, 407, 410

VERTEBRATE FAUNA (MARINE):

4, 19, 22, 27, 44, 45, 46, 48, 64, 86, 99, 107, 110, 114, 117, 118, 119, 121, 123, 124, 126, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 151, 152, 153, 154, 156, 158, 160, 161, 162, 165, 167, 168, 181, 183, 186, 187, 201, 202, 224, 225, 226, 243, 246, 261, 262, 266, 274, 283, 284, 300, 304, 307, 309, 313, 314, 318, 319, 326, 327, 328, 329, 331, 334, 336, 344, 345, 346, 362, 373, 376, 387, 388, 397, 399, 400, 403, 405, 408, 409, 416

VERTEBRATE FAUNA (TERRESTRIAL):

1, 4, 5, 6, 8, 14, 18, 19, 22, 28, 29, 32, 38, 39, 40, 42, 43, 49, 50, 51, 55, 56, 57, 60, 68, 69, 70, 71, 72, 73, 74, 75, 76, 79, 80, 81, 82, 84, 85, 86, 87, 88, 90, 91, 93, 94, 95, 96, 97, 98, 99, 100, 101, 104, 106, 107, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 122, 125, 127, 128, 129, 130, 131, 133, 134, 142, 146, 151, 152, 153, 154, 156, 158, 160, 162, 165, 168, 169, 170, 172, 174, 176, 177, 180, 182, 184, 185, 186, 188, 189, 193, 195, 197, 198, 199, 200, 202, 206, 211, 212, 213, 214, 217, 221, 227, 235, 241, 244, 246, 247, 248, 249, 250, 254, 255, 260, 263, 264, 265, 275, 276, 277, 282, 283, 284, 285, 286, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 302, 305, 306, 307, 309, 310, 311, 312, 313, 323, 324, 325, 332, 333, 334, 335, 336, 338, 339, 340, 341, 342, 344, 345, 346, 347, 348, 349, 351, 352, 353, 354, 355, 356, 357, 358, 362, 372, 373, 377, 378, 383, 384, 386, 387, 388, 392, 399, 400, 401, 402, 403, 405, 407, 408, 409, 411, 412, 413, 415, 416, 417, 418, 420, 421, 422

WASTE MANAGEMENT:

82, 83, 98, 132, 151, 152, 153, 154, 156, 162, 165, 230, 253, 308, 407, 410

BiblioBarrowIsland

1. (1907) Western Australian fauna: necessity for preservation: a valuable asset: interview with Mr. Shortridge: useful information and suggestions. *West Australian* **Jun 18**, 7.
Summary: Interview in 1907 with Mr GC Shortridge, a zoologist attached to the British Museum, who has spent the last two years in Western Australia, collecting specimens and information on the fauna of Western Australia.
Copyright note: Copyright expired 2000

2. (1967) Cinderella Island. *Petroleum Gazette* **Jun**, 182–185.
Summary: The traditional rags to riches theme closely fits Barrow Island, the once unwanted, uninhabited, reef-girt land speck which has now become Australia's largest oilfield.
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*Barrow Island euros (*Macropus robustus isabellinus*) (Photograph courtesy of ChevronTexaco)*

3. (1967) WAPET begins shipping Barrow crude: oilfield confirms judgement of 20 years ago. *Australasian Oil and Gas Journal* **13(8)**, 24–39.
Summary: WAPET shipped its first cargo of Barrow Island crude oil to Kwinana on April 23 1967.
Copyright note: Unable to locate contact details for the copyright holder. Please notify us if you can provide them

4. (1970) When oil and fauna mix. *Eco* **Jul**, 1–3.
Summary: Undisturbed for the best part of the 12 000 years since it became separated from the Australian mainland, Barrow Island came into national prominence when it was declared a commercial oilfield. Strong measures have now been taken to protect its fauna and flora.
Copyright note: Unable to locate contact details for the copyright holder. Please notify us if you can provide them

5. (1974) Barrow: WAPET's island in the sun. *Industrial Review and Mining Year Book* **1974**, 89, 91, 93–94.
Summary: Brief overview of Barrow Island since WAPET began producing oil in 1966. The research grants available from WAPET or the Western Australian Wildlife Authority are discussed.
Copyright note: Permission not required for this summary

6. (1976) Where the earth moves at sundown. *Texaco Star* **63**, 18–19.
Summary: Notes on the wildlife of Barrow Island.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

7. (1977) Barrow Island: Western Australia's first commercial oilfield. *WAPET Journal* **1977**, 20–28.
Summary: The history of WAPET on Barrow Island.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

8. (1977) Bird man on Barrow. *WAPET Journal* **1977**, 32.
Summary: Eric Sedgwick was awarded the WAPET annual research grant in 1976 with a proposal for making bird population surveys on Barrow Island.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

9. (1977) Piecing together a picture of oil and gas prospects. *WAPET Journal* **1977**, 8–13.
Summary: The history of WAPET on Barrow Island.
Copyright note: Permission not required for this summary

10. (1977) The WAPET story: the pursuit of a dream made industrial history. *WAPET Journal* **1977**, 2–4.
Summary: The history of WAPET on Barrow Island.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

11. (1977) Wildlife and wildcats. *WAPET Journal* **1977**, 30–31.
Summary: An account of WAPET's environmental care and management which includes Barrow Island.

12. (1978) Ants under investigation. *WAPET Journal* **1978**, 28–29.
Summary: The insects of Barrow Island, especially the ants, were investigated under an annual research grant awarded by WAPET in association with the Western Australian Wildlife Authority.

13. (1979) Barrow Island fauna check list.
Summary: List of birds on Barrow Island. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 4: file no. 014581F3102.

14. (1981) Barrow Island. *Aviary Bird & Wildlife Magazine* 11, 15.
Summary: Notes on the wildlife of Barrow Island.

15. (1981) Barrow Island marine animals much the same, after 15 million years. *Your Museum* **Nov/Dec**, 2–3.
Summary: Dr McNamara and Mr Kendrick were awarded the Barrow Island Research Grant for 1981. They collected more than 50 species of fossil molluscs and about 10 species of sea urchins from the island. Some of the fossils found on the island are undescribed species.

16. (1988) Barrow Island fauna check list.
Summary: List of reptiles, amphibians, birds and mammals. Nomenclature has been verified by the WA Museum.

17. (1989) Barrow Island vegetation. West Australian Petroleum, Perth.
Summary: List of vegetation collected by RC Buckley in October 1980 and held at the Herbarium Australiense and by earlier collections by WH Butler, held in the Barrow Island Herbarium. A total of 213 species are supported by voucher specimens.

18. (1989) Barrow's burrowing bettong: looking for new digs. *WAPET Journal* **1989**, 18.
Summary: A report on the research on the burrowing bettong, *Bettongia lesueur* being carried out by CSIRO scientists Jeff Short and Bruce Turner. The main objective of this research is to determine whether the bettong can be successfully re-introduced to parts of its former range.

19. (1989) Playing tag with turtles. *WAPET Journal* **1989**, 18.
Summary: Discusses the long term turtle tagging program to determine the distribution, breeding patterns and migration of turtles. Threatening processes includes predation on hatchlings from perenties, bandicoots and seabirds.

20. (1991) Barrow under scrutiny. *Landscope* **6(2)**, 8.
Summary: Research scientists have been granted $240 000 by the Australian Research Council for a three-year study. The study will gather ecological data on a range of mammal, bird and reptile species and investigate how each species interacts with its semi-arid environment. West Australian Petroleum (WAPET) have committed resources worth $25 000 a year to the project.

21. (1998) Threatened invertebrates occurring on Barrow Island as listed in the Wildlife Conservation (Specially Protected Fauna) Notice 1998: gazetted 14 July 1998. Department of Conservation and Land Management, Como, WA.
Summary: List of threatened invertebrates and references to the available descriptions.

22. Abbott I, Burbidge AA (1995) The occurrence of mammal species on the islands of Australia: a summary of existing knowledge. *CALMScience* **1**, 259–324.
Summary: Presentation of databases summarizing the most recent available information on the occurrence of species of mammals on Australian islands. These databases include 512 islands, 171 species of mammal, and 1768 authenticated insular records. Relevant physical, climatic and anthropological data for each island and the source of each record (320 references) are also provided.

23. ABC Natural History Unit (2000) Barrow Island [VIDEORECORDING]. 1 video. ABCNHU, Melbourne.
Summary: Barrow Island is one of Australia's most important conservation reserves, and has 15 land mammals, seven marine mammals, 110 species of bird and 40 reptiles, many of which are rare.

24. Access Economics (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix K, national and Western Australian economic impacts of the Gorgon gas supply and LNG projects. ChevronTexaco Australia, Perth.
Summary: An assessment of the national and

Western Australian economic and budgetary impacts of development of the Gorgon gas fields, situated near Barrow Island off the Western Australian coast. ChevronTexaco is the major partner (with a 4/7th share) in a consortium that also comprises Shell (2/7ths) and ExxonMobil (1/7th). In undertaking this analysis, Access Economics have relied heavily on input data provided by the client. The results obtained are predicted on project information provided by ChevronTexaco. Most of the Gorgon field gas is converted into LNG at a plant on Barrow Island and then exported. The project also generates condensate for export, and natural gas piped onshore for the Western Australian domestic market.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

25. Acil Tasman (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix L, the social impact of the proposed Gorgon gas development. ChevronTexaco Australia, Perth.
Summary: Background to the economic, social, environmental and strategic assessment of the proposed Gorgon gas development on Barrow Island. The objective of this analysis is to assess the social impact on local communities, the Pilbara region, and Perth and the rest of Western Australia of the construction and operation of the proposed development. For the purposes of this study, the local communities are the towns of Karratha, Dampier, Onslow and Roebourne in the Shires of Ashburton and Roebourne. In addition to the background information set out in this document, the assessment of the social effects of the development draws heavily on records of interview with some 30 representatives of stakeholder groups from state and local government, business and indigenous organisations, a social welfare agency, and education institutions.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

26. Allens Consulting Group (2003) Proposed access to Barrow Island for gas development: advice on social, economic and strategic considerations: a report to the WA Department of Industry and Resources. DIR, Perth.
Summary: An assessment of the social, economic and strategic aspects of the ESE Review was undertaken for the Department of Industry and Resources.
Copyright note: Permission not required for this summary

27. Amaoka K, Arai M (1998) Redescription of a rare bothid, *Asterorhombus bleekeri* (Macleay), and description of a new species of *Asterorhombus* from northwestern Australia (Teleostei: Pleuronectiformes). *Ichthyological Research* **45**, 249–257.
Summary: Description of *Asterorhombus osculus* sp.nov. found at Barrow Island, Shark Bay and Rowley Shoal.
Copyright note: Permission not required for this summary

28. Ambrose SJ, Bradshaw SD, Withers PC, Murphy DP (1996) Water and energy balance of captive and free-ranging spinifexbirds (*Eremiornis carteri*) North (Aves: Sylviidae) on Barrow Island, Western Australia. *Australian Journal of Zoology* **44**, 107–117.
Summary: The study of field water turnover rates and field metabolic rates of the spinifexbird (*Eremiornis carteri*) from 4–21 May 1992 (wet season) and from 1–14 December 1992 (dry season) on Barrow Island. Standard metabolic rates, evaporative water loss and thermal conductances of captive spinifexbirds were also examined over a range of ambient temperatures during December.
Copyright note: Summary reproduced with permission from CSIRO Publishing – http://www.publish.csiro.au/journals/ajz

29. Ambrose SJ, Murphy DP (1994) Synchronous breeding of land birds on Barrow Island, Western Australia, after cyclonic summer rains. *Emu* **94**, 55–58.
Summary: Breeding notes on 10 of the 15 species of land birds observed during a visit to Barrow Island from 4–21 May 1992 after the desert island had experienced cyclonic summer rains.
Copyright note: Summary reproduced with permission from Birds Australia – http://www.birdsaustralia.com.au/

30. Annandale D, Lantzke R (2003) An evaluation of site selection work contained in ChevronTexaco's environmental social, and economic review of the Gorgon gas development on Barrow Island. Murdoch University, Murdoch, WA.
Summary: This review focuses on two documents; the Environmental, social, and economic review of the Gorgon gas development on Barrow Island (the ESE Review), and Technical appendix C: Identification of suitable locations for a land-based gas processing facility linked to the Gorgon gas field.
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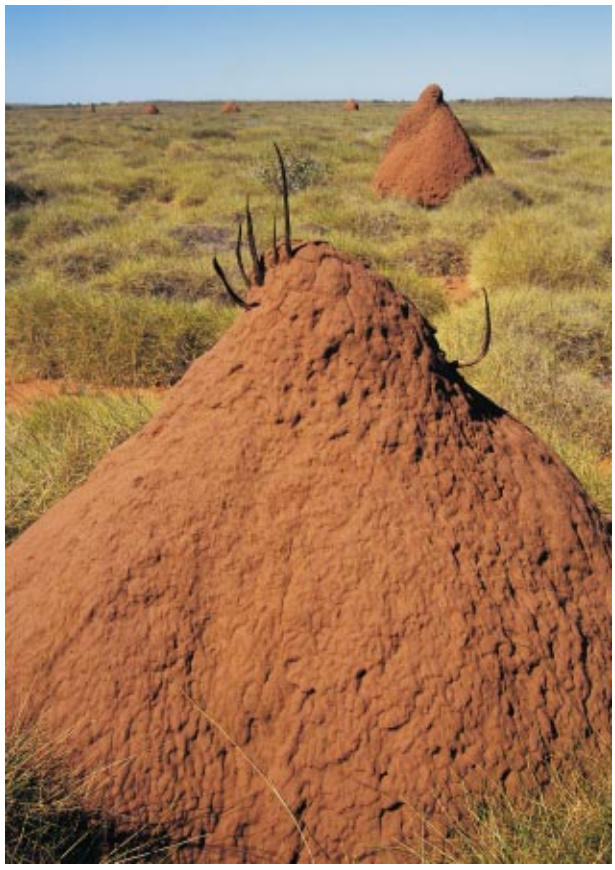
31. Aplin KP (1988) Three new blindsnakes (Squamata: Typhlopidae) from northwestern Australia. *Records of the Western Australian Museum* **19**, 1–12.
Summary: Three new species of *Ramphotyphlops* are described from localities in northwestern Western Australia. Two are represented by a single specimen only, the third by four specimens. Each of the new species differs markedly from all previously described members of the genus. The discovery of these new species highlights the very incomplete state of knowledge of the fossorial herpetofauna of northwestern Australia, in particular the Typhlopidae.
Copyright note: Summary reproduced with permission from the Western Australian Museum – http://www.museum.wa.gov.au/

32. Astron Environmental Pty Ltd (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix E, survey of avifauna on the east and north coasts of Barrow Island, September 2002. ChevronTexaco Australia, Perth.
Summary: Barrow Island has a diverse avifauna comprising at least 110 species, including 11 resident land birds, 22 species of migratory waders, six resident shorebirds, eight resident seabirds, 17 visiting seabirds and 43 irregular visitors. The aims of this survey were to assess the distribution and abundance of seabirds and shorebirds within the proposed Gorgon gas development area, and to identify nesting sites of any seabirds or shorebirds in these areas. It also aimed to assess the potential impacts of the Gorgon gas development on birds in the area.

33. Astron Environmental Pty Ltd (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix F, preliminary vegetation and flora survey of proposed Gorgon gas development, Barrow Island. ChevronTexaco Australia, Perth.
Summary: Numerous studies of the vegetation of Barrow Island have been made. All studies concur that the vegetation is dominated by *Triodia* hummock grassland with scattered shrubs. Eight major vegetation units are recognised for Barrow Island. As a result of flora surveys by Buckley (1983), Trudgen (1989) and EM Mattiske and Associates (1993, 1997), a total of 350 vascular plants representing 64 families have been recorded on Barrow Island. A vegetation survey of the proposed Gorgon gas development was conducted by Astron Environmental in August 2002. Assessment of the vegetation was made in relation to the previous mapping of vegetation on Barrow Island by Mattiske (1993).

34. Astron Environmental Pty Ltd (2002) WA oil asset: Barrow and Thevenard Islands: weed management plan 2001. ChevronTexaco Australia, Perth.
Summary: Chevron recognises its responsibility to conserve the biodiversity of flora and fauna species on these islands. To this end, it ensures that all operations undertaken within its lease areas have no unacceptable direct or indirect impact on the diversity, density and distribution of native species. The introduction of weeds to Barrow and Thevenard Islands, through the continual transfer of workforce and equipment, has long been recognised as a potential risk to the existing ecosystems. The prevention of environmental weed species introduction and invasion is therefore paramount to protecting the conservation values within the Barrow and Thevenard Island Nature Reserves.



Termite mounds and spinifex (Photograph courtesy of ChevronTexaco)

35. Astron Environmental Pty Ltd (2002) Weed management plan: annual review 2002: prepared for ChevronTexaco Australia Pty Ltd. ChevronTexaco Australia, Perth.
Summary: In 2002, ChevronTexaco Australia implemented an integrated weed management plan as part of its commitment to weed management. The aim of this document was to formalise and direct the existing program of weed control on Barrow and Thevenard islands by offering a detailed and improved framework for integrated weed management. Three specific objectives for overall weed management on ChevronTexaco's onshore permits were identified. These were to eradicate environmental weeds from Barrow and Thevenard islands, where practicable; prevent the introduction of weeds to ChevronTexaco's island lease areas during Company logistical operations and prevent and minimise the spread of recalcitrant weeds on Barrow and Thevenard islands.

36. Astron Environmental Pty Ltd (2004) WA oil asset: Barrow and Thevenard Islands: weed management plan: prepared for Chevron Texaco Australia Pty Ltd. ChevronTexaco Australia, Perth.
Summary: The introduction of weeds on Barrow and Thevenard Islands, through the continual transfer of workforce and equipment, has long been recognised as a potential risk to the existing ecosystems. Environmental weeds are defined as 'plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade' (CALM, 1999). The prevention of environmental weed species introduction and invasion is therefore paramount to protecting the conservation values within the Barrow and Thevenard Island nature reserves. This document offers a revised edition of the 2002 Weed Management Plan, the purpose of which is to further develop and improve the existing integrated system of weed management on Barrow and Thevenard islands.
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37. Atkins K (2004) Declared rare and priority flora list for Western Australia. Department of Conservation and Land Management, Kensington, WA.
Summary: Contains conservation code, CALM region, distribution and flowering period details for declared rare and priority flora.
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38. Australian Academy of Science Committee on National Parks Western Australian Sub-Committee (1965) Barrow Island Reserve. In *National Parks and Nature Reserves in Western Australia* pp. 193–196. AAS, Perth.
Summary: Provides a description of the Reserve, its location, reservation state, area, literature and the opinion of the Sub-Committee as to its vesting.
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39. Baglin D, Mullins B (1972) Islands of the west. In *Islands of Australia* pp. 52–63. Ure Smith, Sydney.
Summary: Photographs and brief description of Barrow Island.
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40. Bakker HR, Bradshaw SD (1983) Renal function in the spectacled hare-wallaby, *Lagorchestes conspicillatus*: effects of dehydration and protein deficiency. *Australian Journal of Zoology* **31**, 101–108.
Summary: Renal function was studied in a marsupial, the spectacled hare-wallaby *Lagorchestes conspicillatus*, and the effects of acute dehydration and exposure to a low-protein diet assessed.
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41. Bakker HR, Bradshaw SD (1989) Rate of water turnover and electrolyte balance of an arid-zone marsupial, the spectacled hare-wallaby (*Lagorchestes conspicillatus*) on Barrow Island. *Comparative Biochemistry and Physiology. Part A* **92**, 521–529.
Summary: The work reported in this paper describes aspects of the water and electrolyte metabolism of free-ranging spectacled hare wallabies (*Lagorchestes conspicillatus*) on Barrow Island in Western Australia. Previous surveys have indicated that the density of hare wallabies is greater in disturbed areas of Barrow Island. Dietary analysis suggests that this unequal distribution results from a greater availability of preferred plant species growing in these disturbed areas.
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42. Bakker HR, Main AR (1981) Water and electrolyte metabolism of the spectacled hare wallaby (*Lagorchestes conspicillatus*) on Barrow Island. University of Western Australia, Crawley, WA.
Summary: Two populations were studied, one population on the southern part of the island in a producing oil field, the second population in the northern part.
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43. Bamford Consulting Ecologists (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix G, the terrestrial vertebrate fauna of Barrow Island in relation to the Gorgon gas development, August 2002. ChevronTexaco Australia, Perth.
Summary: The terrestrial vertebrate fauna of Barrow Island has been well-documented over a number of decades due to the conservation value of the island and the support of ChevronTexaco and its predecessors, and is of particular significance because of species that have declined or become extinct on the mainland and because of endemic races. The fauna likely to occur within the area of the proposed Gorgon gas development can therefore be predicted with a high degree of confidence. As a result, the fauna assessment was based upon a review of available information and a thorough site inspection to put this information into the context of the site. The key impacts and issues associated with the Gorgon gas development are summarised in this document.

44. Bancroft KP (1999) Planning and pre-declaration processes for a marine protected area in the Montebello/Barrow Islands region. Department of Conservation and Land Management, Marine Conservation Branch, Progress Report **MRI/PI/MBI 22/1999**

Summary: The Marine Conservation Branch of the Department of Conservation and Land Management is conducting this project as part of the Marine Reserve Implementation Programme. The aims of the project are to initiate planning and pre-declaration processes for the proposed Montebello/Barrow Islands marine conservation reserve; to compile the ecological and socioeconomic information; to provide advice to the WA Government, through the stakeholder/community advisory process, on the suitable reserve category, boundaries and management zoning options, and; to develop and implement a community consultation process.

45. Bancroft KP (1999) Resource assessment field survey of the Montebello/Barrow Islands and the Dampier Archipelago/Cape Preston regions, 14–25 June 1999. Department of Conservation and Land Management, Marine Conservation Branch, Field Program Report **MRI/PI/MBI & DA 20/1999**

Summary: This report presents details of a resource assessment field survey to be undertaken aboard the research vessel RV *Bidthangara*, along the northwest coast of Western Australia during 14–25 June 1999. The survey, which will improve knowledge base on the natural, cultural, social and economic resources of the West Pilbara region, which will be carried out in the proposed Montebello/Barrow Islands and the Dampier Archipelago/Cape Preston marine reserves. The objectives of this resource assessment were to undertake ground truthing to develop a habitat map for currently unmapped areas in the proposed reserve regions; to assess the accuracy of existing benthic habitat maps; obtain still photographs and video footage for public participation and management planning processes; to investigate the status of the reefs through an investigation of the extent of known crown-of-thorns sea-star infestations SW reef off Montebello Islands, Nelson Rocks and Kendrew Island); an investigation of the extent of cyclone damage to the fringing coral reefs (both regions); an investigation of the extent of recovery of known coral spawn death events (Dugong Reef); to raise the community awareness of planning process; to familiarize CALM's planning staff with the major marine habitats and human activities in the region; to identify areas of high multiple use (outer reefs, trawl grounds and potential aquaculture); to opportunistically consult with mariculture managers (whose leases are likely to be examined during the planning process), charter operators and the recreating public; to document incidental sightings of marine fauna and to record the number of users observed at selected sites through out the region.

46. Bancroft KP, Davidson JA, Looker O (2000) Marine wildlife distribution in the proposed Montebello/Barrow islands and Dampier Archipelago/Cape Preston marine conservation reserves. Department of Conservation and Land Management, Marine Conservation Branch, Report **MRI/PI/MBI&DAR 44/2000**

Summary: The Marine Conservation Branch of the Department of Conservation and Land Management has undertaken the mapping of the distribution of marine wildlife for the study areas of the proposed Montebello/Barrow islands and the Dampier Archipelago/Cape Preston marine conservation reserves. The information has been compiled and incorporated into a map, which has been prepared as a contribution to the planning processes underway for these two proposed marine conservation reserves. Areas of high conservation value, in relation to marine wildlife, have been

Corals in the proposed Montebello/Barrow Islands Marine Conservation Reserve (Photograph courtesy of ChevronTexaco)

delineated. Data for this exercise has been sourced from existing documentation, and from direct communication from people (internal and external to CALM) with expert knowledge in the distribution of marine wildlife in these two areas.

47. Bancroft KP, Sheridan MW (2000) The major marine habitats of the proposed Montebello/Barrow Islands Marine Conservation Reserve. Department of Conservation and Land Management, Marine Conservation Branch, Report **MRI/PI/MBI 48/2000**
Summary: In December 1997, the Western Australian Government, following advice provided by the Western Australian Marine Parks and Reserves Authority, announced the Montebello/Barrow islands region, as one of its priority areas for establishment as a marine conservation reserve. Subsequently, CALM through the Marine Conservation Branch (MCB), has initiated the planning process for implementing a marine conservation reserve in the region. The purpose of this report is to detail the major marine benthic habitats of the Montebello/Barrow Islands region in the form of a broadscale habitat map; document the methods used to produce the broadscale habitat map; provide a comprehensive description of habitat types presented; document the metadata for the GIS information layers developed, and document the storage location of the GIS information layers.

48. Bancroft KP, Sheridan MW, Davidson JA (2000) Developing broadscale habitat maps for the Montebello/Barrow islands and the Dampier Archipelago/Cape Preston regions. Department of Conservation and Land Management, Marine Conservation Branch, Data Report **MRI/PI/MBI & DAR-34/2000**
Summary: This report presents the results of a preliminary resource assessment field survey and a follow-up survey undertaken aboard the research vessel RV *Bidthangara*, along the northwest coast of Western Australia during 14–25 June 1999 and from 22–25 May 2000. The surveys were carried out in the proposed Montebello/Barrow Islands and the Dampier Archipelago/Cape Preston marine conservation reserves, under the coordination of CALM Marine Conservation Branch (MCB). The data collected has improved the knowledge base on the natural, cultural, social and economic resources of the West Pilbara region, which is vital for the implementation of the proposed marine reserves. The objectives of the preliminary survey were to undertake ground truthing to develop a habitat map for currently unmapped areas in the proposed reserve regions; to assess the accuracy of existing benthic habitat maps; obtain photographs and video footage for public participation and management planning processes; to investigate the status of the reefs through an investigation of the extent of known crown-of-thorns sea-star infestations, the extent of recovery of known coral spawn death events, and an investigation of the extent of cyclone damage to the fringing coral reefs; to raise the community awareness of planning process; to familiarize CALM's planning staff with the major marine habitats and human activities in the region; to identify areas of high multiple use (outer reefs, trawl grounds and potential aquaculture); to opportunistically consult with mariculture managers (whose leases are likely to be examined during the planning process), charter operators and the recreating public; to document incidental sightings of marine fauna and to record the number of users observed at selected sites through out the region. The data acquired during these surveys is important in determining and refining the major habitat types of the proposed marine reserves and the respective conservation values of these marine areas.

49. Bannister JL (1967) A list of the species of mammals collected by WH Butler for the Archbold collections of the American Museum of Natural History and for the Western Australian Museum 1963–66. *Western Australian Museum, Annual Report* **1967**, 61–76.
Summary: This list includes all species identified so far, apart from sub-fossil material. A number of specimens still to be identified will form the basis of a supplementary list to be issued at a later date.

50. Barron H (.1916) The Game Act, 1912–13: Proclamation.
Summary: Proclamation by His Excellency Major General Sir Harry Barron, Knight Commander of the Most Distinguished Order of St. Michael and St. George, Commander of the Royal Victorian Order, Governor in and over the State of Western Australia and its Dependencies in the Commonwealth of Australia declaring Barrow Island to be a Reserve for Native Game. The official notice can be found in the Government Gazette, 23 Jun 1916, p. 1153. Copied off: Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 1: file no. 014578F3102.

51. Baynes A, Jones B (1993) The mammals of Cape Range peninsula, north-western Australia. *Records of the Western Australian Museum. Supplement* **45**, 207–225.
Summary: Since the mammal material from the cave deposits of Cape Range was last studied two decades ago, the results of two collections of modern mammals, archaeological excavations in rock shelters in the western terraces and mammal remains collected as a by-product of surveys of the Cape Range cave invertebrates, have become

available. The taxonomy of several mammal species has also been revised during that time, providing solutions to a number of outstanding problems of identification. The mammal fauna of Barrow Island is a subset of the Cape Range peninsula fauna. Once thought to be fully representative of the adjacent mainland, the Barrow Island fauna is shown to be restricted, lacking the vast majority of regional small mammals. At least half of the original Cape Range peninsula mammal fauna appears to have become extinct since European colonization of Australia.

52. Beard JS (1975) *Vegetation Survey of Western Australia: Pilbara, 1:1 000 000 Vegetation Series, Explanatory Notes to Sheet 5: the Vegetation of the Pilbara Area*. University of Western Australia Press, Nedlands, WA.
Summary: Includes climate, geology, topography, soils, human influence, fire and vegetation.

53. Beard JS (1980) A new phytogeographic map of Western Australia. *Western Australian Herbarium Research Notes* **3**, 37–58.
Summary: F von Mueller (1867) first drew attention to the special character of southwestern Australia as a phytogeographic region. Diels (1906) delimited a South-West Botanical Province. Clarke (1926) divided the state into natural regions on an ecological basis. Gardner (1942) added a Northern Botanical Province and (1956) extended Diels' Botanical districts to the whole state. There is a considerable degree of agreement between Clarke's and Gardner's treatments but both were restricted to small scale sketch maps for the expression of their ideas as mapping techniques had not yet become sufficiently developed. Detailed vegetation mapping (Beard 1969 et seq.) has shown that ecological regions can be recognised and given precise boundaries on a larger scale, published at 1:1 000 000 and reduced to 1:2 500 000 in the general map which accompanies this paper. Details of the climate, geology, soils, vegetation of each botanical district are given.

54. Belles X (1998) A new subgenus and two new species of *Sphaericus* (Coleoptera: Ptinidae) from Western Australia. *European Journal of Entomology* **95**, 263–268.
Summary: A new subgenus *Leasphaericus* (of *Sphaericus*) with two new species, *S. (L.) flavipennis* and *S. (L.) diversvillosus*, are described from North West Cape and Barrow Island, in Western Australia. With the exception of one anthropophilous and paracosmopolitan species, the genus *Sphaericus* has been recorded only from the southern Palaearctic area. The discovery of Australian autochthonous *Sphaericus* suggests that this genus may be more diversified in other areas, namely Africa.

55. Beveridge I (1976) *Progamotaenia lagorchestis* (Lewis). *Australian Journal of Zoology. Supplementary Series* **44**, 55–58.
Summary: The record of this cestode is from the stomach and intestine of *Lagorchestes conspicillatus* Gould, 1842, Hermite I., Monte Bello Is, Western Australia, 1914(?) PD Montague; location unknown, presumed lost.

56. Beveridge I, Thompson RCA (1979) The anoplocephalid cestode parasites of the spectacled hare-wallaby, *Lagorchestes conspicillatus* Gould, 1842 (Marsupialia: Macropodidae). *Journal of Helminthology* **53**, 153–160.
Summary: Progamotaenia gynandrolinearis sp.nov. is described from the small intestine of *Lagorchestes conspicillatus* Gould, 1842 from Barrow I., Western Australia. The helminth fauna of the spectacled hare-wallaby, *Lagorchestes conspicillatus* Gould, 1842 is very poorly known, only a few species of anoplocephalid cestode having so far been reported. The hare-wallaby occurs in widely scattered areas in the northern part of the Australian continent, but is abundant only on islands off the Western Australian coast. The present paper reports cestode collections made from Western Australia, as well as from northern Queensland. The material described includes a new species and also shows that in the past, two distinct species have been confused under the name *Progamotaenia lagorchestis*.

57. Billiards SS, King JM, Agar NS (1999) Comparative erythrocyte metabolism in three species of marsupials from Western Australia. *Comparative Haematology International* **9**, 86–91.
Summary: The erythrocyte metabolism of the burrowing bettong, the Barrow Island euro and the mainland euro are compared.

58. Biota Environmental Services (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix I, Barrow Island Gorgon development subterranean fauna survey, August 2002. ChevronTexaco Australia, Perth.
Summary: The Environmental, Social and Economic Review (ESE review) will address the Gorgon gas development's ability to mitigate potential on-site impacts and generate social and economic benefits for the region, state and the nation. The ESE Review will also aim to demonstrate that the development could meet a range of broad strategic criteria and achieve net

conservation benefits. This report on subterranean ecosystems represents a supporting technical document, providing input to the ESE Review on this ecological factor.
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59. Black PG, Buchan SJ, Cohen RL (1999) Tropical cyclone eyewall mesovortex: a physical mechanism explaining extreme peak gust occurrence in TC Olivia, 4 April 1996 on Barrow Island, Australia. In *Proceedings of the Annual Offshore Technology Conference, Houston, Texas, 3–6 May 1999* 333–337. OTC, Richardson, Tex.
Summary: During the passage of Tropical Cyclone Olivia on April 10, 1996, a possible world record peak 3-sec wind gust measuring 220 kt was recorded on Barrow Island. Radar images from the Bureau of Meteorology radar at Learmonth showed that this event took place at the maximum reflectivity gradient at the inner edge of the eyewall as it passed over the island observing station. Observations revealed that the event occurred just after the minimum pressure of 930 mb.
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60. Blacket MJ, Adams M, Krajewski C, Westerman M (2000) Genetic variation within the dasyurid marsupial genus *Planigale*. *Australian Journal of Zoology* **48**, 443–459.
Summary: Genetic variation within the genus *Planigale* was examined through analyses of 12S rRNA gene sequences and allozymes. The level of genetic divergence between the five currently recognised *Planigale* species was compared and the magnitude of divergence among populations assessed. This examination of molecular variation within the genus revealed that *Planigale* contains far more taxonomic diversity than is currently recognised. Specifically, the Pilbara region of Western Australia probably contains two currently unrecognised *Planigale* species and there is substantial genetic heterogeneity within the widespread species *P. maculata*.
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61. Bowdler S (1995) Offshore islands and maritime explorations in Australian prehistory. *Antiquity* **69**, 945–958.
Summary: The settlement of mainland Australia at an early (and uncertainly known) date required a water-crossing. What about the settlements of the islands, neither numerous nor large compared with the island continent itself, that are offshore from Australia? The evidence reviewed shows a late settlement for nearly all of them, and a perplexing lack of pattern.
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62. Bowman Bishaw Gorham (1996) Barrow Island intertidal survey, 1995. West Australian Petroleum, Perth.
Summary: A phased program of intertidal surveys of Barrow Island was commissioned by WAPET in 1995. The objective of the 1995 survey was to gain an overview of the intertidal biota and major habitats and community types present. This report presents the results of the 1995 survey of rocky shore and coral reef habitats on the west coast of the island. Includes echinoderms, corals and other cnidarians, shelled molluscs and marine plants.
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63. Bowman Bishaw Gorham (1997) Survey of the intertidal shores of the eastern side of Barrow Island: prepared for West Australian Petroleum Pty Ltd. WAPET, Perth.
Summary: This report is based on surveys conducted during spring tides in November 1996 and February 1997. A summary of the 1997 survey with site habitat descriptions was given in a separate report to WAPET. However the detailed species data are included in this account. The object of the report is to provide an overview of the intertidal biota, major habitats and community types.
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64. Bowman Bishaw Gorham (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix D, marine and intertidal environmental survey for the Gorgon gas development on Barrow Island. ChevronTexaco Australia, Perth.
Summary: Bowman Bishaw Gorham surveyed marine benthic and intertidal habitats and assemblages in the area of the proposed development to assist in preliminary assessment of the environmental implications of the proposal. The report describes the results of the surveys and previous surveys in the area in relation to potential impacts associated with the proposed development.
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65. Bradbury JH (2002) Melitid amphipods from Barrow Island, Western Australia. Part II, recent discoveries. *Records of the Western Australian Museum* **21**, 83–104.
Summary: Investigation of new sites of underground waters on Barrow Island, Western Australia, yielded amphipods of the families Melitidae and Bogidiellidae at seven location not previously sampled. Described species of the genus *Nedsia*, family Melitidae, were found at several of these locations; three new species of the genus are described from two sites. Keys to the known

species of *Nedsia* are extended to include the three new ones.

66. Bradbury JH, Williams WD (1996) Freshwater amphipods from Barrow Island, Western Australia. *Records of the Australian Museum* **48**, 33–74.
Summary: Amphipods collected from bore-holes and caves on Barrow Island, Western Australia are reported. Seven new species of the family Melitidae, genus *Nedsia* Barnard & Williams, 1995, and one of the family Bogidiellidae, genus *Bogidomma* n.gen., are described. A key to the species of *Nedsia* is provided.

67. Bradbury JH, Williams WD (1996) Two new species of anchialine amphipod (Crustacea: Hadziidae: *Liagoceradocus*) from Western Australia. *Records of the Western Australian Museum* **17**, 395–409.
Summary: It is becoming clear that the systematic boundary between amphipods inhabiting epicontinental waters and coastal marine waters in Australia is indistinct. There are many species which, though found in Australian freshwaters, belong to genera or families of typically marine habit, or which display features linking them with marine ancestors. It has been considered best to treat them separately and not to regard them as an integral part of the Australian inland aquatic amphipod fauna. This paper describes two new species of *Liagoceradocus*, *L. subthalassicus* and *L. branchialis*, from anchialine habitats (hypogean waters of marine origin) on Barrow Island and North West Cape.

68. Bradshaw SD (1990) The molecular basis of adaptations maintaining species diversity in an arid zone ecosystem: proposal for an integrated research programme, 1990–1994: supporting statement. University of Western Australia, Crawley, WA.
Summary: To analyse the ecological partitioning of limited material and energy resources between vertebrate species in a discrete ecosystem in the arid zone. Some of the research will be carried out on Barrow Island which is a unique site for such a study.

69. Bradshaw D (1990) Report on April 1990, trip 0, to Barrow Island: April 2–12, 1990. University of Western Australia, Crawley, WA.
Summary: The purpose of this trip was to establish a small mammal and reptile trapping grid and to assess the efficacy of available macropod traps.

70. Bradshaw D (1990) Report on trip 1 to Barrow Island, October 31–November 22, 1990. University of Western Australia, Crawley, WA.
Summary: An eight member team trapped animals in John Wayne country on Barrow Island. Small radio-transmitters were used extensively to track bandicoots and the small eutherian mammals and these provided the first evidence of large-scale movements by, especially, the bandicoots. Once it was realised that bandicoots and rock rats trapped on the grid move distances of up to one kilometre, a second trapping grid was established to the east of West Coast Highway in an attempt to gain information on the condition of small mammals in this primarily spinifex dominated habitat.

71. Bradshaw D (1991) Barrow Island, trip 2, April 1991: summary of grid mammal trapping. University of Western Australia, Crawley, WA.
Summary: Brief discussion on the mammals trapped at John Wayne Country and West Coast Highway, Barrow Island.

72. Bradshaw D (1992) L'ecophysiologique d'une ile desertique en Australie. *Bulletin de la Societe d'Ecophysiologie. Supplement* **17**, 83–92.
Summary: The islands off the coast of Western Australia, discovered for the most part by French explorers in the late 18th and early 19th century, have functioned as refugia for species of wildlife now extinct or seriously threatened on the mainland. Massive habitat changes have accompanied European colonisation of Australia, with the clearing of vast tracts of land for agricultural and pastoral purposes. Along with the alienation of land, the introduction of exotic predators and diseases has had a disastrous effect on native wildlife and 200 vertebrate species have become extinct in Australia in as many years. Barrow Island, 80 km off the arid Pilbara coast of Western Australia, still harbours a rich fauna including eight species of marsupials, four of which are now either extinct or extremely rare on the continent. An ecophysiological investigation of key elements of the vertebrate fauna was initiated in 1990 and both radio-active and stable isotopes are being used to measure turnover rates and circulating levels of key hormones are also being monitored in order to assess the extent to which animals are able to maintain physiological homeostasis during periods of extended drought. The study is providing unique information on the relevant energetic and environmental costs of survival for a wide range of vertebrate species living in a desert environment that appears deficient in all the essential nutrients necessary to sustain life.

73. Bradshaw D (1999) Ecophysiological studies on desert mammals: insights from stress physiology. *Australian Mammalogy* **21**, 55–65.
Summary: Ecophysiology is the study of the physiological responses of animals living in their natural environment and can provide information substantially different from that obtained in laboratory situations where animals are constrained by artificial surroundings. Recent work with arid-living mammals in WA has focused on the measurement of seasonal responses of free-ranging individuals to drought and has involved measurements of rates of turnover of water, together with changes in the kidney function and circulating levels of antidiuretic hormone (ADH), the pituitary hormone essential for the conservation of water. Central to these studies has been an attempt to identify periods when animals in the field may be exposed to physiological stress due to lack of adequate supplies of water and to document their responses to this. Stress is here defined as the physiological resultant of demands that exceed an organisms regulatory capacities and is detected through the combination of a significant perturbation of the milieu intérieur of the animal, despite the maximum deployment of normal homeostatic responses. This approach also raises the possibility of determining the vulnerability to extinction of threatened and endangered species by comparing their actual rates of water turnover in the dry part of the year with allometric predictions. One predicts that species which display a profligate pattern of water usage would be much more susceptible to any environment changes that might reduce the availability of water.
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74. Bradshaw D (2003) Case studies of stress: Barrow Island macropods. In *Vertebrate Ecophysiology: an introduction to its principles and applications* (D Bradshaw), pp. 82–84. Cambridge University Press, Cambridge.
Summary: As part of a four-year ecophysiological study of all the major vertebrate species on Barrow Island, the potential stress of long periods of drought was investigated.
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75. Bradshaw SD, Morris KD, Bradshaw FJ (2001) Water and electrolyte homeostasis and kidney function of desert-dwelling marsupial wallabies in Western Australia. *Journal of Comparative Physiology. B* **171**, 23–32.
Summary: Prolonged drought, necessitating conservation of water, is one of the major environmental challenges faced by many Australian marsupials. Radioactive isotopes of water and sodium were used to assess the ability of two species of marsupial wallabies to maintain water and electrolyte balance during periods of extreme water deprivation in the arid Pilbara region of Western Australia. The spectacled hare-wallaby, *Lagorchestes conspicillatus*, has the lowest mass-specific rate of water turnover reported for any mammal and was two or three orders of magnitude lower than that of the Rothschild's rock-wallaby, *Petrogale rothschildi*. Studies on renal function show that the hare-wallaby conserves water by producing a highly concentrated urine under the influence of lysine vasopressin, the anti-diuretic hormone in macropodid marsupials.
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76. Bradshaw SD, Morris KD, Dickman CR, Withers PC, Murphy D (1991) Field metabolism and turnover in the golden bandicoot (*Isoodon auratus*) and other small mammals from Barrow Island, Western Australia. *Australian Journal of Zoology* **42**, 29–41.
Summary: Discusses the turnover rates of water and sodium for the golden bandicoot (*Isoodon auratus*) and two rodent species, the Barrow Island mouse (*Pseudomys nanus*) and the rock rat (*Zyzomys argurus*) during a dry period and after rain. The data document the impressive ability of these mammals to avail themselves of extremely limited resources and maintain physiological homoiostasis under conditions of extreme aridity.
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77. Bruce NL, Humphreys WF (1993) *Haptolana pholeta*, sp.nov., the first subterranean flabelliferan isopod crustacean (Cirolanidae) from Australia. *Invertebrate Taxonomy* **7**, 875–884.
Summary: The genus *Haptolana* Bowman, 1966 is rediagnosed, and is characterised by the unique synapomorphy of perepods 2–7 having an expanded propodus, the palm of which contains a v-shaped series of spines and a haptorial dactylus which folds in between these spines. *Haptolana pholeta*, from anchialine waters on Barrow island, Western Australia, is described, and is distinguished from the two other species of *Haptolana* in possessing a frontal lamina that is anteriorly rounded, that separates the antennule bases and is visible in dorsal view.
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78. Buckley R (1980) Barrow Island: vegetation of Bandicoot Bay, South End, Middle Island, Boodie Island & Pascoe Island. Australian National University, Canberra.
Summary: Field work carried out from 5th–24th September 1980 as part of a broader study of Barrow Island vegetation. Voucher specimens are held by the author, WH Butler and the Herbarium Australiense.
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79. Buckley RC (1983) The flora and vegetation of Barrow Island, Western Australia. *Journal of the Royal Society of Western Australia* **66**, 91–105.

Summary: Barrow Island is a limestone island 233 km² in area off the northwest coast of Western Australia. Its flora comprises both coastal and arid elements. Undisturbed vegetation may be classified into the following main types, listed in decreasing order of areal extent: *Triodia wiseana* hummock grassland on limestone uplands; *Triodia angusta* hummock grassland on watercourses and lowland loams; *Triodia pungens* hummock grassland on red sand; coastal complex, primarily *Spinifex longifolius* assemblage on white calcareous foredunes; short forb community on floodout flats; salt flat; and mangroves. These are mapped and described, a total of 29 subtypes being recognised. Vegetation patterns in undisturbed areas are controlled primarily by substrate, but fire, grazing and exposure to salt-laden winds are also involved.

80. Burbidge AA (1971) The fauna and flora of the Monte Bello Islands. *Department of Fisheries and Fauna, Western Australia, Report* **9**, 1–19.
Summary: Two visits were made to the Montebello Islands in 1970 and 1971. The second visit was made in conjunction with a visit to Barrow Island.

81. Burbidge AA (1971–1991) Field note book, Barrow Island and adjacent islands. 5 books. Department of Fisheries and Fauna, Perth.
Summary: Notes from trips in 1971, 1972, 1975, 1977, 1979, 1981, 1983, 1985, 1987, 1989 & 1991. Includes original spotlighting traverses, notes from offshore islands including Montebello, bird lists, radiotracking data (hare-wallabies and boodies for 1971) and general notes of interest.

82. Burbidge AA (1977) Barrow Island: inspection, January 1977.
Summary: Report on a survey of fauna and flora management being carried out by WAPET on Barrow Island. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 3: file no. 014580F3102.

83. Burbidge AA (1981) Barrow Island: report on the annual inspection, 9–13 February, 1981.
Summary: The main inspection areas on the tour were the disposal of rubbish and road side litter. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 3: file no. 014580F3102.

84. Burbidge AA (1983) Burrowing bettong, *Bettongia lesueur*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 187–188. Angus & Robertson, Sydney.
Summary: Brief description and location of the burrowing bettong, *Bettongia lesueur*.

85. Burbidge AA (1983) Rats on Boomerang Island [personal communication].
Summary: File note on the capture of a *Rattus rattus* on Boomerang Island. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 4: file no. 014581F3102.

86. Burbidge AA (1989) The value of Western Australian islands as biological reservoirs and the development of management priorities. *Department of Conservation and Land Management, Western Australia, Occasional Paper* **2/89**, 17–24.
Summary: Many of Western Australia's 3400 islands have high nature conservation values. Of particular importance are those which harbour relictual populations of mammals, some of which are now restricted to islands and others of which are endangered on the mainland. In addition, islands contain endemic taxa and distinct populations; they provide breeding places for 29 species of seabird, 20 of which breed only on islands, and for seals and turtles. An examination of the values of islands has led to the development of three categories of management priorities. The highest category includes three islands – Barrow, Bernier and Dorre – which protect mammalian species now extinct on the mainland.

87. Burbidge AA (1991) Barrow Island spotlighting traverses. Department of Conservation and Land Management, Woodvale, WA.
Summary: Results of spotlighting traverses in 1972, 1975, 1977, 1979, 1981, 1983, 1985, 1987, 1989, 1991 both inside and outside the oilfield.

88. Burbidge AA (1995) Burrowing bettong, *Bettongia lesueur* (Quoy and Gaimard, 1824). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 289–291. Reed, Sydney.
Summary: Brief description and location of the burrowing bettong, *Bettongia lesueur*.

89. Burbidge AA (1998) Extract from the seabird islands database: Barrow, Boomerang, Boodie, Middle, Double and Pasco islands. Department of Conservation and Land Management, Woodvale, WA.
Summary: A spreadsheet containing details of seabirds, including date, number sighted and the reference of the citation.

90. Burbidge AA (1999) Conservation values and management of Australian islands for non-volant mammal conservation. *Australian Mammalogy* **21**, 67–74.
Summary: At least 16 species of Australian mammals have become extinct over the past 200 years. Without islands, however, this figure would

be even worse as nine species that were formerly widespread on mainland Australia were or are restricted to land-bridge islands. In addition, 13 species and subspecies of endangered and vulnerable mainland mammals that still occur on the mainland have island populations, reducing their chance of extinction. In all, 43 islands protect 29 taxa of Australian threatened mammals. Since European settlement some island mammal populations have become extinct, while many new populations, of both Australian and exotic mammals, have been established. The extinction of island native mammal populations significantly correlates with the introduction of exotic mammals. Management of island needs to concentrate on four areas; quarantine, monitoring (of both native mammals and possible introduction of exotics), eradication of exotics and translocations of native species. Prevention of introduction and establishment of further exotics to important islands through quarantine procedures is vital, especially for islands with permanent or temporary human habitation. Eradication or control of existing exotics is required for many islands and eradication of further introductions, as soon after detection as possible, should be a high priority action for nature conservation agencies. Past exotic mammal eradications and needs for the future are discussed. Translocations of island mammal populations to the mainland should take place only where the species is extinct on the mainland. Translocations to islands, where translocation to or on the mainland is not feasible, is an important conservation technique. Islands with exotics can be of value for re-introduction of locally extinct mammals or introductions (marooning) of threatened species that are at risk from feral predators on the mainland once the exotics have been eliminated.

91. Burbidge AA, Drew M, Pearson D, Kendrick P (2004) Mammal monitoring, Barrow Island Nature Reserve, October 2003. Department of Conservation and Land Management, Woodvale, WA.
Summary: Monitoring of abundance and condition of native mammals on Barrow Island was conducted during October 2003 at five trapping locations and along two spotlighting transects as described in previous reports. In addition, trapping of black-flanked rock-wallabies was conducted at Well Q21 and two transects on the west coast were searched on foot for rock-wallabies.

92. Burbidge AA, Evans T (1976) The management of nature reserves in Western Australia. *Department of Fisheries and Wildlife, Western Australia, Report* **23**, 1–32.
Summary: The number and area of nature reserves in Western Australia has grown rapidly in recent times. Management of nature reserves by the Department of Fisheries and Wildlife has not kept pace with this growth. A plan for the development of more effective management is presented.

93. Burbidge AA, George AS (1978) The flora and fauna of Dirk Hartog Island, Western Australia. *Journal of the Royal Society of Western Australia* **60**, 71–90.
Summary: Dirk Hartog Island (62 000 ha), which lies off Shark Bay, Western Australia has been visited and studied by a succession of visitors since 1616. Of special interest is the black-and-white wren (*Malurus leucopterus*) which is restricted to Dirk Hartog and Barrow islands.

94. Burbidge AA, Johnson PM (1983) Spectacled hare-wallaby, *Lagorchestes conspicillatus*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 197–198. Angus & Robertson, Sydney.
Summary: Brief description and location of the spectacled hare-wallaby, *Lagorchestes conspicillatus.*

95. Burbidge AA, Johnson PM (1995) Spectacled hare-wallaby, *Lagorchestes conspicillatus* (Gould, 1842). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 313–315. Reed, Sydney.
Summary: Brief description and location of the spectacled hare-wallaby, *Lagorchestes conspicillatus.*

96. Burbidge AA, Main AR (1971) Report on a visit of inspection to Barrow Island, November 1969. *Department of Fisheries and Fauna, Western Australia, Report* **8**, 1–26.
Summary: The aim of the inspection was to examine the effects on the fauna and flora of the oil exploration initiated in mid-1963 by West Australian Petroleum Pty Ltd and the construction and development program which followed in 1966 and which is now nearing completion.

97. Burbidge AA, McKenzie NL (1989) Patterns in the modern decline of Western Australia's vertebrate fauna: causes and conservation implications. *Biological Conservation* **50**, 143–198.
Summary: The conservation status of terrestrial vertebrates occurring on the mainland of Western Australia was assessed. Extinctions and declines are virtually confined to non-flying mammals with mean adult body weights between 35 g and 4200 g. Variation in patterns of attrition within this critical weight range (CWR) can be explained almost entirely by a combination of regional patterns in rainfall and, to a lesser extent, species habitat and dietary preferences. Similar patterns of mammal attrition were recognisable throughout

the continent, except that the CWR was 35 to 5500 g. Environmental changes since European settlement have emulated an increase in aridity by reducing the environmental productivity available to vertebrates. These include the diversion of environmental resources to humans and introduced species, and a reduction in vegetative cover by exotic herbivores and changed fire regimes. Our analyses support the view that the reduction in available productivity has caused CWR mammals to suffer the greatest attrition because of their limited mobility, but relatively high daily metabolic requirements. The direct elimination of confined populations of mammals by exotic predators has exacerbated this attrition. We derive priorities for the conservation of Australian mammals.

98. Burbidge A, Morris K (1987) Visit to Barrow Island, May 1987. Department of Conservation and Land Management, Woodvale, WA.
Summary: From 4 to 8 May 1987 a party visited Barrow Island to carry out the official biennial visit; the first since the creation of CALM and the vesting of the Barrow Island Nature Reserve in the NPNCA. As has been the custom on past visits the party were able to visit and inspect all of WAPET's facilities and inspect and discuss all field operations. Particular attention was paid to hygiene from materials being brought to the island from the mainland; rubbish disposal and rehabilitation of disturbed areas. Copied off: Nature Reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102.

99. Burbidge AA, Morris KD (2002) Introduced mammal eradications for nature conservation on Western Australian islands: a review. In *Turning the Tide: the Eradication of Invasive Species: Proceedings of the International Conference on Eradication of Island Invasives* (eds CR Veitch, MN Clout), 64–70. IUCN, Gland.
Summary: There are about 3400 islands off the Western Australian coast, many of which have high nature conservation values. Eleven species of introduced mammals occur or occurred on 124 islands, including three domestic animals (horse, camel and sheep) that have not become feral. In addition, Aborigines introduced dingoes to at least four islands before European settlement. Six exotic mammals (red fox, feral cat, goat, rabbit, black

CALM researchers Andrew Burbidge and Geoff Kregor monitoring mammals on Barrow Island (Photograph courtesy of CALM)

rat and house mouse) have now been eradicated from more than 45 islands in a series of projects since the 1960s. Most effort has been directed at black rats with more than 31 islands now clear of this species. Pindone, vacuum-impregnated into oats, was used until the 1990s, when bran pellets with brodifacoum were used in the Montebello Islands. Rabbits have been eradicated using carrots soaked in sodium monofluoroacetate (1080), red foxes with dried meat baits impregnated with 1080 and cats with a combination of baiting and trapping. After a period of 20 years of ground shooting, goats were finally eradicated from Bernier Island using an experienced shooter operating from a helicopter. The house mouse has been eradicated from Barrow Island four times after introductions in food and equipment, and from Varanus and adjacent islands after introduction in food containers. Both islands are utilised by the petroleum industry. Difficulties and how they were overcome, and future eradication priorities are discussed.
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100. Burbidge A, Morris K, Boggs W (1998) Mammal monitoring, Barrow Island Nature Reserve, November 1998. Department of Conservation and Land Management, Woodvale, WA.
Summary: Barrow Island, as well as being of considerable nature conservation significance for other reasons, is one of Australia's most important mammal conservation areas. It supports 13 terrestrial mammal species, of which five are listed as threatened pursuant to the WA Wildlife Conservation Act. Barrow Island has been a producing oilfield since the mid-1960s, the operator being West Australian Petroleum Pty Ltd. This report covers a visit from 2–11 November 1998 during which five mammal trapping grids were established, opportunistic trapping at other sites and spotlighting transects were conducted.
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101. Burbidge AA, Morris K, Drew M (2000) Mammal monitoring, Barrow Island Nature Reserve, October 2000. Department of Conservation and Land Management, Woodvale, WA.
Summary: Barrow Island, as well as being of considerable nature conservation significance for other reasons, is one of Australia's most important mammal conservation areas. It supports 13 terrestrial mammal species, of which five are listed as threatened pursuant to the Wildlife Conservation Act 1950 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
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102. Burbidge AA, Scott JK (2003) Report on baseline studies and data gaps. ChevronTexaco Australia, Perth.
Summary: Among the key issues that arose from the Gorgon Quarantine Expert Panel meeting on 3 and 4 November 2003 were to establish: what's there now, what may come on to Barrow and surrounds, what constitutes introduced, information to make decisions. The relevant objective statement developed at the meeting was Objective 2: Identify the major organism groups of concern and the required baseline surveys (designed to incorporate future monitoring). The strategic action identified for Objective 2 was: Establish a Baseline Survey Group to discuss and identify the species from island knowledge to be a likely threat of introduction (including literature search); short term planned commencement of baseline studies; longer term ongoing studies required in future (biological survey expert to be consulted).
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103. Bureau of Meteorology Australia (2004) Barrow Island climate. Available at http://www.bom.gov.au/ [accessed 25.10.2005].
Summary: Daily weather observations, climate averages, significant weather events and tide predictions are available at this site.
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104. Butler WH (1965) Field notes: Barrow Island 1964/65. H Butler, Perth.
Summary: Field observations of Barrow Island, 1964–1965.
Copyright note: Permission not required for this summary

105. Butler WH (1966) On the trail of wyulda. *Nature and Science* **4**, 2–6.
Summary: Describes Harry Butler's search in the Kimberley's for the wyulda. Mention is made of his activities in discovering what animals were on Barrow Island before drilling commences.
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106. Butler WH (1967) Field diary: December 15th, 1966–January 17th, 1967. H Butler, Perth.
Summary: Field observations taken at Barrow Island 1966–1967.
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107. Butler WH (1967) Report to Explorers Club, New York: a report on the flora and fauna of Barrow Island, WA. EC, New York.
Summary: This report on the Barrow Island fauna survey was carried out with an exploration fund grant. The purpose of the grant (US$750) was to examine the increasing industrial development of Barrow Island and the effects of this development on the fauna. The report is compiled mainly from the results obtained by the author on three visits to Barrow Island, however it also incorporates pertinent material from other collections.
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108. Butler WH (1970) Alphabetical botanical list for Barrow Island: checked and corrected by A George, WA State Herbarium. WASH, Perth.
Summary: Alphabetical botanical list.
Copyright note: Permission not required for this summary

109. Butler WH (1970) A formal report on conservation and industry based entirely on Barrow Island oilfield. West Australian Petroleum, Perth.
Summary: A number of documents are included in this report covering the ecology of Barrow Island and its inhabitants and actions on recommendations from Butler's report to the Explorers Club (1967). Included as appendices are: A natural history reconnaissance of Barrow and Montebello Islands, 1958; Report to Explorers Club, New York (1967); Report on Barrow Island with supplementary fauna list (1969); Alphabetic botanical list for Barrow Island (1970); Summary of the vertebrate fauna of Barrow Island (draft, 1970).

110. Butler WH (1970) A summary of the vertebrate fauna of Barrow Island, WA. *Western Australian Naturalist* **11**, 149–160.
Summary: The faunal lists presented in this article are the results of several collecting visits made to Barrow Island since 1964.

111. Butler H (1973) Barrow Island discoveries. *Nature Walkabout* **9**, 34–38.
Summary: An account of Harry Butler's visits to Barrow Island to study the wildlife.

112. Butler WH (1975) Additions to the fauna of Barrow Island, WA. *Western Australian Naturalist* **13**, 78–80.
Summary: Subsequent to the publication of the list of the vertebrate fauna of Barrow Island, the author visited the island on a number of occasions. These are new or further records to add to the published list.

113. Butler H (1977) Barrow Island: the living laboratory, the key to survival, the cycle of life. In *In the Wild with Harry Butler* pp. 41–62. Australian Broadcasting Commission, Sydney.
Summary: An account of the environment and the fauna of Barrow Island.

114. Butler H (1980) Roos and rigs. *Western Australia* **1(4)**, 31–37.
Summary: An account of Harry Butler's introduction to Barrow Island.

115. Butler WH (1983) The Barrow Island experience: a presentation to the 53rd ANZAAS Congress, Perth, 1983. In *Selection of Abstracts and Papers: 53rd ANZAAS Congress, Perth, 16–20 May 1983* 98–105. Western Australian Institute of Technology, School of Social Sciences, Bentley, WA.
Summary: A brief history of discovery, fauna and vegetation of Barrow Island.

116. Butler WH (1987) Management of disturbance in an arid remnant: the Barrow Island experience. In *Nature Conservation: the Role of Remnants of Native Vegetation* (eds DA Saunders GW Arnold AA Burbidge, AJM Hopkins), pp. 279–285. Surrey Beatty, Sydney.
Summary: Barrow Island, a 259 km² island off the coast of the arid zone of Australia, contains one of the richest assemblages of native fauna on an offshore Australian island. The island is an A-class conservation reserve and since 1966 it has also been a major commercial oilfield. Conflict between conservation values and demands for oil production has been avoided by careful considered management of development and conservation. Four principles have emerged from the management of Barrow Island. These are: 1. education and involvement of the community; 2. clearly defined goals for management; 3. active management is essential; and 4. the control of exotic species is necessary. The lessons learnt from the 20 years of management of Barrow Island may be applied to the management of disturbance on other remnants of native vegetation after the goals for the management of such areas have been defined.

117. Butler WH (1989) Management of Barrow Island. *Department of Conservation and Land Management, Western Australia, Occasional Paper* **2/89**, 193–199.
Summary: Barrow Island, the second largest of Western Australia's offshore islands, is a class A Reserve vested in Department of CALM., and a producing oilfield under the control of West Australian Petroleum (WAPET). Because of government agreements the preservation of the island's wildlife values has become the responsibility of WAPET. A plan of management supportive of the compatibility of conservation and development in accordance with the World Conservation Strategy and the National Conservation Strategy for Australia, was developed to implement the preservation of Barrow Island conservation values. Lessons learned on Barrow Island may have application in other island management situations but it must be recognised that the special significance of islands is reflected in the special requirements of individualised management.

118. Butler WH, Cox JM (1975) *Barrow Island*. West Australian Petroleum, Perth.
Summary: A brief documentary of the natural history of Barrow Island and the surrounding islands.

*WAPET/CVX environmental consultant Harry Butler and perentie (*Varanus giganteus*) (Photograph courtesy of ChevronTexaco)*

119. Butler WH, Cox JM (1982) *Barrow Island*. West Australian Petroleum, Perth.
Summary: A brief documentary of the natural history of Barrow Island and the surrounding islands.
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120. Butler H, Johnson S (1973) Lesson of Barrow Island. *Reader's Digest* **Aug**, 105–110.
Summary: An account of Harry Butler's introduction to Barrow Island and shows how an oil company and the natural environment can co-exist.
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121. CALM (1985–1986) Fauna: Reptiles and amphibians: marine turtles. Volume 1. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence and reports.
Copyright note: Permission not required for this summary

122. CALM (1985–1988) Nature reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, reports, permits and details of field visits to Barrow Island.
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123. CALM (1986–1988) Fauna: Reptiles and amphibians: marine turtles. Volume 2. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence and reports.
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124. CALM (1988–1991) Fauna: Reptiles and amphibians: marine turtles. Volume 3. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence and reports.
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125. CALM (1988–1993) Nature reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 6: file no. 026646F3102. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, reports and details of field visits to Barrow Island.
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126. CALM (1989) Petroleum lease 1H: condition 10: proposed environmental conditions for Barrow and Middle Islands: draft. Department of Conservation and Land Management, Como, WA.
Summary: Terms and conditions of the environmental agreement between the Lessees and the Department of Conservation and Land

Management. Copied off: Nature Reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102.

127. CALM (1989–1996) Fauna: Reptiles and amphibians: WA marine turtles general. Volume 2: file no. 028674F3804. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence and reports on marine turtles in Western Australia.

128. CALM (1990) Eradication of the black rat on Barrow Island: briefing paper. Department of Conservation and Land Management, Como, WA.
Summary: In early August 1990 an extensive trapping program was carried out by CALM and WAPET on the southern portion of Barrow Island to determine how widespread black rats were in this area, and which native mammal species were present.

129. CALM (1990–1991) Barrow Island: small mammals: *Isoodon auratus*, *Pseudomys nanus*, *Zyzomys argurus*. Volume 1. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing details of field trips, reports and general correspondence.

130. CALM (1993–1996) Nature reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 7: file no. 034447F3102. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, field visits, reports on kapok on Middle Island and buffel grass on Boodie Island and the eradication of the house mouse from Barrow Island.

131. CALM (1994) Management of north west islands for conservation, June 1994: policy statement no. 52. Department of Conservation and Land Management, Como, WA.
Summary: Well over 150 islands are located along the north west coast of Western Australia between Exmouth and Port Hedland. Ranging in size from small sand cays to the 23 000 hectares of Barrow Island, around half of them are Nature Reserves vested in the National Parks and Nature Conservation Authority (NPNCA). The Monte Bello Islands have been vested in the NPNCA as Conservation Park. Most of the other islands are vacant crown land. Most are subject to the EPA Red Book recommendations. The Dampier Archipelago islands and Depuch Island are of high and documented Aboriginal heritage value, and other island groups are proving to have similar values e.g. the Monte Bello and Barrow islands. The Barrow, Lowendal and Thevenard groups are being used as bases for on-shore and off-shore oilfield developments.

132. CALM (1996–1998) Nature reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 8: file no. 039808F3102. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, reports and details of field visits to Barrow Island.

133. CALM (1997–2002) Wildlife conservation: Research: Fauna: Barrow Island: file no. 1999F000502. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, reports and details of field visits to Barrow Island.

134. CALM (1998–1999) Nature reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 9: file no. 043146F1998. Department of Conservation and Land Management, Como, WA.
Summary: Records file containing correspondence, reports, permits and details of field visits to Barrow Island.

135. CALM (1999) Interim management guidelines for necessary operations: Barrow Island group (A 11648 and C 38728). Department of Conservation and Land Management, Karratha, WA.
Summary: These Interim Management Guidelines for necessary operations on the Barrow Island group are intended to provide the basis for the protection of persons, property, flora, fauna and other natural values, in the absence of a formal management plan. The guidelines will be reviewed five years after the date of approval, unless preceded by the completion of a management plan. West Australian Petroleum Pty Ltd have assisted in the production of this document by providing information on the natural environment of Barrow Island and their operations on the island. Also included is a chapter on environmental quarantine. The chief purpose of this section is the detailing of the minimum standards that should be applied to prevent the introduction of foreign species to Barrow and Thevenard islands through WAPET operations. Foreign species to which these minimum standards apply include vermin, such as house mouse, black rat and cats; insects, such as European bees, ticks and wood borers; flora, such as kapok bush, buffel grass, Noogoora burr, mesquite and Mexican poppy. These minimum standards also apply to the eggs, seeds and other life cycle stages and any juveniles, living matter or soil, that may be associated with such pests.

136. CALM (2000) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 1

(Oct 2000). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
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137. CALM (2001) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 2 (Jan 2001). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
Copyright note: Permission not required for this summary

138. CALM (2001) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 3 (May 2001). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
Copyright note: Permission not required for this summary

139. CALM (2001) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 4 (Dec 2001). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
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140. CALM (2002) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 5 (Feb 2002). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
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141. CALM (2002) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 6 (Oct 2002). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
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142. CALM (2003) Environmental, social and economic review of the Gorgon gas Development on Barrow Island: submission. Department of Conservation and Land Management, Kensington, WA.
Summary: The Department is opposed to the use of Barrow Island for an industrial complex as proposed by ChevronTexaco on behalf of the Gorgon proponents. This opposition is based on the unacceptable risks to the unique biodiversity values of Barrow Island, which are of international conservation significance, and the failure of the proponents to demonstrate either their full appreciation of those values or that these values would be adequately protected or compensated for should in principle support for the proposal to be approved.
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143. CALM (2003) Marine Turtle Research Project Rosemary Island: volunteers newsletter. – Issue 7 (Jan 2003). Department of Conservation and Land Management, Karratha, WA.
Summary: Report on the turtle tagging season in Western Australia.
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144. CALM (2004) Barrow Island species list from FloraBase. Department of Conservation and Land Management, Kensington, WA.
Summary: List of flora species for Barrow Island supported by voucher specimens held by the Western Australian Herbarium.
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145. CALM (2004) Indicative management plan for the proposed Montebello/Barrow islands marine conservation reserves 2004. Department of Conservation and Land Management, Fremantle, WA.
Summary: The Department of Conservation and Land Management (CALM) undertook an assessment of the existing biological and social information relevant to the area before commencing the planning and consultation process. CALM subsequently undertook field surveys of marine habitats in June 1999 and compiled human usage information on recreational and commercial use. The assessment process involved gathering information from government agencies, industry and community groups, as well as reports produced by CALM's Marine Conservation Branch. The assessment process also involved consultation with stakeholders to gain an understanding of community views.
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146. Campbell AJ (1900) Description of a new wren or *Malurus. Victorian Naturalist* **17**, 203–204.
Summary: This new wren was the discovery of the collector of the Perth Museum, and was procured amongst spinifex grass on Barrow Island, during December, 1900.
Copyright note: Copyright expired 1980

147. Campbell IR, Tait AM, Reiser RF (1984) Barrow Island oilfield, revisited. *APEA Journal* **24**, 289–298.
Summary: Geology and stratigraphy of the Barrow Island oilfield.
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148. Campbell IR, Willmott SP (1956) Barrow Island survey, 1956. West Australian Petroleum, Perth.
Summary: Sufficient work was done on this survey to support the idea that Barrow Island is an anticlinal uplift. The axis of the anticline roughly parallels the main watershed of the island. There is fairly strong evidence of an anticlinal nose to the north of Trig. 155'. Insufficient work has been done to prove any closure to the south, or to calculate the magnitude or vertical closure or the area of closure.
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149. Cary JL, Milton K, Stanley F (2000) Human usage in Montebello/Barrow Islands. Department of Conservation and Land Management, Marine Conservation Branch, Data Report
Summary: CONFIDENTIAL. Contains personal data. The Montebello/Barrow Islands region has been selected by the state government for consideration as a marine conservation reserve under the CALM Act. The region was selected after being identified in the report, A Representative Marine Reserve System for Western Australia (CALM 1994) as an area worthy of reservation. To assist in the planning process, data have been gathered on the human activities currently undertaken in the study area. This report presents the spatial boundaries and intensities of various human activities, including recreation and industrial activities, as of December 1999. The human usage data are being continually updated for the marine reserve planning process and the data presented in this report were the first attempt by CALM at data collection for the study area. The updated data are on the Marine Conservation Branch database. The human usage data has been used in the report Regional Perspective of Montebello/Barrow Islands (CALM 2000).

150. Casson N (2003) Overview of the influence of fire on spinifex ecosystems, with particular reference to the ecosystem of Barrow Island: report to the Department of Environmental Protection. DEP, Perth.
Summary: A concise account of the stages in one fire-cycle in hard spinifex grassland. The terms of reference were to provide an overview of the fire ecology of spinifex dominated ecosystems; provide a succinct review of any available records on the frequency, intensity and extent of fires on Barrow Island since development of the Barrow Island oil field; prepare advice for the EPA Service Unit in support of the EPA on the potential dependence on or vulnerability to fire of the range of broad ecosystems on Barrow Island; provide advice on the potential impacts of fire exclusion and of fire at more frequent intervals than that likely to have occurred naturally; provide any other advice relevant to the potential impacts and their management of altered fire regimes on Barrow Island.

151. Chevron Australia (2000) Barrow Island annual environmental report, 1999. Chevron Australia Pty Ltd, Perth.
Summary: The scope of the report includes significant operational activities and facility changes; significant environmental impacts and incidents; environmental monitoring status and results; environmental specialist studies; significant project-specific environmental management and annual discharges and pollution prevention licence reporting requirements.

152. Chevron Australia (2001) Barrow Island annual environmental report, 2000. Chevron Australia Pty Ltd, Perth.
Summary: The report incorporates data collected between 1 January 2000 and 31 December 2000, and provides a summary of the results, including discussion of any impacts on the environment arising from operations. A description of any environmental projects is also provided, as is a description of exploration and production project work planned for 2001. The scope of the report includes operational activities and changes; significant environmental incidents; environmental monitoring status and results; environmental studies; project-specific environmental management and annual discharges and pollution prevention licence reporting requirements.

153. Chevron Australia (2002) Barrow Island operations annual environmental report, 2001. Chevron Australia Pty Ltd, Perth.
Summary: This report goes well beyond simply complying with licence requirements. It also provides substantial additional information on the activities undertaken by the operator on Barrow Island during the year. This information includes a review of operations undertaken on the island and proposals for the following year; a summary of environmental incidents which occurred on the island, and discussion of the more significant incidents; a review of the status of regular monitoring programs undertaken; activities undertaken to rehabilitate disturbed and contaminated land and decommission redundant facilities; a review of the various research programs and studies undertaken or sponsored by the operator of the oilfield on the island; a review of the status of various environmental management initiatives; and a review of the various audits.

154. Chevron Australia (2003) Barrow Island operations annual environmental report, 2002. Chevron Australia Pty Ltd, Perth.

Summary: The scope of the report includes operational activities and facility changes; significant environmental incidents, environmental monitoring status and results; environmental studies; project specific environmental management and annual discharges and pollution prevention licence reporting requirements.

155. ChevronTexaco Australia (2002) Environmental Protection Authority visit to Barrow Island, 19th & 20th September, 2002. ChevronTexaco Australia Pty Ltd, Perth.
Summary: Includes itinerary and general information on the Barrow Island camp for the EPA visit.

156. ChevronTexaco Australia (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix A, the Gorgon gas development: environmental, social and economic review scoping document. ChevronTexaco Australia Pty Ltd, Perth.
Summary: The purpose of this document is to obtain Western Australian Government endorsement for the planned scope of the ESE review investigations and provides: background to the Gorgon gas development and an outline of the broad development concept; an overview of the existing environment and social setting; a summary of those environmental, social, economic and strategic aspects considered important at this stage of the ESE review; a preliminary assessment of impacts; an outline of the proposed scope of investigations to be conducted as part of the ESE review; indicative management strategies, and; an outline of the plans for stakeholder consultation.

157. ChevronTexaco Australia (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix J, Barrow Island environmental quarantine procedures. ChevronTexaco Australia Pty Ltd, Perth.
Summary: Details the minimum standards that shall be applied to prevent the introduction of foreign species to Barrow and Thevenard Islands, or neighbouring island-based facilities, through ChevronTexaco operations.

158. ChevronTexaco Australia (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island. ChevronTexaco Australia Pty Ltd, Perth.
Summary: This environmental, social and economic review (ESE Review) will the assist the Western Australian Government's consideration of the restricted use of Barrow Island for the proposed Gorgon gas development. The gas fields discovered in the Gorgon area represent Australia's largest undeveloped gas resource. As custodian of this resource, the Gorgon venture accepts responsibility for developing this important resource in a sustainable manner. The Gorgon Venture also recognises the importance of the conservation values of Barrow Island to the community. The appendices have been indexed separately.

159. ChevronTexaco Australia (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island: executive summary. ChevronTexaco Australia Pty Ltd, Perth.
Summary: The Gorgon field development plan is based on the installation of a sub-sea gathering system and a 70 km sub-sea pipeline to Barrow Island. A gas processing facility located on the central-east coast of Barrow Island would process the gas. Reservoir carbon dioxide would be removed and reinjected into deep saline reservoirs below the island. The liquid hydrocarbon product would then be transported by ship to international markets. Compressed domestic gas would be delivered via a sub-sea pipeline to the Western Australian mainland for use in the industrial and domestic gas markets. This document briefly describes the facilities that would be required for this Gorgon Venture to be undertaken. This includes minimising the impact on the surrounding environment by avoiding areas of high conservation value. Key marine and terrestrial resources of Barrow Island were identified and recorded and assessed by independent, specialist ecologists for their relative importance to the island's biodiversity, ecological function and conservation value.

160. ChevronTexaco Australia (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island: response to submissions prepared for the Environmental Protection Authority. ChevronTexaco Australia Pty Ltd, Perth.
Summary: In response to the Gorgon Venture's approach for in-principle approval of the restricted use of Barrow Island for the development of Gorgon gas, the Western Australian Government

requested that all relevant information on the environmental, social, economic and strategic ramifications of the proposed development be presented in the form of an Environmental, Social and Economic Review (ESE Review). The release of the Gorgon Venture's ESE Review on 10th February 2003 was followed by a six-week public comment period. Public submissions have been received and this document provides an overview of those submissions. A total of 44 submissions were received.

161. ChevronTexaco Australia (2003) Gorgon development draft quarantine risk assessment. ChevronTexaco Australia Pty Ltd, Perth.
Summary: Quarantine management of Barrow Island has been integral to operation of the oilfield since 1967. During this time a substantial body of information relating to quarantine management has developed and has been stored initially anecdotally, but more recently on a systematic basis. In addition to quarantine procedures, invasive species monitoring and control measures have played a key role in mitigating the environmental consequences of species that have evaded quarantine procedures. Environmental consequences of invasive species introductions were established from inspecting ChevronTexaco environmental monitoring records. Due to the management of invasive species, environmental consequences are considered to be minor with the exception of buffel grass which moderate consequences. On completion of both quantitative and qualitative risk assessment, the risk of an invasive species introduction to Barrow Island has been determined as moderate. The risk level is based on the likelihood and consequence of an invasive species breaching the quarantine system. The Gorgon Venture's clear quarantine objective is zero invasive species introductions to Barrow Island. To reduce this moderate level of risk the Gorgon Venture has committed to developing and implementing a more rigorous quarantine system including the development of innovative invasive species detection, eradication and control techniques.

162. ChevronTexaco Australia (2004) Barrow Island operations annual environmental report, 2003. ChevronTexaco Australia Pty Ltd, Perth.
Summary: The report goes well beyond simply complying with licence reporting requirements. It also provides substantial additional information on the activities undertaken by the operator on Barrow Island during the year. This information includes a review of operations undertaken on the island during the year and proposals for the following year; a review of the status of all regular monitoring programs undertaken during the year; activities undertaken to rehabilitate disturbed and contaminated land and decommission redundant facilities; a review of the various research programs and studies undertaken or sponsored by the operator on the island during the year; a review of the status of various environmental management initiatives undertaken during the year; a review of the various audits undertaken by both the operator and independent auditors during the year and a summary of all environmental incidents which occurred on the island during the year, and discussion of the more significant incidents.

163. ChevronTexaco (2004) ChevronTexaco. Available at http://www.chevrontexaco.com/ [accessed 25.10.2005].
Summary: A global enterprise highly competitive across all energy sectors, the newly formed company brings together a wealth of talents, shared values and a strong commitment to developing vital energy resources around the globe.

164. ChevronTexaco Australia (2004) Gorgon: Australian gas. Available at http://www.gorgon.com.au [accessed 25.10.2005].
Summary: ChevronTexaco, Shell and ExxonMobil are leading companies in the global oil and gas industry with proven technical and management skills for safe, efficient and environmentally responsible development. The Gorgon Venture brings a wealth of international and domestic experience in oil and gas processing and LNG operations covering all aspects of the development, ranging from drilling to sub-sea production systems, offshore operations, gas plant operations, and product shipping.

165. ChevronTexaco Australia (2004) Guidelines for an environmental impact statement and environmental scoping document for an environmental review and management programme for the proposed Gorgon development. ChevronTexaco Australia Pty Ltd, Perth.
Summary: The purpose of this scoping document is to assist the Gorgon Venture to identify issues which should be addresses in the Environmental Impact Statement/Environmental Review and Management Programme (EIS/ERMP) and the actions and investigations to be undertaken in addressing these issues. To place the proposed scope in context, these guidelines also provide background to the Gorgon Development, including an outline of the broad development concept and the development alternatives

considered during the previous environmental, social and economic review (ESE Review). This scope has been prepared to meet both Western Australian and Commonwealth legislative requirements.
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166. Christensen P, Burrows N (1994) Project Desert Dreaming: experimental reintroduction of mammals to the Gibson Desert, Western Australia. In *Reintroduction Biology of Australian and New Zealand Fauna* (ed M Serena), pp. 199–207. Surrey Beatty, Sydney.
Summary: Burrowing bettongs, *Bettongia lesueur* and golden bandicoots, *Isoodon auratus* were introduced from an island off the north-west coast of Western Australia to the Gibson Desert on the Australian mainland. Both species quickly adapted to their new mainland habitat and had gained weight within a few weeks. The golden bandicoots also bred well. Measures to control introduced predators successfully reduced dingo *Canis familiaris* and fox *Vulpes vulpes* numbers but resulted in increased numbers of feral cats *Felis catus*. The reintroduced species showed different biological and behavioural traits affecting their vulnerability to predation. Bettongs were highly vulnerable to predation by feral cats so we believe it will be difficult to establish this species, and others with similar traits, in the presence of anything but extremely low densities of introduced predators. Golden bandicoots were less vulnerable to predation so it should be possible to establish viable populations of this species in the arid zone, providing introduced predator numbers are significantly reduced and animals are released into areas of optimum habitat.
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167. Cogger H, Cameron E, Sadlier R, Eggler P (1993) *The Action Plan for Australian Reptiles.* Australian Nature Conservation Agency, Canberra.
Summary: Includes species survival status, worldwide distribution, Australian distribution, conservations status under State and Commonwealth legislation, organisations responsible for conservation of species and individuals involved, other organisation and individuals involved and references. Species profiles for Australia's vulnerable marine turtles, pp. 196–207.
Copyright note: Summary reproduced with permission from the Department of Environment and Heritage, Australia – http://www.deh.gov.au/

168. Conservation Commission of Western Australia (2003) Biodiversity conservation values on Barrow Island Nature Reserve and the Gorgon gas development: advice to Government from the Conservation Commission of Western Australia. CCWA, Crawley, WA.
Summary: Part 1, Should the Gorgon gas development be located on Barrow Island Nature Reserve? Part 2, Advice on relevant issues should the Government approve the location of the Gorgon gas development on Barrow Island Nature Reserve.
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169. Cooper NK, Adams M, Anthony C, Schmitt LH (2003) Morphological and genetic variation in *Leggadina* (Thomas, 1910) with special reference to Western Australian populations. *Records of the Western Australian Museum* **21**, 333–351.
Summary: Recent collections of specimens from the Pilbara attributed to *Leggadina lakedownensis* stimulated an investigation of genetic and morphometric variation in *L. lakedownensis* and *L. forresti* to confirm the taxonomic status of these species, determine the extent of intraspecific variation, and develop useful markers for classification.
Copyright note: Summary reproduced with permission from the Western Australian Museum – http://www.museum.wa.gov.au/

170. Cooper NK, Aplin KP, Adams M (2000) A new species of false antechinus (Marsupialia: Dasyuromorphia: Dasyuridae) from the Pilbara region, Western Australia. *Records of the Western Australian Museum* **20**, 115–136.
Summary: Pseudantechinus roryi sp.nov. from the Pilbara region of Western Australia is described. The new species is close genetically to *P. macdonnellensis* but differs from that species and all other members of the genus in aspects of cranial, dental and external morphology. *Pseudantechinus roryi* is found in regional sympatry with *P. woolleyae*, but is narrowly allopatric with *P. macdonnellensis* of the central Australian uplands. A revised generic diagnosis of *Pseudantechinus* is given and the phylogenetic position of *Pseudantechinus* within the Dasyurinae is discussed.
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171. Cornell C (1974) *The Journal of Post Captain Nicholas Baudin, Commander-in-Chief of the Corvettes, Géographe and Naturaliste: Assigned by Order of the Government to a Voyage of Discovery.* Libraries Board of South Australia, Adelaide.
Summary: A general description of the area in December 1801, pp. 280–281 and then again in March 1803, pp.517–519.
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172. Cox JM (1977) Barrow Island: an historical documentation. J Cox, Perth.
Summary: An historical account that excludes the oilfield exploration history which commenced in 1954.
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173. Crank K (1973) Geology of Barrow Island oil field. *APEA Journal* **1973**, 49–57.
Summary: Regionally the Barrow Island Sub-basin is a geological province of the greater Carnarvon Basin. WAPET geologists first visited the island in 1954 and again in 1956 when preliminary geological surveys were made. The known sedimentary section on Barrow Island ranges from Late Jurassic to Miocene.

174. CSIRO Australia (2004) Threatened mammals: conserving populations and understanding why they decline. Available at http://www.cse.csiro.au/research/aglands/threatenedspecies/index.htm [accessed 25.10.2005].
Summary: CSIRO research on endangered animals has contributed significantly to Australia's biodiversity conservation effort. Research to understand extinction processes and re-construct threatened native mammal communities in the Western Australian wheatbelt and Shark Bay region represents an example of this work, and is a recognised research achievement for CSIRO. The work included management of introduced predators, habitat preservation in altered landscapes, investigating reasons for population decline and techniques for re-establishment. The Heirisson Prong project was originally developed by CSIRO researchers and local communities working together with a mining company near Useless Loop on Heirisson Prong in the Shark Bay region of Western Australia. The focus of this project was to investigate effective reintroduction techniques using three native mammals – the burrowing bettong, the western barred bandicoot and the greater stick-nest rat.

175. Dalens H (1993) Two new genera of terrestrial isopods (Crustacea: Isopoda: Oniscidea) from north-western Western Australia. *Records of the Western Australian Museum* **16**, 257–267.
Summary: Oniscidea collected from the Kimberley region and Barrow Island, Western Australia belong to the families Ligiidae, Olibrinidae, Philosciidae and Armadillidae. The family Olibrinidae is recorded for the first time from Australia. Two new genera of Armadillidae, *Kimberleydillo* gen.nov. and *Barrowdillo* gen.nov., and two new species, *Kimberleydillo waldockae* sp.nov. and *Barrowdillo pseudopyrgoniscus* sp.nov., are described.

176. Dawson WR (1971) Thermoregulation in the marsupial, *Lagorchestes conspicillatus*. *Journal de Physiologie* **63**, 239–241.
Summary: Discusses the temperature regulation of the spectacled hare-wallaby *Lagorchestes conspicillatus*, which gets both food and shelter from the *Triodia* habitat on Barrow Island.

177. Dawson WR, Bennett AF (1978) Energy metabolism and thermoregulation of the spectacled hare wallaby (*Lagorchestes conspicillatus*). *Physiological Zoology* **51**, 114–130.
Summary: The physiological performance of the spectacled hare-wallabies (*Lagorchestes conspicillatus*) is compared with animals of a similar size and ecology.

178. Deegan PM (1992) Monte Bello and Lowendal Islands bibliography: report prepared as part of a study of the Monte Bello Islands and surrounding waters with funds provided through the Great Barrier Reef Marine Park Authority from the Ocean Rescue 2000 Program. Department of Conservation and Land Management, Como, WA.
Summary: Generally only references specific to the Monte Bello or Lowendal islands have been included. However, references to Barrow Island are also present.

179. Department of Environment (2003) Consideration of access to Barrow Island for gas development: advice for Government's environmental, social, economic and strategic deliberations: overview. DoE, Perth.
Summary: This overview explains the process which is being used to assess the Gorgon gas development plan for the use of Barrow Island; provides a summary of the environmental, biodiversity conservation, social, economic and strategic advice to Government about access to Barrow Island; and describes the next steps in the Government decision making process.

180. Department of Fisheries (1908–1964) Nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 1: file no. 014578F3102. DF, Perth.
Summary: Records file containing correspondence, reports and details of field visits to Barrow Island.

181. Department of Fisheries (1950–1964) Fisheries: Species: WA turtles: General file. Volume 1: file no. 248/50. DF, Perth.
Summary: Records file containing correspondence and reports on marine turtles in Western Australia.

182. Department of Fisheries and Fauna (1964–1970) Nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 1: file no. 014578F3102. DFF, Perth.
Summary: Records file containing correspondence, reports and details of field visits to Barrow Island.

183. Department of Fisheries and Fauna (1964–1974) Fisheries: Species: WA turtles: General file. Volume 1: file no. 248/50. DFF, Perth.

Summary: Records file containing correspondence and reports on marine turtles in Western Australia.

184. Department of Fisheries and Fauna (1970–1974) Nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 2: file no. 014579F3102. DFF, Perth.
Summary: Records file containing correspondence, permits, reports and details of field visits to Barrow Island.

185. Department of Fisheries and Wildlife (1974–1975) Nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 2: file no. 014579F3102. DFW, Perth.
Summary: Records file containing correspondence, permits, reports and details of field visits to Barrow Island.

186. Department of Fisheries and Wildlife (1975–1982) Wildlife and nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 3: file no. 014580F3102. DFW, Perth.
Summary: Records file containing correspondence, reports and details of field visits and regulation permits to Barrow Island.

187. Department of Fisheries and Wildlife (1980–1984) Fauna: Reptiles and amphibians: marine turtles. Volume 1. DFW, Perth.
Summary: Records file containing correspondence and reports.

188. Department of Fisheries and Wildlife (1982–1983) Wildlife and nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 4: file no. 014581F3102. DFW, Perth.
Summary: Records file containing correspondence, reports, permits and details of field visits to Barrow Island. This file includes original scientific papers by CN Smithers on insects of Barrow Island and nearby islands.

189. Department of Fisheries and Wildlife (1983–1985) Nature reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102. DFW, Perth.
Summary: Records file containing correspondence, reports, permits and details of field visits to Barrow Island.

190. Department of Mineral and Petroleum Resources (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix B, guidelines for the social, economic and strategic evaluation of the Gorgon gas development proposal. ChevronTexaco Australia, Perth.
Summary: The Government of Western Australia has determined that a high level evaluation of the Gorgon gas proposal (the proposal) is required to allow it to make an informed decision on whether to reject or, to provide in principle approval, for the use of Barrow Island as the location for a gas processing complex as part of the initial development of the Gorgon gas project. The proposal, for the limited use of Barrow Island, is a unique proposal of State significance to Western Australia. This significance stems from the size and potential economic value of the Gorgon project gas fields, the high conservation values (including biodiversity) of Barrow Island and the social importance of these economic and conservation values. The objectives of these guidelines is to provide a framework for the social, economic and strategic evaluation of this proposal.

191. Department of Mines (1988) Renewal of petroleum lease under section 134A: Western Australia, Petroleum Act, 1967. DM, Perth.
Summary: Legal document pertaining to the renewal of petroleum lease 1H.

192. Devine WT (1985) Report on participation at a workshop on offshore island management: held on Barrow Island, Western Australia, November 1985. Department of Lands & Survey, Wellington.
Summary: This report takes the form of an introduction, a commentary on the operation of an oilfield in the Barrow Island reserve, draws conclusions as lessons for NZ, highlights some points about island management emerging during the workshop and rounds off with final comments. The objective of the workshop was to gather together a series of comprehensive review papers on island survey, ecology and management in the Australia-New Zealand region and to publish the collection as a statement of the current art of island biological conservation.

193. Doig P, Fritz S (1996) Narcissus flycatcher in Australia. *Wingspan* **6**, 23.
Summary: The first confirmed sighting for Australia of the east-Asian narcissus flycatcher was made recently at Barrow Island in Western Australia by employees of the oil company, West Australian Petroleum Pty Ltd.

194. Dortch CE, Morse K (1984) Prehistoric stone artefacts on some offshore islands in Western Australia. *Australian Archaeology* **19**, 31–47.
Summary: Aboriginal sites on Australian offshore islands reflect one or more of the following forms of occupation – prehistoric, regular or sporadic and irregular visits. All three kinds of occupation are taken into account in this paper, which describes the fragmentary record of Aboriginal occupation sites on offshore islands as far north as Barrow Island.

195. Driskell AC, Pruett-Jones S, Tarvin KA, Hagevik S (2002) Evolutionary relationships among blue- and black-plumaged populations of the white-winged fairy-wren (*Malurus leucopterus*). *Australian Journal of Zoology* **50**, 581–595.
Summary: The white-winged fairy-wren male plumage on the mainland is bright blue with white wings, whereas on Dirk Hartog and Barrow islands the plumage is black with white wings.

196. E-systems Pty Ltd (2004) How-to guide for conducting risk-based assessments of quarantine hazards on Barrow Island. ChevronTexaco Australia, Perth.
Summary: Outlines the methodology for conducting a risk-based assessment of potential quarantine hazards on Barrow Island. There is a need to address the potential hazards of introduced terrestrial and marine pests during the construction and operation of the proposed Gorgon LNG gas plant, and associated marine terminal and CO^2 re-injection facilities. Increased movements of personnel and material on aircraft and marine vessels present a threat to the unique conservation values of the Island as a Class A nature reserve. The development of a world's best practice Quarantine Management System (QMS) is being undertaken with advice from the Gorgon Joint Venture Quarantine Expert Panel. The outcomes of the risk-based assessment are to contribute to the development of the QMS.

197. Eldridge MDB, Close RL (1995) Black-footed rock-wallaby, *Petrogale lateralis* (Gould, 1842). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 377–381. Reed, Sydney.
Summary: Brief description and location of the black-footed rock-wallaby, *Petrogale lateralis.*

198. Eldridge MDB, King JM, Bradshaw SD (IN PRESS) Low levels of genetic diversity, inbreeding and reduced fitness in the Barrow Island population of the euro *Macropus robustus* (Marsupialia: Macropodidae). *Molecular Ecology*

199. Eldridge MDB, King JM, Loupis AK, Spencer PBS, Taylor AC, Pope LC, Hall GP (1999) Unprecedented low levels of genetic variation and inbreeding depression in an island population of the black-footed rock wallaby. *Conservation Biology* **13**, 531–541.
Summary: It has been argued that demographic and environmental factors will cause small, isolated populations to become extinct before genetic factors have a significant negative impact. Islands provide an ideal opportunity to test this hypothesis because they often support small, isolated populations that are highly vulnerable to extinction. To assess the potential negative impact of isolation and small population size, we compared levels of genetic variation and fitness in island and mainland populations of the black-footed rock-wallaby (*Petrogale lateralis* (Marsupialia: Macropodidae)). Our results indicate that the Barrow Island population of *P. lateralis* has unprecedented low levels of genetic variation. Despite a long period of isolation and small effective population size, demographic and environmental factors have not yet driven this population to extinction. Nevertheless, it has been effected significantly by genetic factors. It has lost most of its genetic variation and become highly inbred and it exhibits reduced fitness.

*Black-footed rock-wallaby (*Petrogale lateralis lateralis*) (Photograph courtesy of ChevronTexaco)*

200. Eldridge MDB, Kinnear JE, Zenger KR, McKenzie LM and Spencer PBS (2004) Genetic diversity in remnant mainland and pristine island populations of three endemic Australian macropodids (Marsupialia): *Macropus eugenii*, *Lagorchestes hirsutus* and *Petrogale lateralis*. *Conservation Genetics* **5**, 325–338.

Summary: Since European settlement, mainland Australia has experienced a wave of mammal extinctions and population declines. However, some species have persisted on off-shore islands, which are now viewed as important wildlife refuges. The level of genetic diversity was assessed, at 7–11 microsatellite loci, in island and remnant mainland populations of three endemic species of macropodid marsupial; the tammar wallaby *Macropus eugenii*; rufous hare-wallaby *Lagorchestes hirsutus* and black-footed rock-wallaby *Petrogale lateralis*.
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201. Environment Australia Biodiversity Group (1998) *Draft Recovery Plan for Marine Turtles in Australia*. EA, Canberra.
Summary: Five of the six species of marine turtles found in Australian waters are listed on Schedule 1 of the Endangered Species Protection Act 1992 (ESP Act). The ESP Act identifies the need for the preparation of a Recovery Plan and specifies the content of the plan. The flatback turtle has not been listed under the ESP Act but the threats to the Australian flatback populations are similar to other turtle species, and it has been included for completeness. This plan has identified five different habitat types that marine turtles use at different stages of their lives. They are: the natal beach; mating areas; internesting habitat; feeding; and pelagic. In the absence of detailed information about populations of marine turtles in Australia, this plan has adopted a threat based approach. The premise of this approach is to reduce the likelihood that current threats will cause mortalities, or to modify the activity to reduce the potential for future mortalities at all stages of a marine turtle's life. The specific objectives are to: Reduce the mortality of marine turtles and, where appropriate, increase natural survivorship; develop management strategies, with Aboriginal and Torres Strait Islander communities, based on customary and common law, for the conservation of marine turtles; develop programs and protocols to monitor marine turtle stocks in Australia, assess the size and status of those stocks, the causes of their mortality and address information gaps; manage factors that affect successful marine turtle nesting; identify, monitor and protect habitats that are critical for the survival of marine turtles; communicate the results of recovery actions and educate stakeholders; and support and maintain existing agreements and develop new collaborative programs with neighbouring countries for the conservation of shared turtle stocks.
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202. Environmental Protection Authority (2003) Environmental advice on the principle of locating a gas processing complex on Barrow Island Nature Reserve: Gorgon Venture: section 16 report and recommendations of the Environmental Protection Authority. *Environmental Protection Authority, Western Australia, Bulletin* **1101**, 1–60.
Summary: This report is the environmental contribution to the Government's strategic economic, social and environmental assessment of a proposal to locate a gas processing complex on Barrow Island. Part A provides the EPA's advice on access to Barrow Island for industry. Should Government decide to agree to access, Part B provides the EPA's recommendations on managing the environmental issues that would arise. This strategic level process is designed to guide and assist in the making of an in-principle decision by Government. Formal environmental assessment would still be necessary under the provisions of Section 38 of the Environmental Protection Act and the Commonwealth Environment Protection and Biodiversity Conservation Act. Appendices 1, 1a, 1b & 1c are the supporting data on conservation values of Barrow Island and lists species endemic to the island, restricted, not common and widespread.
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203. Environmental Protection Authority (2004) Gorgon Gas project information. Available at http://www.epa.wa.gov.au/template.asp?ID=36&area=EIA&Cat=Gorgon+Gas+Project+Information or http://tinyurl.com/jmx45) [accessed 25.10.2005].
Summary: Contains PDFs of reports of Gorgon gas project information. The Environmental Protection Act 1986 Part IV provides the legislative framework for the EIA process. Under this process, the EPA looks at statutory planning schemes and development proposals to assess their likely impacts on the environment. If the impacts are likely to be significant then the EPA provides advice to the Minister for the Environment on whether the proposal or scheme should be allowed to proceed and, if so, under what conditions to ensure that the environment is protected.
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204. Fitzgerald LG (2004) Gorgon geotechnical investigations: record of meeting, 2 March 2003. Department of Industry and Resources, Perth.
Summary: Meeting held to discuss the process required for obtaining approval for access to Barrow Island to undertake geotechnical investigations (for plant/onshore pipeline route/offshore jetty and turning basin).
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205. Fraser M (1876) Return of islands in Western Australia for which temporary and other tenures have been given. *Minutes and Votes and Proceedings of the Parliament (Western Australian Legislative Council)* **A11**, 1–3.
Summary: A table detailing the name of the island, the occupant, tenure, duration of tenure, amount of rent or royalty paid, for what purpose and remarks. The information on Barrow Island is: JG Anderson had a six month tenure in 1874 at a

cost of 30 pounds per annum for pastoral purposes, catching turtles, etc. which was renewable for seven years.

206. Freedman L, Rightmire GP (1972) Skull and tooth variation in Australian bandicoots (Peramelidae: Marsupialia): the genus *Isoodon* and multivariate comparisons with *Perameles*. *Journal of the Royal Society of Western Australia* **54**, 21–31.
Summary: The morphological and metrical features of the skull and teeth of certain taxa of the genus *Isoodon* are described and analysed. Multivariate comparisons are then made between these and a number of *Perameles* taxa. The main multiple discriminant analyses, using either cranial or dental features alone, achieve good separation of the genera (principally on the 1st function), and of the lower taxa within each genus (mainly by the 2nd function).

207. Furnival GM (1967) The WAPET story: from Rough Range to Barrow Island. *Australian Mining* **59(7)**, 11–21.
Summary: Brief history of West Australian Petroleum Pty Ltd and the search for oil on Barrow Island.

208. Geotechnical Services Pty Ltd (1998) Chemical analysis of rock oysters and sediments collected in February 1998 from the intertidal zone near to the terminal tank area, Barrow Island. West Australian Petroleum, Perth.
Summary: Previous chemical analysis of sediments obtained from shallow boreholes adjacent to the Terminal storage tanks on the east coast of Barrow Island has revealed that they contain petroleum hydrocarbons. Historical operational losses of petroleum are likely to have contributed to these hydrocarbons in the soil sub-surface, with the Terminal tanks being obvious likely sources. To ascertain whether petroleum hydrocarbons have entered the nearshore marine environment, samples of intertidal rock oysters (*Saccostrea cuccullata*) were obtained from the beaches adjacent to the Terminal tanks. An additional oyster sample was collected from a remote pristine location on the western coast of Barrow Island, namely Obe's Beach. Rock oysters bioaccumulate, and therefore concentrate, petroleum hydrocarbons from the seawater in which they reside by several orders of magnitude. Therefore, oysters were sampled rather than individual grab samples of water since they provide a more representative indication of the sea water quality. Sediment samples were also collected from the intertidal region of the beach in instances where rock oysters were not present. Although not as useful indicators of exposure history as the rock oysters, detailed chemical analyses of these samples may indicate petroleum hydrocarbon contamination if present. All samples were subjected to detailed chemical analysis to determine the total hydrocarbon concentration and to characterise the petroleum hydrocarbons present. In summary, the oyster samples collected from near to the Terminal tanks did not contain significantly more total hydrocarbons than did the sample of oysters collected from Obe's Beach, which was shown to be uncontaminated by petroleum.

209. Glauert L (1932) The distribution of the marsupials in Western Australia. *Journal of the Royal Society of Western Australia* **19**, 17–32.
Summary: Since the appearance of Shortridge's Account of the geographical distribution of the marsupials and monotremes of south-west Australia in 1910, distribution maps of the Western Australian mammalian fauna have been kept up to date, and this paper indicates the present range of the fauna, based principally upon specimens that have reached the museum in the last ten years. *Isoodon barrowensis* is listed in this paper.

210. Goodall DW (1969) Species distribution maps for Barrow Island. West Australian Petroleum, Perth.
Summary: Maps showing the distribution of vegetation on Barrow Island.

211. Gould J (1841) Mr Gould exhibited four new species of kangaroos from his collection. *Proceedings of the Zoological Society of London* **1841**, 80–83.
Summary: Skins and description of animals collected by Captain Stokes, of HMS *Beagle*.

212. Graetz RD (1993) Managing the ecological impact of the proposed 1993 3-D seismic survey on Barrow Island. West Australian Petroleum, Perth.
Summary: This report was solicited by WAPET to obtain an independent contribution to the management of the environmental aspects of the 3-D seismic survey program proposed for Barrow Island in 1993.

213. Green B, King D, Butler H (1986) Water, sodium and energy turnover in free-living perenties, *Varanus giganteus*. *Australian Wildlife Research* **34**, 589–595.
Summary: Isotope turnover rates of perenties, *Varanus giganteus*, were determined during two consecutive summers on Barrow I., WA. The turnover rates were significantly lower in the first summer than those in the second, and there were

considerable differences in turnover rates between individuals in both years. Estimated rates of prey consumption were 7.3 and 36.4 g kg^{-1} day, respectively, during the two summers, and perenties were more active during the second summer. The mean daily energy expenditure for a 10 kg perentie was much higher in both years than that predicted by allometric equations for reptiles, which illustrates the need for obtaining data from larger species of reptiles in determining allometric relationships.

214. Hall G, Onus M, Kinnear J (1993) A survey of Barrow Island for the black flanked rock wallaby (*Petrogale lateralis lateralis*). Department of Conservation and Land Management, Woodvale, WA.
Summary: The aim of the study was to conduct a survey of the distribution and abundance of the black-flanked rock-wallaby on Barrow Island and compare the data with the information available from the 1960s.

215. Halse N (1989) Visit to Barrow and Thevenard islands, March 1989. National Parks and Nature Conservation Authority, Crawley, WA.
Summary: This report summarises the results of a visit to Barrow and Thevenard Islands by the National Parks and Nature Conservation Authority (NPNCA) Chairman in 1989. Copied off: Nature reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 6: file no. 026646F3102.

216. Hammond LS (1976) Interim report: 1974 Barrow Island Research Grant. L Hammond, Perth.
Summary: Checklist of identifications of littoral fauna which have been made and confirmed. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 3: file no. 014580F3102.

217. Hancock P (1989) Euro with an isle all its own. *Daily News* **Dec 5**, 7.
Summary: Information supplied by the Department of Conservation and Land Management. Describes the species, covering: name details, conservation status, distribution, habitat and natural predators.

218. Harvey M (1999) Barrow Island draculoides (*Draculoides bramstokeri*). *Western Australian Museum, Information Sheet* **Jul**
Summary: Name and description of the Barrow Island draculoides (*Draculoides bramstokeri*).

219. Harvey MS, Humphreys WF (1995) Notes on the genus *Draculoides* Harvey (Schizomida: Hubbardiidae), with the description of a new troglobitic species. *Records of the Western Australian Museum. Supplement* **52**, 183–189.
Summary: A second species of *Draculoides, D. bramstokeri* sp.nov., is described from coastal caves of Barrow Island and Cape Range, Western Australia. The species differs from *D. vinei* (Harvey) in the shape and setation of the male flagellum and the presence of a female gonopod. The diagnoses of *Draculoides* and *D. vinei* are emended. Both species included in the genus are cavernicoles.

220. Hayes K (2003) Gorgon development: quarantine risk assessment: external peer review report: Department of Environmental Protection, WA. DEP, Perth.
Summary: The Department of Environmental Protection asked specific questions about the quarantine risk assessment report by ChevronTexaco and an independent reviewer discusses the report in terms of those questions.

221. Heatwole H, Butler H (1981) Structure of an assemblage of lizards on Barrow Island, Western Australia. *Australian Journal of Herpetology* **1**, 37–44.
Summary: A sample of the reptile fauna from a *Triodia* habitat on Barrow Island provided 12 species of lizards.

222. Heatwole H, Reddan S (2004) Barrow Island ants [personal communication (email)].
Summary: Heatwole has been conducting research which compares the community structure of ants in different environments. One site was Barrow Island.

223. Henn PU (1935) The Tryal Rocks. *Early Days* **2**, 38–43.
Summary: The wreck of the English ship *Tryal* in 1622 is proof that English sailors were on the west Australian coast sixty-six years earlier than is usually supposed, namely, at the time of Dampier's buccaneering expedition in 1688.

224. Hill AK (2001) Community participation in the declaration processes for the proposed Dampier Archipelago/Cape Preston and Montebello/Barrow islands marine protected areas. Department of Conservation and Land Management, Marine Conservation Branch, Progress Report **MRI/PI/DAR & CPR 50/2001**
Summary: The Marine Conservation Branch of the Department of Conservation and Land

Management is conducting this project as part of the Marine Reserve Implementation Programme. The aim of this project is: to facilitate the negotiation and resolution of zoning and management strategies within the framework of the advisory committees for the proposed Dampier Archipelago/Cape Preston and Montebello/Barrow islands reserves. This report details progress achieved up to February 2001.

225. Hill AK, Jonker LJ (2000) Planning and pre-declaration processes for a marine protected area in the Montebello/Barrow Islands region. Department of Conservation and Land Management, Marine Conservation Branch, Final Report **MRI/PI/MBI 38/2000**
Summary: The overall aims of the project were to initiate planning and pre-declaration processes for the proposed Montebello/Barrow islands marine conservation reserve. This has been fully achieved with the process underway to consider the area as a potential marine conservation reserve; to compile the ecological and socioeconomic information; to provide advice to the WA Government, through the stakeholder/community advisory committee process, on the suitable reserve category, boundaries and management zoning options, and to develop and implement a community consultation process.

226. Hill A, Thomson-Dans C (2004) Montebello and Barrow Islands marine conservation reserves. *Landscope* **19(4)**, 32–39.
Summary: Proposals to create two new marine parks and a marine management area around the Montebello and Barrow Islands will protect of 212 000 hectares of ocean. This major initiative will bring the total number of marine parks in Western Australia to nine, and result in the creation of the State's very first marine management area.

227. Hill FL (1955) Notes on the natural history of the Monte Bello Islands. *Proceedings of the Linnean Society of London* **165**, 113–124.
Summary: The author was sent to the Monte Bello Islands in connection with the testing of the first British Atomic Weapon. Hill paid a brief visit (two hours) to Barrow Island during this expedition and he recorded some flora and fauna. He identified wallabies on the island and other species of mammal which he could not identify. Some lizards were collected and 20 plants different from those to be found in the Monte Bello Islands. Insects were collected on the Monte Bello Islands.

228. Hirst DB (1998) *Irileka*, a new heteropodine genus (Araneae: Heteropodidae) from Western Australia. *Records of the Western Australian Museum* **19**, 141–144.
Summary: A new genus of the Heteropodinae, *Irileka*, and a new species, *I. iridescens* are described from Western Australia.

229. Hoffman RL (1994) Studies on spiroboloid millipeds. XVIII, *Speleostrophus nesiotes*, the first known troglobotic spiroboloid milliped, from Barrow Island, Western Australia (Diplopoda: Pachybolidae: Trigoniulinae). *Myriapodologica* **3(3)**, 19–24.
Summary: The new genus and species *Speleostrophus nesiotes* are based on a small series of specimens taken in a cave on Barrow Island, off the northern coast of Western Australia. The complete lack of ocelli and body pigmentation suggests that the animal is an obligate troglobiont, but features of the male genitalia do not differ greatly from the ground plan seen in such genera as *Leptogoniulus* and *Trigoniulus*. The few trigoniulids known to be endemic in Australia are confined to the eastern coast: Queensland and New South Wales.

230. Hopkins A (1975) Report on a visit to Barrow Island, 20–24 October 1975.
Summary: In December 1972 a number of permanent sampling sites were established in areas of disturbance to monitor the regeneration of the vegetation. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 3: file no. 014580F3102.

231. Hore-Lacy I, Parr-Smith G (1995) Barrow Island, WA. In *Enhancing Nature Conservation Through Complementary Land Uses* pp. 11–12. Australian Mining Industry Council, Canberra.
Summary: Brief description of Barrow Island and the oil company West Australian Petroleum Pty Ltd.

232. Humphreys WF (1991) The distribution of Australian cave fishes. *Records of the Western Australian Museum* **19**, 469–472.
Summary: The known occurrence and distribution of two species of blind cave fish, the blind gudgeon (*Mileringa veritas* Whitely) and the cave eel (*Ophisternon candidum*) are described. Both are listed as endangered under Western Australian fauna legislation and are found only on the Cape Range Peninsula of northwestern Australia. They are generally found in sympatry close to the coast and up to 4.3 km inland. Their habitat is predominantly anchialine system with a fresh to brackish water lens overlying a seawater edge. While there appears to be a major extension of the range of *M. veritas* to Barrow Island, WA, the inclusive known range of the two species has not increased since 1991.

233. Humphreys WF (1991) Troglobites on Barrow Island, Western Australia. *Western Caver* **31**, 11–14.
Summary: In addition to a diverse assemblage of land mammals, Barrow Island is now known to be home to an endemic and highly adapted cave fauna of great antiquity but clearly related to the Cape Range troglobitic fauna. This finding is the result of a short field trip in September 1991 to survey for troglobitic fauna (obligatory cave inhabiting species).

234. Humphreys WF (1993) Stygofauna in semi-arid tropical Western Australia: a tethyan connection? *Mémoires de Biospéologie* **20**, 111–116.
Summary: The recent finding, in semi-arid Western Australia, of a rich troglobite fauna derived from wet tropical forest communities, has confirmed the richness of the cave fauna of tropical Australia. However, the aquatic fauna of these areas is poorly known, both as to its occurrence and affinities.

235. Humphreys WF (1995) Subterranean fauna of Barrow Island. Western Australian Museum, Perth.
Summary: Briefing notes prepared for the site visit to Barrow Island by members of the NPNCA. The species density of fauna and flora on the exposed limestones of the Cape Range peninsula and Barrow Island is exceptionally high for the region owing to the geomorphological diversity of the area. The surface biota is, nonetheless, unexceptional being essentially an arid zone biota with little endemism. By contrast the subterranean fauna is exceptional as the below ground habitats have been buffered from the major surface changes associated with the onset of aridity. All the cave fauna is endemic and there is an exceptional degree of generic endemism.

236. Humphreys WF (2000) The hypogean fauna of the Cape Range peninsula and Barrow Island, northwestern Australia. In *Subterranean Ecosystems* (eds H Wilkens DC Culver, WF Humphreys), pp. 581–601. Elsevier, Amsterdam.
Summary: Rich troglobite communities have recently been found to inhabit caves in tropical limestones and lavas of both oceanic islands and continental areas. This chapter addresses the nature of the karst area on the Cape Range peninsula of Western Australia and includes references to the geologically related Barrow Island lying 170 km to the northeast on the North West Shelf.

237. Humphreys WF (2000) The Pilbara stygofauna: a synopsis: a report to the Water and Rivers Commission. WRC, East Perth.
Summary: Outlines the distribution and nature of stygofauna (obligate groundwater dependent animals) in the Pilbara and adjacent coastal regions (principally Cape Range and Barrow Island) of Western Australia. The fauna of the island is principally derived from marine ancestors and has Tethyan affinities; it is typical of the Cape Range/Barrow Island fauna. The Pilbara stygofauna is distinct from that found in the Kimberley and the Yilgarn. The stygofauna is an important component of the biodiversity of the Pilbara, is of clear continental significance and is substantially diverse in an international context. Sustained research needs to be initiated on the impact of water abstraction on the stygofauna of the Pilbara to permit informed management of these important ecosystems.

238. Humphreys WF (2001) *Milyeringa veritas* (Eleotridae), a remarkably versatile cave fish from the arid tropics of northwestern Australia. *Environmental Biology of Fishes* **62**, 297–313.
Summary: The blind cave gudgeon *Milyeringa veritas* is restricted to groundwaters of Cape Range and Barrow Island, northwestern Australia. It occurs in freshwater caves and in seawater in anchialine systems. It is associated with the only other stygobitic cave vertebrate in Australia, the blind cave eel, *Ophisternon candidum*, the world's longest cave fish, and a diverse stygofauna comprising lineages with tethyan tracks and widely disjunct distributions, often from North Atlantic caves. The cave gudgeon inhabits a karst wetland developed in Miocene limestones in an arid area. There is an almost complete lack of information on the basic biology of this cave fish, despite it being listed as threatened under the Western Australian Wildlife Conservation Act.

239. Humphreys WF (2001) The subterranean fauna of Barrow Island, northwestern Australia, and its environment. *Mémoires de Biospéologie* **28**, 108–127.
Summary: No work has been published specifically addressing the nature of the Barrow Island karst. This paper considers the nature of the subterranean ecosystems of Barrow Island and summarises the information available on the diverse subterranean fauna inhabiting the island.

240. Humphreys WF, Vine B (1991) The caves of Barrow Island and their fauna: a report to West Australian Petroleum Pty Ltd. WAPET, Perth.

Summary: In addition to a diverse assemblage of land mammals, Barrow Island is now known to be home to an endemic and highly adapted cave fauna of great antiquity but clearly related to the Cape Range troglobitic fauna. This finding is the result of a short field trip in September 1991 to survey for troglobitic fauna (obligatory cave inhabiting species). The troglobitic fauna is a living time capsule from days when wet forest covered the area. Additional work will certainly show that the troglobite community is much more diverse than is currently known. The fauna is out of sight but highly sensitive to environmental change; its incorporation into the environmental management philosophy and practice for Barrow Island should be expedited.

241. Ingleby S (1991) Distribution and status of the spectacled hare-wallaby, *Lagorchestes conspicillatus*. *Wildlife Research* **18**, 501–519.

Summary: Past and present distribution of *Lagorchestes conspicillatus* were compared using data from museums, explorer's records and recent field surveys. These data indicated that *L. conspicillatus* has declined in distribution and abundance during the last century. This species is now rare in the Pilbara and Kimberley regions of Western Australia. It is moderately common between latitudes 16 º and 18 ºS. However, the southern limits of its range in the Northern Territory have contracted northward by over 200 km and it is rarely recorded below 21 ºS. *L. conspicillatus* remains widespread in Queensland although its numbers in several areas appear to have declined in the last 10–15 years. The status of *L. conspicillatus* should be regarded as vulnerable. Most of its preferred habitats are currently under pastoral lease and at risk of alteration by introduced herbivores or clearing. Unfavourable fire regimes and feral animals may also pose a threat to its survival in some areas. Habitats suitable for *L. conspicillatus* are very poorly represented in National Parks throughout northern Australia and this situation should be rectified.

242. IUCN SSC Invasive Species Specialist Group (2004) Global invasive species database Available at http://issg.appfa.auckland.ac.nz/database/welcome/ [accessed 25.10.2005].

Summary: Lists invasive species for Western Australia. Invasive plants and animals are a major threat to natural ecosystems and their species, second only to direct destruction of habitats by humans. The impacts of invasive species are particularly devastating to island ecosystems, which harbour much of the world's threatened biodiversity. Amongst these isolated populations, extinction rates are especially high. This problem is growing in severity and geographic extent as volumes of international trade and travel increase. In spite of such serious effects, both national and multinational leaderships remain under-informed regarding the scope and gravity of the invasive species problem. Useful initiatives, which contribute to better management practices and a reduced incidence of biological invasion, are being taken by communities all over the world. Invasive alien species are now a major focus of international conservation concern and the subject of cooperative international efforts, such as the Global Invasive Species Programme (GISP).

243. Jenner KCS, Jenner M-NM, McCabe KA (2001) Geographical and temporal movements of humpback whales in Western Australian waters. *APPEA Journal* **41**, 749–765.

Summary: Through compilation of historical whaling data, together with recent aerial and boat-based survey data, a general framework for the overall peaks of migration has been estimated for the temporal and spatial movements of Group IV humpback whales along the Western Australian coast. The major migratory paths of humpback whales along the Western Australian coast lie within the continental shelf boundary or 200 m bathymetry. The northern and southern migratory paths have been shown to be divergent at the Perth Basin, Dampier Archipelago and Kimberley regions. In all cases the northern migratory route is further off-shore.

244. Johnson PM (1993) Reproduction of the spectacled hare-wallaby, *Lagorchestes conspicillatus* Gould (Marsupialia: Macropodidae), in captivity, with age estimation of the pouch young. *Wildlife Research* **20**, 97–101.

Summary: Lagorchestes conspicillatus has a widespread distribution across northern Australia. Observations were made on reproduction in captive animals and a key produced for age determination of pouch young. Females commence breeding at about one year of age and males when slightly older. Reproduction in this species involved an oestrous cycle of 30 days, a gestation period of 29–31 days and a mean pouch life of 152 days. A postpartum oestrus and mating following a birth was the normal pattern of reproduction.

245. Karanovic T (2003) First representative of the genus *Allocyclops* Kiefer, 1932 (Crustacea: Copepoda: Cyclopoida) from the Australian subterranean waters. *Annales de Limnologie* **39**, 141–149.

Summary: A new species of the genus *Allocyclops*

Kiefer, 1932 (Cyclopidae: Cyclopinae) is described from the subterranean waters of Barrow Island, Western Australia. It belongs to the subgenus *Psammocyclops* Kiefer, 1955, but has not any close relatives among the recent known species. With the addition of the new representative the genus *Allocyclops* now includes thirteen species on all continents, except Asia and Antarctica. A key to aid in their identification is provided.

246. Kendrick P, Mau R (2003) Carnarvon 1 (CAR1 – Cape Range subregion). In *A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002* (eds JE May, NL McKenzie), pp. 69–86. Department of Conservation and Land Management, Kensington, WA.
Summary: The islands of the Barrow group, comprising Barrow, Boodie, Middle, Pascoe, Double and Boomerang islands are either limestone (some of which contain significant fossil deposits) or sand over limestone. Vegetation varies from entirely coastal species on small islands, to extensive hummock grasslands on Barrow Island. The Barrow group supports 15 species of native terrestrial mammals and over 100 bird species are known from Barrow Island. The island supports a large reptile fauna, including an apparently troglobitic snake (*Ramphotyphlops longissimus*). Significant sea turtle nesting, particularly green (*Chelonia mydas*) and flatback turtles (*Natator depressus*), occurs on Barrow and Middle Islands. An internationally significant troglofauna, comprising terrestrial and stygofaunal elements is known from Barrow Island.

247. Kerle JA (1983) Northern brushtail possum, *Trichosurus arnhemensis*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 149. Angus & Robertson, Sydney.
Summary: Brief description and location of the northern brushtail possum, *Trichosurus arnhemensis*.

248. King D, Green B (1993) Dimensions of the perentie (*Varanus giganteus*) and other large varanids. *Western Australian Naturalist* **19**, 195–200.
Summary: The body mass and total length of 84 *Varanus giganteus* captured on Barrow Island, WA, were determined. These were compared with published data on the dimensions of *V. varius*, *V. salvator* and *V. komodoensis*. The largest Australian monitor is *V. giganteus*, which is exceeded in body mass and total length by both *V. salvator* and *V. komodoensis*.

249. King D, Green B, Butler H (1989) The activity pattern, temperature regulation and diet of *Varanus giganteus* on Barrow Island, Western Australia. *Australian Wildlife Research* **16**, 41–47.
Summary: The daily activity pattern of the perentie *Varanus giganteus* on Barrow Island, was bimodal in summer with activity concentrated during the morning and late afternoon. Animals were active on most days in summer. Mean activity temperatures were approximately 36 °C, which is similar to those of other varanid species. The heating rate for one animal was 0.09 °C min^{-1}. The activity areas of animals ranged from 2.9–21.5 ha. The diet consisted mainly of turtle eggs or hatchlings and other vertebrates. Mating and egg-laying appear to take place in the spring.

250. King J (1998) Indicators of stress in island populations of macropodid marsupials: the implications for conservation. Thesis (PhD) — University of Western Australia.
Summary: Genetic variation was measured in mainland and island populations of macropods using highly-variable microsatellites, and levels of fluctuating asymmetry, a measure of developmental stability, were also determined in these populations. On Barrow Island, which has an arid environment, evidence of stress due to lack of water was investigated through the use of physiological parameters including haematology, condition indices, water metabolism and changes in the concentrations of regulatory hormones. The hypothesis that the lack of genetic variation in the Barrow Island populations should make them more susceptible to habitual environmental stressors, such as lack of water, was not supported in this study. There was very little evidence of stress in the Barrow Island populations despite their low levels of genetic variation and exposure to environmental stressors. There is also no evidence to suggest that the Barrow Island macropods are physiologically compromised by the activities of the oil field on the island.

251. King PP (1827) *Narrative of a Survey of the Intertropical and Western Coasts of Australia Performed Between the Years 1818 and 1822 with an Appendix Containing Various Subjects Relating to the Hydrography and Natural History in Two Volumes. Vol. I.* John Murray, London.
Summary: The naming of Barrow Island by King on the 20th June 1818, pp.140–141. King also describes the type of craft (log of wood) used by natives seen in the water visiting offshore islands of Dampier Archipelago, 26th–27th February 1818, pp. 42–45.

252. King PP (1827) *Narrative of a Survey of the Intertropical and Western Coasts of Australia Performed Between the Years 1818 and 1822 with*

an Appendix Containing Various Subjects Relating to the Hydrography and Natural History in Two Volumes. Vol. II. John Murray, London.
Summary: Sighting of Barrow Island, January 1822, pp. 192–193.

253. Kinhill Stearns (1985) Harriet oilfield development: notice of intent. Volume 1, report. Bond Oil P/L, Perth.
Summary: This notice of intent submission for the proposed Harriet oilfield development addresses three alternatives for the transport and storage of crude from the proposed offshore platform, (i) a pipeline to the existing WAPET facilities on Barrow Island, (ii) a pipeline to a new tank farm located on the main Lowendal Island, and (iii) a short pipeline from the platform to a moored tanker. This report format was selected at a time when the Barrow Island option was preferred as it minimised the cost of installation of additional facilities. However, the Lowendal option is now clearly preferred. Environmental effects and management are discussed.

254. Kinnear JE, Bromilow RN, Onus ML, Sokolowski RES (1993) The Bromilow trap: a new risk-free soft trap suitable for small to medium-sized macropodids. *Australian Wildlife Research* **15**, 235–237.
Summary: This report describes a trap which minimises the chance of injury to rock wallaby species such as *Petrogale lateralis* and *P. rothschildi*. Both these species show a tendency to injure themselves by hurling themselves repeatedly against wire cages.

255. Kitchener DJ, Vicker E (1981) *Catalogue of Modern Mammals in the Western Australian Museum, 1895 to 1981.* WAM, Perth.
Summary: List of voucher specimens held at the Western Australian Museum. This catalogue contains their registration number, latitude, longitude, reserve, collector and the date collected. The catalogue arose from a need to be able to retrieve information about mammal species from the Western Australian Museum collections rapidly and efficiently.

256. Kriewaldt M (1964) *Dampier and Barrow Island, Western Australia: Australia 1:250 000 Geological Series, SF 50-02, SF 50-01.* Geological Survey of WA, Perth.
Summary: Explanatory notes and map on the geology of Dampier and Barrow Island.

257. LeProvost Environmental Consultants (1991) Shallow marine habitats and biotic assemblages of Barrow Island: report to West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: Intertidal and shallow subtidal areas are considered to be at most risk from accidental oil spills, and, as such, WAPET's management responsibilities at Barrow Island have included the development and updating of an Oil Spill Contingency Plan (OSCP). The value of any OSCP depends on knowledge of the type and distribution of shallow marine habitats located in the vicinity of the oilfield and associated production and transfer facilities. Since little information was available on the type and distribution of subtidal and intertidal marine habitats off the south and east coasts of Barrow Island, WAPET commissioned field surveys of these areas. The objectives of these field surveys were to determine the range and type of intertidal and shallow subtidal habitats located along the south, east and north-east coast of Barrow Island and map their distribution; describe the biotic assemblages associated with each habitat; determine the present nature and amount of hydrocarbons within intertidal habitats; establish monitoring sites to enable quantitative sampling of biotic characteristics at selected locations along the east coast of Barrow Island and subsequently allocate priorities for the protection of sensitive resources in the event of an oil spill. Assistance in the identification of taxa was provided by curators at the Western Australian Museum.

258. Lewis MM (1994) Species composition related to spectral classification in an Australian spinifex hummock grassland. *International Journal of Remote Sensing* **15**, 3223–3239.
Summary: Discusses the methods needed to relate vegetation and spectral classifications so that variations in species composition can be mapped.

259. Lewis MM, Grierson IT (1990) Land units and soils of Barrow Island: report on research conducted under the West Australian Petroleum Pty Ltd. Research Grant, 1988. WAPET, Perth.
Summary: This report presents the results of research conducted with the assistance of the West Australian Petroleum Pty Ltd Barrow Island Research Grant for 1988. The study aimed to describe and classify the soils of the island, map land units and cover types from interpretation of Landsat imagery, and establish a geographic information system for the island.

260. Lewis RC (1914) On two new species of tapeworms from the stomach and small intestine

of a wallaby, *Lagorchestes conspicillatus*, from Hermite Island, Monte Bello Islands. *Proceedings of the Zoological Society of London* **28**, 419–433.
Summary: These specimens were obtained by Mr PD Montague on an expedition to the Montebello Islands. The parasites come from the intestines and stomach of a species of wallaby, *Lagorchestes conspicillatus*, found only on two or three of the Monte Bello Islands. The specimens were compared with those in the collection at the Berlin Museum.
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261. Limpus CJ (1981) The status of Australian sea turtles populations. In *Biology and Conservation of Sea Turtles: Proceedings of the World Conference on Sea Turtle Conservation, Washington, D.C., 26–30 November, 1979* (ed KA Bjorndal), 297–303. Smithsonian Institution Press, Washington.
Summary: Six species of sea turtles occur in Australia. There still needs to be a complete survey of Western Australian populations.
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262. Limpus CJ (2002) Western Australian marine turtle review: a study commissioned by Western Australian Department of Conservation and Land Management. CALM, Woodvale, WA.
Summary: A review the current turtle conservation and management programs in Western Australia in order to advise CALM on future directions.
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263. Lyne AG, Mort PA (1981) A comparison of skull morphology in the marsupial bandicoot genus *Isoodon*: its taxonomic implications and notes on a new species, *Isoodon arnhemensis*. *Australian Mammalogy* **4**, 107–134.
Summary: A series of 763 skulls of the genus *Isoodon*, comprising all known forms from Australia and Papua New Guinea, has been examined in order to review the taxonomy of the group. Original type descriptions of all forms (species and subspecies) have been compared with our findings and a new species, *Isoodon arnhemensis*, is described from Cape Arnhem, Northern Territory. Anatomical features as well as measurements were used to compare the various forms which included *I. barrowensis*.
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264. Main AR, Bakker HR (1981) Adaptation of macropod marsupials to aridity. In *Ecological Biogeography of Australia. Volume 3* (ed A Keast), pp. 1489–1519. Junk, The Hague.
Summary: This chapter has been restricted to the adaptations of macropodid marsupials to arid and semi-arid environments. Radio telemetry has been used to determine the ambient temperature in places occupied by the hare wallaby on Barrow Island. These studies showed that when in preferred cover in large tussocks of *Triodia angusta*, the ambient temperature never rose above 30 °C. In this way the hare wallaby appears to be dependent on shelter in the same way that the euro is dependent on rock piles.
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265. Main AR, Yadav M (1971) Conservation of macropods in reserves in Western Australia. *Biological Conservation* **3**, 123–133.
Summary: In Western Australia various offshore islands, and in particular Barrow Island, form natural laboratories and ecological information derived from them can provide useful guidelines for the selection and management of reserves elsewhere in Australia. The adequacy of reserves depends on the size of the population to be retained on the reserve and on the species' requirements with respect to shelter and food. Species which use rock piles as shelter can persist in very small areas.
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266. Marine Parks and Reserves Selection Working Group (1994) *A Representative Marine Reserve System for Western Australia: Report*. Department of Conservation and Land Management, Como, WA.
Summary: The aims of this report are to review what is known of the flora and fauna, habitats and geomorphology of Western Australian coastal waters, and to identify areas that have particular value for conservation, scientific and public recreation, making them worthy of reservation for these public purposes. Each set of recommendations in the body of the text is preceded by background information about the natural attributes of the area in question and the reasons the Working Group selected it as a worthy candidate for reservation. 3.11.2 Barrow Island, pp. 46–48.
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267. Marsh LM (1993) Cnidaria, other than scleractinian corals. In *Survey of the Marine Fauna and Habitats of the Montebello Islands, August 1993: Report to the Department of Conservation and Land Management* (ed PF Berry), pp. 32–34. CALM, Karratha, WA.
Summary: The Montebello Islands have a rich and varied cnidarian fauna, apart from corals, including reef-dwelling Alcyoniidae and Nephtheidae and sand-dwelling sea-pens of three families, zoanthids and anemones.
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268. Marsh LM (1993) Echinoderms. In *Survey of the Marine Fauna and Habitats of the Montebello Islands, August 1993: Report to the Department of Conservation and Land Management* (ed PF Berry), pp. 74–85. CALM, Karratha, WA.
Summary: The survey reported on here is the most intensive conducted so far of marine habitats and fauna of the Montebellos. It lists the first extensive

collection of echinoderms from the Montebello Islands and uses comparative records from Barrow Island based on the collection made by Dr L Hammond in 1974.

269. Marsh LM (1993) Scleractinian corals. In *Survey of the Marine Fauna and Habitats of the Montebello Islands, August 1993: Report to the Department of Conservation and Land Management* (ed PF Berry), pp. 23–31. CALM, Karratha, WA.
Summary: The report lists the first extensive collection of corals from the Montebello Islands and uses comparative records from Barrow Island based on a collection made by Dr L Hammond in 1974.

270. EM Mattiske and Associates (1993) Flora and vegetation, Barrow Island: prepared for West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: A total of 47 families, 107 genera and 166 vascular plant species were recorded on Barrow Island in the recent 1993 botanical survey. The total number of vascular plant species recorded on Barrow Island is estimated to be in the vicinity of 300.

271. EM Mattiske and Associates (1994) Assessment of vegetation on 1994 3-D seismic lines, Barrow Island: prepared for West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: In February 1994 the plant growth was assessed on the proposed 3-D seismic lines on Barrow Island prior to the commencement of the seismic program. The main objectives were to establish some baseline, pre-clearing assessments and then to investigate the differences in soil surface compaction associated with the receiver and source lines, the ripping treatments and litter replacement. The results clearly illustrate a significant decrease in plant cover and plant numbers; although the results for the plant numbers were not as extreme. The latter largely was related to the occurrence of root material in many of the outcropping areas. WAP003/116/94.

272. Mattiske Consulting Pty Ltd (1997) 1996 assessment of revegetation on seismic lines, Barrow Island: prepared for West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: A series of seismic lines have been established on Barrow Island by WAPET since the early 1960s. In September 1996 an assessment was made of the regeneration of native plant species on 1963, 1974, 1981, 1987, 1989 and 1994 seismic lines. Results indicated that the floristic structure and composition of regrowth on seismic lines usually differs from the pre-disturbance state even decades after clearing. WAP007/005/97.

273. Mattiske Consulting Pty Ltd (1999) Review of *Triodia angusta* communities on Barrow Island: prepared for West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: As part of their ongoing operations there has been a need to disturb some areas on Barrow Island for extracting borrow material for constructing roads, well sites and associated infrastructure needs. Consequently over the years of operation a series of areas have been disturbed in predominantly dry creeklines and valleys dominated by *Triodia angusta*. This report provides an assessment of the potential areas of *Triodia angusta* which have not been disturbed by any operational activities and also an overview of the rehabilitation findings on disturbed areas by comparing the undisturbed or control areas, the disturbed and rehabilitated seismic lines and the rehabilitated borrow pits. The data for the latter has been extracted from previous studies on the island by Mattiske and Trudgen.

274. Maxwell FC (2003) Nesting attendance and population dynamics of marine turtles in the Lowendal Islands, Western Australia. Thesis (BScHons) — Murdoch University, Western Australia.
Summary: Analysis of data from a long-term tagging program of three species of marine turtle. A major green turtle (*Chelonia mydas*) rookery is on Barrow Island.

275. Maxwell S, Burbidge A, Morris K (eds) (1996) *The 1996 Action Plan for Australian Marsupials and Monotremes.* Wildlife Australia, Canberra.
Summary: Describes the species, covering name details; conservation status; distribution; habitat; reasons for decline; additional studies required; recovery objectives; management actions completed, under way or required; organisations involved with the species; staff and financial resources required. Barrow Island golden bandicoot, pp. 96–97; boodie (Barrow+Boodie Is.), pp. 105–106; Barrow Island spectacled hare-wallaby, pp. 111–112; Barrow Island euro, pp.

117–118; black-flanked rock-wallaby, pp. 124–125
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276. McKenzie NL (1983) Golden bandicoot, *Isoodon auratus*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 98. Angus & Robertson, Sydney.
Summary: Brief description and location of the golden bandicoot, *Isoodon auratus*.
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277. McKenzie NL, Morris KD, Dickman CR (1995) Golden bandicoot, *Isoodon auratus* (Ramsay, 1887). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 172–173. Reed, Sydney.
Summary: Brief description and location of the golden bandicoot, *Isoodon auratus*.
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278. McNamara KJ (1982) A new species of the echinoid *Rhynobrissus* (Spatangoida: Brissidae) from north-west Australia. *Records of the Western Australian Museum* **9**, 349–360.
Summary: A new species of *Rhynobrissus*, *R. tumulus*, is described on the basis of 21 tests found on the northern coast of Barrow Island, Western Australia. The species ranges from Barrow Island north to Broome. Significant ontogenetic changes are described and discussed. A revised key for *Rhynobrissus* is presented.
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279. McNamara KJ, Kendrick GW (1983) Middle Miocene echinoids & molluscs of Barrow Island, Western Australia: a report to West Australian Petroleum Pty Ltd and the Western Australian Wildlife Authority. WAPET, Perth.
Summary: Barrow Island, situated some 55 km off the Pilbara coast of Western Australia is composed predominantly of Miocene limestones. It forms the northern-most exposure of a series of anticlines of Miocene limestone which outcrop between Shark Bay and Barrow Island, the principle exposure being in the Cape Range. In 1981 Kendrick and McNamara visited Barrow Island to collect fossils. The two principal groups of marine invertebrates collected were echinoids and molluscs. The aims of collecting the fauna was to obtain representative collections of the Miocene invertebrate fauna on Barrow Island and to allow future description of the echinoid and the mollusc fauna. The authors were able to use the information gained from these descriptions to analyse the only tropical Miocene marine invertebrate fauna in Australia in order to ascertain faunal relationships of the echinoids and molluscs.
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280. McNamara KJ, Kendrick GW (1994) Cenozoic molluscs and echinoids of Barrow Island, Western Australia. *Records of the Western Australian Museum. Supplement* **51**, 1–50.
Summary: A survey of the Cenozoic fossil fauna of Barrow Island, northwest Australia, has yielded a rich fauna of Middle Miocene and Late Pleistocene molluscs, and a rich Middle Miocene echinoid fauna. This paper, in recording 179 species, represents the first documentation of the fossil fauna on Barrow Island.
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281. McWhae JRH, Parry JC (1954) Barrow Island geological reconnaissance. West Australian Petroleum, Perth.
Summary: There was a suggestion that a geological reconnaissance of the island should be undertaken to see whether a detailed geological survey was warranted. The geological conditions suggested that a detailed survey should be carried out and hence data concerning fresh water supplies, possible landing beaches, the nature of the surface for vehicle transport, tidal and weather conditions were obtained.
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282. Montague PD (1913) The Monte Bello Islands. *Geographical Journal* **42**, 34–44.
Summary: Comments from PD Montague on the discovery and flora and fauna of the Monte Bello Islands.
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283. Montague PD (1914) A report on the fauna of the Monte Bello Islands. *Proceedings of the Zoological Society of London* **11**, 625–652.
Summary: A detailed description of the local fauna with an account of their environment. Some Barrow Island mammals are included in this report.
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284. Moro D, Stanley F (2001) Pearls of the Pilbara. *Landscope* **16**, 34–40.
Summary: More than 300 islands lie off the Pilbara coast between North West Cape and Port Hedland. They support unique ecosystems and internationally important turtle rookeries, and they provide a haven for seabirds and threatened marsupials and rodents. They vary from small cays and rocky islets to an island of more than 20 000 hectares. Barrow Island is Western Australia's second largest island and one of the State's most important conservation reserves.
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285. Morris K (1983-) Field note book, Barrow Island and adjacent islands. 10 books. Department of Fisheries and Wildlife, Perth.
Summary: Field observations of Barrow and

Montebello islands since field work commenced in 1983. The field notes contain trapping and spotlighting data, animal tracks, scats and observations of marine turtles, mammals, birds, reptiles, invertebrates, climate and vegetation. Radio-tracking details are recorded for *Isoodon auratus barrowensis*, *Planigale maculata* and *Pseudomys nanus*.

286. Morris KD (1983) Trapping programme – Barrow Island (18/4/1983-23/4/1983). Department of Fisheries and Wildlife, Karratha, WA.
Summary: The trapping program, intended to detect *Rattus rattus*, was concentrated on the sandy areas for approximately 2 km north and south of the barge landing area on Barrow Island. A total of 263 traps (of the 306 available) were set in this area. No *Rattus rattus* tracks were seen in the trapping areas on Barrow Island. Copied off: Wildlife and Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 4: file no. 014581F3102.

287. Morris K (1983) Visit to Barrow Island, 16–21 October, 1983. Department of Fisheries and Wildlife, Karratha, WA.
Summary: Between 16–21 October, 1983, Double and Pasco islands were baited with loose oats saturated with Pindone in oil. Boomerang Island was also revisited during this period and it appears that *Rattus* have been eradicated from this island. Three nights were spent on Boodie Island to learn more about *Bettongia* and their warren system. An eradication program for *Rattus* on Boodie island is discussed. Copied off: Nature Reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102.

288. Morris KD (1987) Turtle egg predation by the golden bandicoot (*Isoodon auratus*) on Barrow Island. *Western Australian Naturalist* **17**, 18–19.
Summary: In Australia sea turtle eggs are taken by several terrestrial predators including varanid lizards, foxes, dingoes, pigs and humans. On Barrow Island, off the Pilbara coast of Western Australia, the perentie *Varanus giganteus* is believed to be the major predator of turtle eggs.

289. Morris K (1989) Barrow Island euro, *Macropus robustus isabellinus*. Department of Conservation and Land Management, Woodvale, WA.
Summary: Describes the species, covering: name details, conservation status, distribution, habitat and natural predators.

290. Morris KD (1989) Feral animal control on Western Australian islands. *Department of Conservation and Land Management, Western Australia, Occasional Paper* **2/89**, 105–111.
Summary: Feral mammals occur on many of the islands off the WA coast, and control has been undertaken on four species, the rabbit, rat, goat and fox. Rabbits were deliberately introduced to Carnac and Mistaken Islands in the 1820s and 1830s, prior to their arrival in the south west of WA by migration from the eastern states. They overgraze vegetation causing loss of cover and erosion and in some cases compete with nesting seabirds for burrow sites. Rabbits have been effectively eradicated on some islands using trials of carrot cubes impregnated with 1080. The rat occurs on many north west islands, predating nesting seabirds and competing with native fauna for shelter and food. On islands of less than 100 ha rats have been eradicated using oats impregnated with Pindone. Despite the goat surviving on Bernier Island for nearly 90 years and overgrazing the vegetation, the six species of native mammal on the island have survived and not showed any sign of decline in numbers. The goat has now been eradicated using an experienced shooter operating from a helicopter. The decline of rock wallabies on offshore islands has been attributed to predation by the fox, however fox eradication is difficult as these islands are connected to the mainland at some stage allowing post baiting invasion to occur. Control of fox numbers at acceptably low levels through continuous baiting with fresh meat and 1080 is possible.

291. Morris KD (1990) Eradication of *Rattus rattus* on Barrow Island: results of a trial baiting program and description of operational procedures. Department of Conservation and Land Management, Woodvale, WA.
Summary: When the introduced black rat, *Rattus rattus* was discovered on the south end of Barrow Island in July 1990, an eradication program was initiated. This involved two phases: trial baiting program to determine the effectiveness of raised bait stations in killing *Rattus* while reducing the hazard to native mammal species; an operational program using proven baiting techniques to eradicate *Rattus* from the remainder of the south end of Barrow Island and Middle Island.

292. Morris KD (1990) A report on the introduced black rat, *Rattus rattus* on Barrow Island. Department of Conservation and Land Management, Woodvale, WA.
Summary: Between 7–12 August 1990, an extensive trapping program was undertaken on the south end portion of Barrow Island. Its aims were to determine the extent and density of *Rattus* in this area; determine which native mammal species were present. Using this information, an eradication program was developed. The trapping results suggest that *Rattus* is distributed throughout the south end of Barrow Island, north to approximately the Eagle Nest track. They may have been there for some time after having invaded

from Middle Island or from a pearling camp on Barrow Island at the turn of the century. They are not likely to be a recent introduction from the activities of WAPET on the island. There is no doubt that a baiting program is required to eradicate *Rattus* from Barrow and Middle Islands as soon as possible.

293. Morris K (1990) A report on the *Rattus rattus* eradication program on Boodie Island. Department of Conservation and Land Management, Woodvale, WA.
Summary: Since 1981, the Department of Conservation and Land Management has been conducting a program of eradicating the introduced rat *Rattus rattus* from islands off the north west coast of Western Australia. The rats are believed to have been introduced to the islands from pearling and fishing boats which frequented the islands in the late 1800s/early 1900s. Successful eradications, using oats and Pindone, have been conducted on five islands.

294. Morris KD (2000) The status and conservation of native rodents in Western Australia. *Wildlife Research* **27**, 405–419.
Summary: Examines the conservation status of Western Australia's native rodent fauna using IUCN criteria and compares this with their current status under State and Commonwealth legislation, as well as that recommended in the Rodent Action Plan. Thomas (1902) described *Pseudomys ferculinus* from Barrow Island; this taxon is now recognised as a subspecies of *P. nanus*. The Barrow Island mouse (*Pseudomys nanus ferculinus*) is not currently listed as threatened under Western Australian or Commonwealth legislation and was not described or assessed in the Rodent Action Plan. It is known only from Barrow Island, where it is reasonably abundant, and should be considered vulnerable because of its restricted distribution. There is a need to confirm this taxonomy with current genetic assessment techniques.

295. Morris KD (2002) The eradication of the black rat (*Rattus rattus*) on Barrow and adjacent islands off the north-west coast of Western Australia. In *Turning the Tide: the Eradication of Invasive Species: Proceedings of the International Conference on Eradication of Island Invasives* (eds CR Veitch, MN Clout), 219–225. IUCN, Gland.
Summary: The black rat (*Rattus rattus*) has been introduced to many islands around the world and has been shown to have a detrimental impact on a wide range of fauna. It is known from about 1% of Australian Islands, of which many are adjacent to the Western Australian Pilbara or Kimberley coasts. Rats were accidentally introduced to these islands in the late 1800s by the pearling industry. Barrow and adjacent islands are nature reserves with significant conservation value, particularly for threatened mammals. Rats were known to inhabit the six smaller adjacent islands, but it was not until 1990 that they were located on the south end of Barrow Island. Eradication programs on North and South Double, Boomerang, Pasco and Boodie islands in 1983–1986 have been successful, but most of these islands had no non-target mammals. Seven mammals were considered to be at risk from an oat-based baiting program on Barrow Island. Barrow Island was also considerably larger than other islands where successful eradication had occurred (23 000 ha vs 5 ha-1000 ha). The rats on the smaller islands, without non-target mammals, were successfully eradicated using oats impregnated with the anticoagulant Pindone. Monitoring of these reserves is continuing.

296. Morris K, Burbidge AA (2002) Bountiful Barrow. *Landscope* **17**, 18–24.
Summary: Brief introduction of Barrow Island, including discovery, Aboriginal presence, natural history and the oil industry.

297. Morris K, Burbidge AA, Drew M, Kregor G (2001) Mammal monitoring, Barrow Island Nature Reserve, October 2001. Department of Conservation and Land Management, Woodvale, WA.
Summary: Monitoring of the abundance and condition of native mammals on Barrow Island was conducted at five trap locations and along two spotlighting transects. In addition, monitoring of black-flanked rock-wallabies commenced via trapping and spotlighting. Trapping for the presence of introduced mammals (particularly rodents) was conducted around the Base and landing warehouses and in dunes adjacent to Boomerang Island. No other islands were visited during this survey.

298. Morris K, Burbidge AA, Drew M, Kregor G (2002) Mammal monitoring, Barrow Island Nature Reserve, October 2002. Department of Conservation and Land Management, Woodvale, WA.
Summary: Monitoring of the abundance and condition of native mammals on Barrow Island was conducted at the five trapping locations and along the two spotlighting transects. In addition. monitoring of black-flanked rock-wallabies via trapping and spotlighting. Trapping for the presence of introduced mammals (particularly rodents) was conducted in dunes at Narrow Neck. After reports of rat tracks on North Double Island, North and South Double Islands in addition to Boomerang Island were surveyed.

South End, Barrow Island (Photograph courtesy of ChevronTexaco)

299. Morris K, Burbidge AA, Stanley F (1999) Mammal monitoring, Barrow Island Nature Reserve, October 1999. Department of Conservation and Land Management, Woodvale, WA.
Summary: Barrow Island, as well as being of considerable nature conservation significance for other reasons, is one of Australia's most important mammal conservation areas. It supports 13 terrestrial mammal species, of which five are listed as threatened pursuant to the Wildlife Conservation Act. Barrow Island has been a producing oilfield since the mid-1960s, the operator being West Australian Petroleum Pty Ltd. This report covers the second mammal monitoring visit undertaken between 11–20 October, 1999. During this period five grids were trapped and spotlighting transects were conducted.

300. Morton SR, Short J, Barker RD (1995) *Refugia for Biological Diversity in Arid and Semi-Arid Australia: a Report to the Biodiversity Unit of the Department of Environment, Sport and Territories.* DEST, Canberra.
Summary: A brief overview of the biogeographic region, type of refuge, quality of refuge, area, chief refuge value, general description, ANZECC-listed species, key threats and land tenure. Reference number WA4: refuge area: Barrow Island group, pp. 72–73.

301. Muchmore WB (1982) The genus *Anagarypus* (Pseudoscorpionida: Garypidae). *Pacific Insects* **24**, 159–163.
Summary: The genus *Anagarypus* is redefined based on study of the type-species, *Anagarypus oceanusindicus*, and of two new species, *A. australianus* and *A. heatwolei*, from Australia.

302. Mulholland P (1990) Ledge Cave, Barrow Island. *Caver's Chronicle* **17**, 5.
Summary: A very brief report of Peter Mullholland's caving activities on Barrow Island.

303. Murray R (1991) *From the Edge of a Timeless Land: a History of the North West Shelf Gas Project.* Allen & Unwin, Sydney.
Summary: A detailed account of the history of the project from the establishment of Woodside Petroleum in the early 1950s, to the drilling, of the first well in 1967.

304. Mutton R (2003) Playing tag with turtles. *Landscope* **19(2)**, 10–16.
Summary: This article discusses the marine turtle

monitoring program in Western Australia and the threatening processes associated with the survival of marine turtles.

305. Nagy KA, Bradshaw SD (2000) Scaling of energy and water fluxes in free-living arid-zone Australian marsupials. *Journal of Mammalogy* **81**, 962–970.
Summary: Rates of field metabolism and water influx of six endangered species of marsupials living on Barrow Island, Western Australia, were measured using doubly labeled water. The remarkably similar reduction in daily energy and water needs of arid versus nonarid Australian marsupials, compared with arid versus nonarid North American and African eutherians, suggests that this similarity is an example of convergent evolution.

306. National Parks and Nature Conservation Authority (1991) Report of visit to Barrow Island and to Thevenard Island, June 1991. NPNCA, Crawley, WA.
Summary: The principal objective is to see that operations at Barrow Island are not imperilling the future of the island as an extraordinarily valuable nature reserve. The party (two from NPNCA and two from CALM) guided by Russell Lagdon and Harry Butler, were able to meet this objective and also discussed a number of specific issues of interest to CALM and to WAPET concerning their respective responsibilities. A number of particular issues relating to present or future activities at Barrow Island or Thevenard Island were identified and listed in this report.

307. National Parks and Nature Conservation Authority (1993) Report on visit to Barrow and Thevenard islands, 28 April 1993–3 May 1993. NPNCA, Crawley, WA.
Summary: This report summarises the results of a visit to Barrow and Thevenard Islands by the National Parks and Nature Conservation Authority (NPNCA). These visits have been carried out because of the importance of Barrow Island in the conservation estate, which was recognised by its vesting as a Class A Reserve as early as 1910 (Reserve No. 11648 for the protection of flora and fauna). Barrow Island's importance to conservation lies in the large populations of species of marsupials which are rare or extinct in other parts of its former range, and in the vegetation which maintains these populations. Other values include the flora, because of its biogeographical position and isolation; protection of the islands from many impacts experienced by mainland nature reserves; the aquatic cave fauna; and a significant landscape. Management of the reserve is of particular concern because of its use as a very productive petroleum lease, held by West Australian Petroleum Pty Ltd (WAPET). Control by the Company of its impacts on the environment and the success of its work on the rehabilitation of disturbed areas, are relevant to the acceptability of proposals from WAPET and other companies which may impact other nature reserves. The visits are also important to the NPNCA because they provide the only direct contact between the Authority and the Company at which issues can be directly and informally discussed, sites visited and communication improved. The text contains a number of comments and recommendations relevant to management and these were summarised at the end of the document.

308. National Parks and Nature Conservation Authority (1995) Report on visit to Barrow and Thevenard islands, 23 October–27 October 1995. NPNCA, Crawley, WA.
Summary: This report summarises the results of the visit to Barrow and Thevenard Islands by four members of the NPNCA. WAPET have held a lease over Barrow Island for the production of oil since 1967 and Thevenard Island since 1988. In addition to viewing operations of the existing oil bases, the group were briefed on the Gorgon development which is proposed, and on the alternative sites being considered (Exmouth, Barrow Island and Karratha). Authority members inspected the two sites where a plant may be built on the island, at Surf Point or in the general area of the tank farm.

309. National Parks and Nature Conservation Authority (1997) NPNCA and CALM visit to Barrow and Thevenard Island, 8–11 September 1997. NPNCA, Crawley, WA.
Summary: This report summarises the results of a visit to Barrow and Thevenard Islands by the National Parks and Nature Conservation Authority (NPNCA). These visits have been carried out because of the importance of Barrow Island in the conservation estate, which was recognised by its vesting as a Class A Reserve as early as 1910 (Reserve No. 11648 for the protection of flora and fauna). Barrow Island's importance to conservation lies in the large populations of species of marsupials which are rare or extinct in other parts of its former range, and in the vegetation which maintains these populations. Other values include the flora, because of its biogeographical position and isolation; protection of the islands from many impacts experienced by mainland nature reserves; the aquatic cave fauna; and a significant landscape. Management of the reserve is of particular concern because of its use as a very productive petroleum lease, held by West Australian Petroleum Pty Ltd (WAPET). Control by the Company of its impacts on the environment and the success of its work on the rehabilitation of disturbed areas, are relevant to the acceptability of proposals from WAPET and other companies

which may impact other nature reserves. The visits are also important to the NPNCA because they provide the only direct contact between the Authority and the Company at which issues can be directly and informally discussed, sites visited and communication improved. The text contains a number of comments and recommendations relevant to management and these were summarised at the end of the document.

310. Ogawa E, Billiards SS, King JM, Agar NS (2000) Methaemoglobin formation in euros and bettong. *Comparative Haematology International* **10**, 196–199.
Summary: The methaemoglobin in the erythrocytes of the Barrow Island euro, the mainland euro and the brushtailed bettong is tested

311. Oliver G (1990) Report on the capture of *Rattus rattus* on Barrow Island. Department of Conservation and Land Management, Karratha, WA.
Summary: The black rat, *Rattus rattus* is known to occur on Middle Island 250 m to the south of Barrow Island, Double Island 1 km to the east of Barrow and to have occurred prior to 1985 on Boodie Island 10 km to the south of Barrow. Oliver visited Barrow Island between July 24 and 27, and 49 medium sized Elliott traps were set over two nights on a 10 m grid on the south-west end of Barrow Island. One *Rattus rattus* was trapped on the southern end of Barrow Island. It may be a recent immigrant from Middle Island or it may have been present on Barrow Island for many years undiscovered. The recommendations are for an extensive trapping program to determine the extent of the distribution of *Rattus rattus* on Barrow Island.

312. Oliver G, Hughes M (1990) Report on a visit to Boodie Island July 1990. Department of Conservation and Land Management, Karratha, WA.
Summary: Boodie Island (470 ha) is located 10 km south of Barrow Island and forms part of the C Class Reserve No. 38728. CALM personnel visited the island on 25 and 26 July 1990 to implement a program for monitoring Pindone degradation in oats and to generally inspect the reserve.

313. Osborne S, Bancroft K, D'Adamo N, Monks L (2000) *Montebello/Barrow Islands: Regional Perspective 2000*. Department of Conservation and Land Management, Fremantle, WA.
Summary: This document provides a broad regional perspective on the ecological, cultural and socio-economic setting of the region as background information for a community-based advisory committee and for members of the general community who have an interest in the marine environment of the area.

314. Osborne S, Monks L (2000) An analysis of issues relating to the proposed Montebello/Barrow Islands marine conservation reserve. Department of Conservation and Land Management, Marine Conservation Branch, Report **MRI/PI/MBI 46/2000**
Summary: Face to face and telephone discussions were conducted, during April and May 2000, with 43 people from a wide range of interest and user groups and the results of these discussions are reported.

315. Ovington D (1978) *Australian Endangered Species: Mammals, Birds and Reptiles*. Cassell, Sydney.
Summary: Description, breeding, distribution, ecology and conservation of the boodie, *Bettongia lesueur*.

316. Palmer C, Taylor R, Burbidge AA (2003) Recovery plan for the golden bandicoot, *Isoodon auratus*, and golden-backed tree-rat, *Mesembriomys macrurus*, 2004–2009. Department of Infrastructure, Planning & Environment, Darwin.
Summary: Populations of surviving golden bandicoots and golden-backed tree-rats are recorded on a range of tenures including defence land, Aboriginal land, conservation land and unallocated Crown land. Golden bandicoot populations have been estimated for Barrow Island (tens of thousands) and Middle Islands (1000) in WA and Marchinbar Island (1400) in the NT. There are no population estimates for either species from the mainland or Kimberley islands. This Recovery Plan has been developed as a two-species recovery plan. However, recovery actions detailed in this document will include monitoring both populations to determine population trends, identify key threatening processes and develop and implement cooperative management arrangements, between relevant agencies, land managers and landowners (Commonwealth, State, Territory and regional levels).

317. Parry JC (1967) The Barrow Island oilfield. *APEA Journal* 130–133.
Summary: The Barrow Island oilfield was declared a commercial discovery in May 1966. Thirty-three wells had been drilled by December 31, 1966, and 144 wells, average depth 2450 ft will be drilled in 1967. The objective of this drilling is exploitation of the Lower Cretaceous Windalia Sand pool. The reservoir is an unconsolidated shaly sand. Recoverable reserves estimated at 114 million barrels are contained in a broad north plunging nose truncated at the south by a fault. The known

sedimentary section at Barrow Island ranges from Upper Jurassic to Miocene and there appears to be no hiatus between the Jurassic and the Cretaceous in this area. A number of additional hydrocarbon accumulations have been discovered in the Neocomian-Tithonian section, however, these are small and irregular and are not in themselves commercial.

318. Pendoley K (1997) Sea turtles and management of marine seismic programs in Western Australia. *PESA journal* **25**, 8–16.
Summary: Sea turtles are an important component of the Western Australian marine ecosystem. They have existed in the worlds of oceans for over a 100 million years, however the past two hundred have seen a major decline in population levels globally, primarily as a result of human consumption of meat and eggs and a demand for turtle shell decorative items. They are protected under international, national and state regulations and should be considered in any environmental impact assessment of geophysical programs in west Australian waters. The known nesting sites in Western Australia for green, flatback, loggerhead and hawksbill turtles are identified in the paper, however this should only be considered preliminary as it is likely that other major rookeries exist but are yet to be confirmed. All seismic programs should be assessed and managed on a case-by-case basis making allowances for surveys to be tailored to fit specific environmental, meteorological, operational and regulatory conditions.

319. Pendoley K (2002) Sea turtle records, Barrow Island, Western Australia. *Western Australian Naturalist* **23**, 207–209.
Summary: Previously published records for Barrow Island sea turtle fauna include reference to *Chelonia mydas* nesting on local beaches and small *Eretmochelys imbricata* swimming in the shallow offshore waters. The CALM West Australian Marine Turtle Research Program has confirmed the west coast of Barrow Island as a major green turtle rookery while Yacht Club Beach north of the WAPET camp is recognised as a flatback turtle rookery.

320. Penn JW (1985) Barrow Island scallop survey. *Fins* **18**, 12–13.
Summary: Late in 1983 a scallop survey was carried out by MG Kailis Pty Ltd in an area near Barrow Island but the results were not encouraging. Numbers of *Amusium balloti* were too low to make commercial trawling worthwhile.

321. Perry DH (1972) Some notes on the termites (Isoptera) of Barrow Island and a check list of species. *Western Australian Naturalist* **12**, 52–55.
Summary: The author visited Barrow Island during the period March 29 to April 5, 1971. The main reason being to determine if the genus *Drepanotermes* was represented on the island and if so to collect and describe any species present. The opportunity was also taken to collect as thoroughly as possible, in the time available, any other species of termite that might be located.

322. Platnick NI (2000) *Lampona barrow*, new species. *Bulletin of the American Museum of Natural History* **245**, 58–59.
Summary: Description of *Lampona barrow*, a new species of spider from Barrow Island.

323. Poole WE (1983) Common wallaroo, *Macropus robustus*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 250–251. Angus & Robertson, Sydney.
Summary: Brief description and location of the common wallaroo, *Macropus robustus*.

324. Poole WE (1995) Common wallaroo, *Macropus robustus* (Gould, 1841). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 347–349. Reed, Sydney.
Summary: Brief description and location of the common wallaroo, *Macropus robustus*.

325. Pope L, Storch D, Adams M, Moritz C, Gordon G (2001) A phylogeny for the genus *Isoodon* and a range extension for *I. obesulus peninsulae* based on mtDNA control region and morphology. *Australian Journal of Zoology* **49**, 411–434.
Summary: Short-nosed bandicoots, *Isoodon*, have undergone marked range contractions since European colonisation of Australia and are currently divided into many subspecies, the validity of which is debated. Discriminant function analysis of morphology and a phylogeny of *Isoodon* based on mtDNA control region sequences indicate a clear split between two of the three recognised species, *I. macrourus* and *I. obesulus/auratus*. It seems plausible that what is currently considered as two species, *I. obesulus* and *I. auratus*, was once one continuous species now represented by isolated populations that have diverged morphologically as a consequence of adaptation to the diverse environments that occur throughout their range. The taxonomy of these populations is discussed in relation to their morphological distinctiveness and genetic similarity.

326. Prince RIT (1986) Dugong in northern waters of Western Australia, 1984. *Department of Conservation and Land Management, Western Australia, Technical Report* **7**, 1–38.
Summary: The dugong is included in the IUCN Mammal Red Data Book, Part 1 as a species vulnerable to extinction, and in Western Australia it is similarly placed in accord with provisions of the Western Australian Wildlife Conservation Act, 1950, within the special category of fauna considered likely to become extinct, or is rare or otherwise in need of special protection. Information includes investigation into the possible distribution and abundance of dugong and dugong habitat in these areas, and the possible role of traditional subsistence hunting as a factor affecting these dugong populations.

327. Prince RIT (1993) Western Australian marine turtle conservation project: an outline of scope and an invitation to participate. *Marine Turtle Newsletter* **60**, 8–14.
Summary: Six of the world's seven species of marine turtle frequent the Western Australian region, but only four are confirmed as breeding here: the green turtle (*Chelonia mydas*), flatback (*Natator depressus*), hawksbill (*Eretmochelys imbricata*), and loggerhead (*Caretta caretta*).

328. Prince RIT (1994) The flatback turtle (*Natator depressus*) in Western Australia: new information from the Western Australian Marine Turtle Project. In *Proceedings of the Australian Marine Turtle Conservation Workshop: Sea World Nara Resort, Gold Coast, 14–17 November, 1990* (ed R James), 146–148. Australian Nature Conservation Agency, Canberra.
Summary: Further information on the flatback turtle (*Natator depressus*) in Western Australia shows that it occurs as a nesting species off the south-western Pilbara coast, but there is no substantial evidence of its occurrence in Exmouth Gulf, or further southward. The southernmost presently known rookeries are in the Pilbara region, on Barrow Island, the Lowendal Islands, and within the Dampier Archipelago.

329. Prince RIT (1994) Status of the Western Australian marine turtle populations: the Western Australian Marine Turtle Project 1986–1990. In *Proceedings of the Australian Marine Turtle Conservation Workshop: Sea World Nara Resort, Gold Coast, 14–17 November, 1990* (ed R James), 1–14. Australian Nature Conservation Agency, Canberra.
Summary: Four species of marine turtles nest at Western Australian rookeries. The green turtle (*Chelonia mydas*) is by far the most abundant, with nesting use of individual major rookeries observed over the past three years varying from c. 3000 to 10 000 or more females per season. Information becoming available for the flatback turtle (*Natator depressus*) is suggesting that this turtle may be the next most abundant species, with annual nesting of hundreds to thousands of females. Nesting hawksbill (*Eretmochelys imbricata*) and loggerhead turtles (*Caretta caretta*) appear to be much less abundant than the flatback. The leatherback turtle (*Dermochelys coriacea*) has not been recorded nesting, but appears to be a regular feeding migrant. Knowledge which is necessary to improve the approach to conservation of Western Australian region dependent marine turtle populations is being sought within the framework of the Western Australian Marine Turtle Project managed by CALM. Work in progress is being guided by our developing knowledge of these turtle populations, and is being greatly assisted by participation of volunteers from the general community, members of Aboriginal communities in the Kimberley region, and by cooperation of staff of other government authorities and organisations.

330. Prince RIT (1994) Update: sea turtles in Western Australia. *Marine Turtle Newsletter* **64**, 18–19.
Summary: An update of sea turtle behaviour and numbers tagged for the 1992/93 season in WA.

331. Prince RIT (2001) Environment Australia, Marine Species Protection Program funding agreement with Department of Conservation & Land Management, WA for aerial survey of the distribution and abundance of dugongs and associated macrovertebrate fauna: Pilbara coastal and offshore region, WA: completion report. CALM, Woodvale, WA.
Summary: Early reconnaissance studies of the Western Australian Pilbara coastal and offshore waters pointed to the significance of this area for dugong, but the regional surveys required to provide information on distribution and abundance of dugongs in that area had not previously been supported. Findings from the April 2000 survey confirm the regional importance of the Pilbara coastal and offshore waters as an integral part of the resource areas sustaining dugong presence on the Western Australian coast. The need to consider requirements for dugong conservation at an appropriately wide regional scale is apparent. Critical connectivity across the Shark Bay to Pilbara coast region at least is indicated. Linkages to areas further north can also be anticipated. The likely longer term pattern of temporal and spatial

*Green turtle (*Chelonia mydas*), west coast of Barrow Island (Photograph courtesy of ChevronTexaco)*

variability of capacity of key habitat areas needed to support the Western Australian dugong population provides the reason for the wider focus required. This must be taken into account in review of the current proposals for designation and management of new marine protected areas (MPAs) for the Western Australian Pilbara and other coastal regions extending into the Kimberley. This report includes data analysis to provide population estimates for the dugongs, sea turtles and small cetaceans (dolphins) recorded in the survey; sightings data have been mapped to show distributions of the dugongs, sea turtles and small cetaceans (dolphins) recorded on survey.

332. Pruett-Jones SG, O'Donnell E (2004) Land birds on Barrow Island: status, population estimates and responses to oil-field development. *Journal of the Royal Society of Western Australia* **87**, 101–108.

Summary: A census of land birds on Barrow Island, Western Australia was carried out during September and October 2001. A total of 178 transects was conducted in six major vegetation zones, with 777 individuals of 16 species of birds recorded.

333. Pruett-Jones SG, Tarvin KA (2001) Aspects of the ecology and behaviour of white-winged fairy-wrens on Barrow Island. *Emu* **101**, 73–78.

Summary: The study of white-winged fairy-wrens (*Malurus leucopterus edouardi*) on Barrow Island during September and October 1998. Birds were most abundant on ridges in upland areas where *Triodia wiseana* was the dominant vegetation and was interspersed with open areas. They were less abundant in foredune areas and on red dunes, and were rare in other habitats. Males were significantly larger than females in most morphological measurements. Group size averaged 2.4 individuals with six of nine groups consisting of just one male and one female. In one of nine groups, the only male present was a completely brown male. Sex ratio of adults in these nine groups was 0.83 (males/females). The display vocalisation was nearly identical in structure to that of birds on the mainland. Three nests were each approximately 0.5 m high in a shrub adjacent to a *Triodia angusta* plant. In most aspects of their behaviour and ecology, white-winged fairy-wrens on Barrow Island appear to be almost identical to birds on the mainland.

334. Quartermaine Consultants (1994) Aboriginal site survey: report on an archaeological survey programme, Barrow Island. West Australian Petroleum, Perth.
Summary: CONFIDENTIAL. This report describes an archaeological survey investigation for Aboriginal sites at Barrow Island situated off the coast of the Pilbara region in Western Australia. The archaeological investigation involved a search of the Aboriginal Site Register, a study of previous research material, a systematic field survey based on previous research and local environment. Twelve archaeological sites were discovered during the survey. The newly recorded sites are all surface artefact scatters. Most of the artefact scatters were recorded in full. Details are provided in the report. Based on the results of the research, survey and analysis, it is considered that the island, which would have been a limestone upland on a peninsula connected to the mainland during times of low sea levels, was little used with most evidence of occupation concentrated around the claypan areas.

335. Rathburn MK, Montgomerie R (2003) Breeding biology and social structure of white-winged fairy-wrens (*Malurus leucopterus*): comparison between island and mainland subspecies having different plumage phenotypes. *Emu* **103**, 295–306.
Summary: White-winged fairy-wrens have a clan mating system wherein up to three cooperative breeding groups (breeding pair plus any helpers) are contained within the larger territory of a nuptial-plumaged male who also has a mate (likely with helpers). Nuptial-plumaged males of island and mainland subspecies have different plumage phenotypes: in the mainland Australian subspecies (*Malurus leucopterus leuconotus*) nuptial males are blue with white wings, whereas in the subspecies on Dirk Hartog (*M. l. leucopterus*) and Barrow (*M. l. edouardi*) islands males are black with white wings. Here, we compare island and mainland populations of white-winged fairy-wrens in morphology, breeding biology and social behaviour based on data collected over two breeding seasons on Dirk Hartog Island and near Lancelin, Western Australia, on the mainland.

336. Reardon M (1995) The good oil on conservation. *Australian Geographic* **37**, 92–109.
Summary: Barrow Island is an oilfield and wildlife refuge off Western Australia. Oil company WAPET has ensured that its operations have had minimal effect on the island's endangered animals. This island supports 14 land mammal species, at least seven marine mammal species, 110 bird species and 54 species of reptiles. It is also the rookery for two of Western Australia's five turtle species. WAPET's key conservation policies include workforce education, strict quarantine control, widely spaced drilling, rehabilitation of disturbed areas, fire control, careful waste disposal and restrictions on the movements of vehicles and personnel. The result of this management plan has meant that the island supports healthy populations of all of its native species, some of which even favour the oilfields, where they can find water, shade and tasty new growth among the wells. Land restoration and rehabilitation policies have helped to ensure that only 4% of the island is affected by its activities. Once an operation is completed, earthmoving machines are used to re-profile the area and to replace the topsoil. These areas are generally left to regenerate naturally.

337. Reid G (1986) Land Act, 1933 (section 33): Vesting Order. Government of WA, Perth.
Summary: Vesting Order by Professor Gordon Reid, Governor in and over the State of Western Australia and its Dependencies in the Commonwealth of Australia declaring that Barrow Island is vested in and held by the National Parks and Nature Conservation Authority, Oct 1986. Also contains the memo regarding vesting in the Western Australian Wildlife Authority in 1985 and the Government Gazette notice of 18 Jan 1985, amending the size of the reserve and its change of purpose. Copied off: Nature Reserves: Tenure: Barrow Island A 11648. Volume 5: file no. 014582F3102.

338. Ride WDL (1970) *A Guide to the Native Mammals of Australia*. Oxford University Press, Melbourne.
Summary: General description and brief details. Great kangaroos, pp. 40–44; hare-wallabies, pp. 54–58; rock-wallabies, pp. 58–62; rat-kangaroos, pp. 62–68; large possums and cuscuses, pp. 70–72; short-nosed bandicoots, pp. 95–96; native-mice, pp. 152–155

339. Robinson AC (1983) Western chestnut mouse, *Pseudomys nanus*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 398. Angus & Robertson, Sydney.
Summary: Brief description and location of the western chestnut mouse, *Pseudomys nanus*.

340. Robinson AC (1992) Perenties, predators and prey. *South Australian Naturalist* **67**, 30–34.
Summary: General observation and information about the population of perenties on Barrow Island.

341. Robinson AC (1995) Western chestnut mouse, *Pseudomys nanus*, (Gould, 1858). In *The Mammals of Australia: the National Photographic Index of Australian Wildlife* (ed R Strahan), 609–610. Reed, Sydney.
Summary: Brief description and location of the western chestnut mouse and the sub-species *Pseudomys nanus ferculinus*.

342. Rodda GH, Dean-Bradley K (2002) Excess density compensation of island herpetofaunal assemblages. *Journal of Biogeography* **29**, 623–632.
Summary: Some herpetofaunal species can reach very high densities on islands.

343. Romero A, Vanselow PBS (2000) Threatened fishes of the world: *Ophisternon candidum* (Mees, 1962) (Synbranchidae). *Environmental Biology of Fishes* **58**, 214.
Summary: Common name, status and identification of the blind cave eel listed as threatened under the Western Australian Wildlife Conservation Act. This species of troglobitic fauna is distributed along the western and northeastern coastal plain of the Cape Range peninsula and Barrow Island.

344. Sedgwick EH (1976) Avifauna. E Sedgwick, Perth.
Summary: A draft copy of the author's paper on Barrow Island avifauna.

345. Sedgwick EH (1976) Barrow Island files: a population study of the Barrow Island avifauna. 2 v.. E Sedgwick, Perth.
Summary: Two volumes containing the photographs, maps and correspondence of E Sedgwick with WAPET prior to his trip to Barrow Island. There is also a draft copy of his paper on Barrow Island avifauna.

346. Sedgwick EH (1978) A population study of the Barrow Island avifauna. *Western Australian Naturalist* **14**, 85–108.
Summary: Four weeks of intensive field work on Barrow Island (c. 22 260 ha) in August 1976 on the status of birds then present, particularly the black-and-white wren and the spinifex-bird, was mainly concentrated upon their population strength. The count methods are described and the results given in detail. The most numerous species was found to be the spinifex-bird with 17 800 individuals, followed by the welcome swallow, 8500; the black-and white wren, 8150; the tree-martin, 7050; the white-breasted wood-swallow, 3450; the singing honeyeater, 3050 and the kestrel, 1650. The remaining species were represented by fewer than 1000 individuals, the most numerous of these being the Horsfield bronze-cuckoo with 910 individuals. Sea and shore-birds were the subjects of separate counts.

347. Serventy DL, Marshall AJ (1964) A natural history reconnaissance of Barrow and Montebello Islands, 1958. *CSIRO Division of Wildlife Research, Technical Paper* **6**, 1–23.
Summary: The results of a brief zoological survey of Barrow, Lowendal and Montebello islands in September 1958 are reported, mention being made of the flora and annotated lists provided of the mammals and birds. Barrow Island (55 000 acres), with six (perhaps seven) species of native terrestrial mammals, is possibly the most mammal rich island off the Western Australian coast. A new addition to the fauna is the fat-tailed marsupial-mouse, *Antechinus macdonnellensis*, known previously only from mainland arid habitats. The three terrestrial native mammals known to have occurred on the Montebello Islands (one, the boodie, *Bettongia lesueur*i, first recorded in the present paper) are now extinct. The extermination, which must have occurred during the 90 years prior to 1950, may perhaps have been due to the depredations of the feral cat and/or the deterioration of the climate. There has been no comparable extinction on nearby Barrow Island. The fauna and flora of the Montebello Islands, so far as could be judged by the brief inspection, had not been adversely affected by the British atomic explosion of 1952.

348. Sharman GB, Maynes GM (1983) Black-footed rock-wallaby, *Petrogale lateralis*. In *Complete Book of Australian Mammals: the National Photographic Index of Australian Wildlife* (ed R Strahan), 209–210. Angus & Robertson, Sydney.
Summary: Brief description and location of the black-footed rock-wallaby, *Petrogale lateralis*.

349. Short J (1988) Conservation of threatened macropods: project proposal, 9th June 1988. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.
Summary: An understanding of the reason or reasons for the decline of species now represented only by remnant populations is necessary for their on-going management and to aid their re-introduction to areas of their former range.

350. Short J (2004) Baseline survey and subsequent monitoring strategy to detect exotic terrestrial species on Barrow Island: report to ChevronTexaco Australia Pty Ltd. CSIRO Sustainable Ecosystems, Floreat, WA.
Summary: ChevronTexaco approached CSIRO Sustainable Ecosystems to develop a baseline survey for exotic species. The aims of this consultancy were to: Design a sampling strategy

for a baseline survey of terrestrial species on Barrow Island, with an emphasis on detecting any exotic species that may currently be present. Develop a monitoring protocol to maximise detection of future incursions of exotic species during the Gorgon construction phase. Develop a timetable, works program and team of experts to meet the above aims.

351. Short J, Cale P, Lagdon R, Butler WH (1988) Summary of results of trip to Barrow Island, 22 June–6 July 1988. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.
Summary: The aim of the trip was to become familiar with the island, bettongs, plants and WAPET administration and procedures.

352. Short J, Turner B (1989) A test of the habitat mosaic theory: bettongs, bandicoots and possums on Barrow Island. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.
Summary: Part I aims to establish the distribution, abundance, and habitat preference of burrowing bettongs on Bernier, Dorre, and Barrow islands. These islands are now the only remaining places where this species in known to survive. Part II of the project explores a major hypothesis put forward to explain the extinction or near extinction of many medium-sized macropods and bandicoots over the last 30–50 years, the habitat mosaic theory. The objectives of the project are to establish whether burrowing bettongs require a mosaic of vegetation of different seral stages after disturbance to maintain their populations, or to enhance the well-being of the populations and to establish whether this requirement for a habitat mosaic can be adequately met from the close juxtaposition of diverse vegetation types or landscape units.

353. Short J, Turner B (1990) P102: the experimental reintroduction of the burrowing bettong to mainland Australia. Part II, the importance of a vegetation mosaic to the burrowing bettong: final report to World Wide Fund for Nature Australia, June 1990. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.
Summary: The habitat mosaic hypothesis suggests that medium-sized mammals such as bettongs, hare-wallabies, bandicoots and possums require a habitat which is a fine-grained mosaic of different vegetation types or seral stages. This fine-grained mosaic is believed to have been created in the spinifex deserts of mainland Australia by Aboriginal burning. The loss of this mosaic is said to be a primary reason for mainland extinction of many species of medium-sized mammals and major reductions in range of other species. This study tested that theory for the burrowing bettong, the golden bandicoot and the northern brush-tailed possum on Barrow Island. The abundance, condition and reproductive status of each species was assessed in 24 trapping grids, each of 6.24 ha, distributed across the spectrum of habitat diversity found on the island.

354. Short J, Turner B (1991) Distribution and abundance of spectacled hare-wallabies and euros on Barrow Island, Western Australia. *Wildlife Research* **18**, 421–429.
Summary: Report of a survey of the distribution and abundance of two species of macropod on Barrow Island: the spectacled hare-wallaby (*Lagorchestes conspicillatus*) and the euro (*Macropus robustus isabellinus*). Barrow Island is the second largest island off the coast of Western Australia and is both a conservation reserve and a commercial oilfield. Barrow Island has been a commercial oilfield since 1964 yet there is little information available on the effect of this operation on the mammal fauna.

355. Short J, Turner B (1993) The distribution and abundance of the burrowing bettong (Marsupialia: Macropodoidea). *Wildlife Research* **20**, 525–534.
Summary: The burrowing bettong (*Bettongia lesueur*) has been extinct on mainland Australia since the early 1960s, but was believed to persist on four islands off the coast of Western Australia – Bernier, Dorre, Barrow and Boodie. These islands were surveyed in 1988–89 to ascertain the status of bettongs and other endangered mammals. Bettongs were widespread and comparatively abundant on three islands but absent from the fourth. Bettongs occurred at estimated densities of c. 14–17 km^2 on Bernier, Dorre and Barrow islands, suggesting approximate minimum populations of 650, 1000 and 3400 respectively and a total minimum population for the species of c. 5000 individuals. It would appear that a poisoning campaign in 1985 to eliminate *Rattus rattus* from Boodie Island also eliminated the bettong. The burrowing bettong has apparently been absent from a fifth island and its type locality, Dirk Hartog Island in Shark Bay, since early this century. The vulnerability of this species is highlighted by its extinction on mainland Australia and by the loss of two of its five island populations. It now occupies less than 0.01% of its historical range. Its status as rare and endangered is justified.

356. Short J, Turner B (1994) A test of the vegetation mosaic hypothesis: a hypothesis to explain the decline and extinction of Australian mammals. *Conservation Biology* **8**, 439–449.

*Osprey (*Pandion haliaetus*) (Photograph courtesy of ChevronTexaco)*

Summary: The vegetation mosaic hypothesis suggests that medium-sized mammals occupying arid and semi-arid areas of Australia require a habitat that is a fine-grained mosaic of different vegetation types or seral stages. This mosaic is believed to have been created in the spinifex deserts of central Australia by Aboriginal burning practices. Its loss in the period 1940–1960 is postulated to be a primary reason for both major reductions in range and mainland extinctions of many species of medium-sized mammals at this time. This study measured the responses of three species of medium-sized mammals to vegetation patterns within spinifex grasslands that ranged from comparatively uniform to highly diverse. The abundance, condition, and reproductive status of golden bandicoots, northern brush-tailed possums, and burrowing bettong were assessed with vegetation mosaics of various scales on Barrow Island, off the northwest coast of Australia. Scale of mosaic proved to have no significant effect on the numbers, condition, or reproductive status of any of the three species. Similarly, the creation of fine-grained mosaics of early seral-stage vegetation mixed within climax vegetation by extensive oil-field operations over nearly half the island had no significant effect on the number or condition of animals. Hence, scale of mosaics seems unlikely to be related to the mainland decline or extinction of these species. The pattern of decline and extinction on the mainland but continued survival on offshore islands is more consistent with the presence (mainland) or absence (islands) of introduced predators (foxes and cats) and herbivores (rabbits and stock).

357. Short J, Turner B, Cale P (1988) The distribution and relative abundance of rare macropods and bandicoots on Barrow and Dorre islands: final report for the 6 month consultancy program entitled Feasibility of reintroducing the burrowing bettong *B. lesueur* to mainland Western Australia phase 1, to National Kangaroo Monitoring Unit, Australian National Parks and Wildlife Service. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.

Summary: Distribution and abundance of the medium-sized mammals on Barrow and Dorre Islands. Drought and plenty, successional stage after fire, and competitive interactions between species may alter the relative abundances of these species over time. The major threat to the continued survival of all species on these islands is the introduction of exotic predators, the cat or fox.

358. Short J, Turner B, Majors C (1989) The distribution, relative abundance and habitat preferences of rare macropods and bandicoots on Barrow, Boodie, Bernier and Dorre islands: final report for the 2 year consultancy program entitled Feasibility of reintroducing the burrowing bettong *B. lesueur* to mainland Western Australia phase 1, to National Kangaroo Monitoring Unit, Australian National Parks and Wildlife Service. CSIRO Division of Wildlife and Ecology, Helena Valley, WA.

Summary: Three islands off the coast of Western Australia – Barrow, Bernier and Dorre – provide a refuge for six species of rare bettong, hare-wallaby and bandicoot. Three species have been absent from the Australian mainland for over 30 years; three have only remnant populations remaining on the mainland. Hence their protection and management on these islands is of critical importance to the overall survival of each species. This study provides the first systematic surveys of their abundance and distribution on Barrow, Bernier, and Dorre Islands. In addition, we provide the results of a survey for bettongs on Boodie Island, a small island off the southern tip of Barrow Island. The surveys employed a mixture of spotlighting and trapping. Techniques were standard across islands. A total of 200 km of transect were spotlighted on foot across the four islands and cage traps were laid for a total of 2116 trap nights.

359. Slack-Smith SM (2002) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix H, a preliminary survey of the terrestrial molluscan fauna of areas within and adjacent to the land-based component of the proposed Gorgon development, Barrow Island, Western Australia, September 2002. ChevronTexaco Australia, Perth.

Summary: The fieldwork component of a preliminary survey of the terrestrial molluscan fauna of Barrow Island, Western Australia was carried out from the 9th to 13th of August 2002. The stations sampled included areas which may be impacted by the land-based components of the proposed Gorgon gas development, and those immediately adjacent to them. This is the first survey of the non-marine molluscan fauna of any part of Barrow Island. Specimens and data collected during this survey have significantly augmented those previously available in the collections of the Western Australian Museum, which had comprised few and generally poor-localised snail specimens.

360. Smith DN (1962) Barrow Island geological survey, Carnarvon Basin, WA. West Australian Petroleum, Perth.

Summary: A surface geological and gravity survey were conducted on Barrow Island in July 1962. The field crews in each case operated from vessels anchored close offshore. Exposures of Tertiary limestones were mapped by plane table and telescopic alidade and a structure map was drawn to the base of the Miocene Trealla Limestone. Barrow Island is clearly a regional high in the Tertiary of the Carnarvon Basin and therefore is almost certainly high in basal cretaceous rocks. Previous aerial magnetometer work suggests that the total sedimentary thickness beneath Barrow Island may be considerably in excess of 7000 feet. This is the deepest reliable depth estimate we have from aeromagnetics. The geological survey of Barrow Island was made to map the exposed Tertiary Limestone structure and to evaluate various engineering geological problems that would be associated with possible future drilling operations.

361. Smith L (1973) List of reptiles collected on Barrow Island 17 August–13 September 1973. L Smith, Perth.

Summary: A list of specimens collected as part of the West Australian Petroleum 1973 research grant. Copied off: Nature reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 2: file no. 014579F3102.

362. Smith LA (1976) The reptiles of Barrow Island. *Western Australian Naturalist* **13**, 125–136.

Summary: The 38 terrestrial and six marine species of reptiles from Barrow Island are listed, including the first specimen of the sea snake, *Emydocephalus annulatus* from Western Australia. The biology of the terrestrial species is discussed with respect to their distribution on the island, breeding condition, diet, body size and time of activity. The relationships of the Barrow Island fauna to the mainland fauna are discussed.

363. Smithers CN (1982) General report on work carried out under WAPET Research Grant, 1982. WAPET, Perth.

Summary: The main object of this visit was to collect insect specimens from Barrow and surrounding islands. Ten islands were visited, including some of the Lowendals and Montebellos and smaller islands near Barrow. The greatest part of the work was carried out on Barrow Island. By comparison with the vertebrate animals, the insects have been relatively poorly studied on the islands.

364. Smithers CN (1982) The Psocoptera of Barrow and Boodie islands, Western Australia. *Entomologica Scandinavica* **15**, 215–226.

Spinifex grassland on Barrow Island (Photograph courtesy of ChevronTexaco)

Summary: This paper records the first Psocoptera known from Barrow and Boodie islands, off the west coast of Western Australia. *Liposcelis entomophilus* (Enderlein), *Caecilius* sp., *Peripsocus fici* sp.n. and *Barrowia insularis* gen. et sp.n. occur on Barrow Island; *Cladioneura foliata* sp. occurs on both Barrow and Boodie islands.

365. Smithers CN (1984) The Neuroptera of Barrow and nearby islands off the west coast of Western Australia. *Australian Entomological Magazine* **11**, 61–68.
Summary: Sixteen species of Neuroptera are listed from Barrow and Montebello Islands off the northwest coast of Western Australia. These include two coniopterygids, one of which is named, one new genus and species of berothid and seven species of chrysopids, of which two are new records for the area. Five myrmeleontids are listed, of which two are probably new species, two are new records for the islands and the fifth probably a synonym of one of the new records from Barrow Island. The single species of *Ascalaphid* is a new species.

366. Smithers CN (1985) New records of *Pogonella bispinus* (Stål) (Homoptera: Membracidae) from eastern Australia and Barrow Island, Western Australia. *Australian Entomological Magazine* **12**, 35–36.
Summary: This paper gives new locality records for *Pogonella bispinus* (Stål) (Membracidae) in eastern Australia and on Barrow Island, north-western Western Australia, and records *Plumbago zeylanica* as a host plant.

367. Smithers CN (1988) Four additional antlion records from Barrow island, Western Australia (Neuroptera: Myrmeleontidae). *Australian Entomological Magazine* **15**, 2.
Summary: Four species of antlions are recorded for the first time from Barrow Island, Western Australia.

368. Smithers CN, Butler WH (1982) The butterflies (Lepidoptera: Hesperioidea and Papilionoidea) of Barrow and nearby islands, Western Australia. *Western Australian Naturalist* **15**, 141–145.
Summary: This paper contains a synopsis of records of butterflies from Barrow Island and nearby island groups. Sixteen species are recorded from eleven islands, their distribution amongst the islands is tabulated and larval host plants discussed.

369. Smithers CN, Butler WH (1985) Dragonflies and damselflies (Odonata) from Barrow and nearby islands off the coast of Western Australia. *Australian Entomological Magazine* **12**, 9–12.

Summary: This paper provides records of six species of recently collected Odonata from the Montebello, Lowendal and Barrow Island groups off the coast of Western Australia.

370. Solem A (1997) *Quistrachia barrowensis* sp.nov. *Records of the Western Australian Museum. Supplement* **50**, 1821–1827.
Summary: Description and range of *Quistrachia barrowensis* sp.nov. from Barrow Island and its associated islets.

371. Specht RL, Roe EM, Boughton VH (1974) Conservation in Western Australia. In *Conservation of Major Plant Communities in Australia and Papua New Guinea* 519–590. CSIRO, Melbourne.
Summary: Details plant communities on Barrow Island.

372. Start AN (1995) Barrow Island: feral cat sighting. Department of Conservation and Land Management, Woodvale, WA.
Summary: The objective was to investigate the likelihood of the report of a feral cat sighting being accurate and if so, to arrange for a program to eliminate the animal.

373. Stokes JL (1846) *Discoveries in Australia: with an Account of the Coasts and Rivers Explored and Surveyed During the Voyage of HMS Beagle, in the Years 1837-38-39-40-41-42-43 by Command of the Lords Commissioners of the Admiralty, also a Narrative of Captain Owen Stanley's Visits to the Islands in the Arafura Sea. Vol. I.* T. & W. Boone, London.
Summary: Sighting of Barrow Island, January 1838. pp. 66–67

374. Stokes JL (1846) *Discoveries in Australia: with an Account of the Coasts and Rivers Explored and Surveyed During the Voyage of HMS Beagle, in the Years 1837-38-39-40-41-42-43 by Command of the Lords Commissioners of the Admiralty, also a Narrative of Captain Owen Stanley's Visits to the Islands in the Arafura Sea. Vol. II.* T. & W. Boone, London.
Summary: Stokes explored and surveyed Barrow Island and Montebello Island during August 1840. He noted that Barrow Island would make a good penal settlement. pp. 207–214

375. Stoklosa RT (1988) The relevance of risk assessment in environmental approvals and decision making. *APPEA Journal* **38**, 715–723.
Summary: The relevance of ecological risk assessment is the principal subject of this paper. The petroleum industry has demonstrated expertise in characterising process safety, risk, and can confidently analyse the circumstances of accidental or routine emissions to the environment.

376. Stoklosa RT (1999) Practical application of environmental risk management: Gorgon LNG Project case study. *APPEA Journal* **39**, 606–620.
Summary: Stoklosa Engineering has been working with the petroleum industry to develop an environmental risk management methodology that can be generally applied to petroleum industry activities. In particular, the methodology is for assessing and managing ecological risk in sensitive marine environments. This paper introduces a management and technical methodology for the risk assessment process that has been applied to planning scenarios for the Gorgon LNG Project. The methodology has evolved from earlier efforts by petroleum operators and government in Western Australia to quantify ecological risk.

377. Storr GM (1984) Birds of the Pilbara Region, Western Australia. *Records of the Western Australian Museum. Supplement* **16**, 1–63.
Summary: This paper is an annotated list of the 284 species of birds recorded from the Pilbara, in the arid north-west of Western Australia. It includes birds recorded from Barrow, Montebello and adjacent islands.

378. Strickland G (1909) The Game Act, 1892: Proclamation.
Summary: Proclamation by His Excellency Sir Gerald Strickland, Knight Commander of the Most Distinguished Order of St. Michael and St. George, Governor in and over the State of Western Australia and its Dependencies, etc. etc. etc. declaring Barrow Island to be a Reserve for Native Game. The official notice can be found in the Government Gazette, 5 Nov 1909, p. 3533. Copied off: Nature Reserves: Tenure: Barrow Island Game Reserves A 11648. Volume 1: file no. 014578F3102.

379. Sylvester F, McIlroy J (1979) Interview with Frank Sylvester [SOUND RECORDING]. 1 sound cassette. Western Australian Museum, Perth.
Summary: Frank Sylvester, a NW identity talking to Jack McIlroy about Onslow, Barrow Island and the Kimberleys in the early 20th century. The interview was in connection with Dampier Sites survey.

380. Thomas BM (1971) Revision of the Upper Cretaceous-Lower Tertiary in the Barrow Island area and its structural significance. West Australian Petroleum, Perth.

Summary: This project is concerned with defining accurately the thickness, extent, and lateral variations in two units, the Toolonga Calcilutite and the Upper Gearle Siltstone. The top of the Lower Gearle Siltstone was also studied, since if defines the base of the lower unit. The Upper Gearle is of Turonian to Cenomanian age; the Toolonga is Santonian to Campanian, together comprising the Upper Cretaceous in this area. The Toolonga Calcilutite is unconformable on the Upper Gearle, and is unconformably overlain by the Tertiary Cardabia Group.
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381. Thomas BM (1974) Carnarvon Basin: the Neocomian and Tithonian of Barrow Island: a review. West Australian Petroleum, Perth.
Summary: This report follows the completion of the first stage of a full review of Barrow Island and the surrounding areas.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

382. Thomas BM (1975) The Aptian to Miocene geology of Barrow Island: a review. West Australian Petroleum, Perth.
Summary: This report represents a continuation of the review of Barrow Island geology and complements the report, The Neocomian and Tithonian of Barrow Island: a review by BM Thomas. The present study is concerned mainly with the Winning Group (Early-Late Cretaceous), Toolonga Calcilutite (Late Cretaceous) and basal part of the Cardabia Group (Palaeocene).
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383. Thomas O (1888) *Catalogue of the Marsupialia and Monotremata in the Collection of the British Museum (Natural History)*. BMNH, London.
Summary: Descriptions of specimens held in the British Museum (Natural History). *Macropus isabellinus*, pp. 25; *Petrogale lateralis*, pp. 68–69; *Lagorchestes conspicillatus*, pp. 80–82; *Bettongia lesueur*i, pp. 112–114; *Perameles bougainvillei,* pp. 246–248
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384. Thomas O (1901) On some kangaroos and bandicoots from Barrow Island, NW Australia and the adjoining mainland. *Novitates Zoologicae* **8**, 394–396.
Summary: Discussion on the identification of specimens of kangaroos and bandicoots collected by Mr Tunney. The Tring Museum holds the original specimens of *Macropus robustus*, provided by Mr BH Woodward, Curator of the Western Australian Museum.
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385. Tindale NB (1974) Catalog of Australian Aboriginal tribes: Noala. In *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits and Proper Names* p. 254. Australian National University Press, Canberra.
Summary: Tindale suggests that the Noala tribe visited the Barrow and Montebello islands by using logs as watercraft. He used evidence from King's voyage (26th–27th February, 1818) in which King observed the Noala tribe and their use of watercraft. This was a log that the natives would sit astride and move by propelling it through the water with their hands.
Copyright note: Summary reproduced with permission from the South Australian Museum – http://www.samuseum.sa.gov.au/

386. Trudgen M (1989) A report on the progress of the regeneration of vegetation on areas disturbed during oil production on Barrow Island: prepared for West Australian Petroleum Pty Limited. WAPET, Perth.
Summary: Provides background information on regeneration of disturbed areas on Barrow Island for a review of the environmental management of Barrow Island (and surrounding waters) initiated by WAPET. The study was designed to enable an objective assessment of the progress of the regeneration of Barrow Island. To do this quantitative data from regeneration areas and comparable data from nearby undisturbed areas was collected. The analysis of this data has also meant that practical suggestions for improvements to the restoration program could be made.
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387. URS Australia Pty Ltd (2003) Environmental, social and economic review of the Gorgon gas development on Barrow Island. Appendix C, identification of suitable locations for a land-based gas processing facility linked to the Gorgon gas field. ChevronTexaco Australia, Perth.
Summary: This study has been undertaken to identify suitable onshore locations at which a site for the development of a gas processing facility and export facilities to service the Gorgon gas field, offshore north-western Australia could be established. Environmental, social, logistic, economic and regional planning limitations have been investigated to identify locations having low levels of overall constraint. The outcome of this study process is to identify locations within a broad region where it may be possible to identify specific development sites based on further detailed site specific technical and financial investigations.
Copyright note: Summary reproduced with permission from ChevronTexaco Australia – http://www.chevrontexaco.com/

388. Veitch CR, Clout MN (2002) *Turning the Tide: the Eradication of Invasive Species: Proceedings of the International Conference on Eradication of Island Invasives.* Occasional paper of the IUCN Species Survival Commission **27**

Summary: This 2001 Conference report provides papers on conservation practices used world wide to combat invasive species.

389. Veritas DGC (2004) 2D Barrow Island. Available at http://www.veritasdgc.com/bins/content_page.asp?cid=6-74-81-314 [accessed 25.10.2005].
Summary: No sector of the oil and gas service industry benefits greater from the advance of technology than companies operating in the geophysical services sector. On the cutting edge of that technology is Veritas DGC Inc., offering the oil and gas industry a comprehensive suite of integrated geophysical services designed to manage exploration risk and enhance drilling and production success worldwide.

390. Veritas DGC (2004) 3D Barrow Island. Available at http://www.veritasdgc.com/bins/content_page.asp?cid=6-74-81-1818 [accessed 25.10.2005].
Summary: No sector of the oil and gas service industry benefits greater from the advance of technology than companies operating in the geophysical services sector. On the cutting edge of that technology is Veritas DGC Inc., offering the oil and gas industry a comprehensive suite of integrated geophysical services designed to manage exploration risk and enhance drilling and production success worldwide.

391. Veron JEN, Marsh LM (1988) Hermatypic corals of Western Australia: records and annotated species list. *Records of the Western Australian Museum. Supplement* **29**, 1–136.
Summary: A list of hermatypic coral species from Western Australia is presented for the first time, based principally on the Western Australian Museum collections. Locality and habitat data are given for specimens of 318 species, of 70 genera, from the coast of Western Australia and many of its offshore islands and reefs. Computer analysis of distribution patterns show a major division between reefal and non-reefal regions. Within reefal regions the offshore reefs are distinguished from the more southerly onshore reefs while the Houtman Abrolhos reefs are relatively distinct. Northern and southern non-reefal regions form distinct groups.

392. Waite ER (1901) A description of *Macropus isabellinus*, Gould. *Records of the Australian Museum* **4**, 131–134.
Summary: The subject of the following description was obtained by Mr JT Tunney at Barrow Island, north-western Australia, on the 16th November, 1900. The prepared skin, together with the skull and leg bones, was forwarded to the Trustees by Mr BH Woodward, Curator of the Western Australian Museum. It represents an adult male, and as ascertained by an examination of the skull, the animal was what Mr Thomas calls 'aged', the fourth molar tooth being in place.

393. WAPET (1957) Derby bound July, 1957: being an overland trip of some 2 000 miles through the north-west and Kimberley areas of Western Australia. West Australian Petroleum, Perth.
Summary: This handbook provides the full story of the search for commercial oil in Western Australia and also relates something about the various pioneering enterprises. Included in this report is a list of members of the party and the itinerary.

394. WAPET (1981) List of references on Barrow Island and adjacent areas. West Australian Petroleum, Perth.
Summary: List of references compiled by the WAPET library as part of the Barrow Island Research Grant, February 1981.

395. WAPET (1987) Barrow Island environmental research: list of references on Barrow Island and adjacent areas. West Australian Petroleum, Perth.
Summary: List of references compiled by Technical Information Services.

396. WAPET (1987) Quarantine policy: Barrow and Thevenard islands. West Australian Petroleum, Perth.
Summary: The objective of WAPET's quarantine policy is to prevent the introduction of foreign species to Barrow Island and Thevenard Island via WAPET's operation. The policy will be implemented through the application of procedures to prevent weed invasion or rodent or insect infestation and the education and awareness of all personnel involved in WAPET's operation. This document provides procedures and guidelines for the quarantine program.

397. WAPET (1988) Barrow Island fishing guidelines. West Australian Petroleum, Perth.
Summary: These rules express Company policy relative to recreational fishing and shelling at Barrow Island which is an A class Fauna and Flora Reserve.

398. WAPET (1988) Quarantine policy and procedures for Barrow Island, February 1988. West Australian Petroleum, Perth.
Summary: The aim of WAPET's quarantine policy is to prevent the introduction of foreign species to Barrow Island through WAPET's operations. The success of this policy is achieved through the implementation of procedures to prevent weed invasion or rodent or insect infestation and the education and awareness of all personnel involved in WAPET's operation. This document provides procedures and guidelines for the quarantine program.

399. WAPET (1989) Barrow Island oilfield (petroleum lease 1.H): environmental review, 1963 to 1988. West Australian Petroleum, Perth.
Summary: During the development of the Barrow Island Oilfield, WAPET pioneered environmental protection measures and rehabilitation techniques that have now become standard practice throughout the industry. The Barrow Island operation demonstrates that with proper management and planning, development and conservation are not incompatible. This document incorporates an historical account of the oilfield from an environmental perspective and assembles the information and experience accumulated over the years by WAPET employees and consultants who have a wealth of knowledge of the oilfield development and the Barrow Island ecosystem.

400. WAPET (1989) Barrow Island oilfield (petroleum lease 1.H): environmental review: appendices. West Australian Petroleum, Perth.
Summary: This part of the environmental review is comprised of Appendix A, climate; Appendix B, vegetation; Appendix C, fauna.

401. WAPET (1989) Contractor induction. West Australian Petroleum, Perth.
Summary: A procedures manual for personnel working or visiting Barrow Island. This manual includes environmental policy and procedure, vehicle operations, policy and procedure, animal hazards, pressure hazards in the field, safety policy and standards, emergency procedures and fishing regulations.

402. WAPET (1991) Barrow Island contractor induction. West Australian Petroleum, Perth.
Summary: A procedures manual for personnel working or visiting Barrow Island. This manual includes environmental requirements and policy; safety policy, guidelines and emergency procedures; radio procedures; vehicle operations; animal hazards; recreational and fishing guidelines.

403. WAPET (1991) Barrow Island oilfield (petroleum lease 1.H): environmental review update, 1989–1991. West Australian Petroleum, Perth.
Summary: Three years ago it was considered timely to formalise a conservation strategy for Barrow Island into a document that established a benchmark for the on-going environmental management program. This document is the first update of the environmental and operational activities. The update builds on the historical account of the oilfield recorded in the original document. Appendix A is a progress report of a University of Western Australia study.

404. WAPET (1992) Proposed 1993 Barrow Island 3-D seismic survey: presentation to National Parks and Nature Conservation Authority, August 1992. West Australian Petroleum, Perth.
Summary: The objective of this survey is to further delineate stratigraphic oil prospects recognised in the northern part of Barrow Island on the existing 2-D seismic data. Those prospects which are matured following interpretation of this 3-D data set will become candidates for possible drilling in 1994/1995.

405. WAPET (1993) *Barrow Island*. West Australian Petroleum, Perth.
Summary: A brief summary of the early history, the natural history and the arrival of West Australian Petroleum P/L to explore for oil in 1964.

406. WAPET (1994) Close-out environmental report, 1994 north Barrow 3D seismic program : project 482. West Australian Petroleum, Perth.
Summary: This rehabilitation project was conducted between January and June 1994. Approximately 743 km of line was cleared (minus those areas which were not cleared due to environmental sensitivity). A total of 886 km of line were recorded of which 376 km were source lines and 520 km were receiver lines. Appendix 2 is the Progress report on the review of revegetation techniques on the seismic lines, Barrow Island, by EM Mattiske and Associates. Copied off: Nature Reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 7: file no. 034447F3102.

407. WAPET (1995) General project description for the Gorgon LNG development. West Australian Petroleum, Perth.
Summary: This document describes the Gorgon LNG Project as it is currently understood, and details to some extent the environmental implications of the Project. Its purpose is to provide sufficient detail about the Project and its environmental implications, for the government to be able to determine the level and method of environmental assessment for the Project under the relevant environmental protection acts.

408. WAPET (1995) Preliminary environmental report on the Gorgon LNG development. West Australian Petroleum, Perth.
Summary: This document describes the Gorgon LNG Project as it is currently understood, and details to some extent the environmental implications of the project. This document was written to fulfil several requirements. It is intended to provide enough information so that the Commonwealth and Western Australian Ministers can consider the environmental significance of the Project and address statutory obligations associated with anticipated requests for Foreign Investment Review Board (FIRB) approval, to give approval for the export of LNG, to award Production and Pipeline Licences and the associated State Licences. The background to the project, description and the environmental issues associated with the project are included in this document.

409. WAPET (1997) Barrow Island oilfield environmental review, 1992–1996. West Australian Petroleum, Perth.
Summary: The objective of this review is to expand the record of development and environmental management on Barrow Island by documenting important activities which have taken place during the period 1992 to 1996. This information is of use for the ongoing environmental management of WAPET's operations. The general structure of this document follows that of the original document and builds on the historical data base. The report reviews new projects and changes within the oilfield, natural events affecting the island's ecology, scientific projects and visits by interested parties.

410. WAPET (1999) Barrow Island annual environmental report, 1998. West Australian Petroleum, Perth.
Summary: The scope of the report includes significant operational and facility activities and changes; significant environmental impacts and incidents; environmental monitoring status and results; environmental specialist studies; significant project-specific environmental management; and annual discharge and pollution prevention licence reporting requirements.

411. Westerman M, Krajewski C (2000) Molecular relationships of the Australian bandicoot genera *Isoodon* and *Perameles* (Marsupialia: Peramelina). *Australian Mammalogy* **22**, 1–8.
Summary: The two Australian bandicoot genera *Perameles* and *Isoodon* diverged in the middle Miocene. The Barrow Island *Isoodon auratus* may not be recognisable as a separate subspecies.

412. White HL (1918) Black-and-white wren of Barrow Island, WA. *Emu* **17**, 179.
Summary: Describes the nest of the black-and-white wren.

413. White HL (1918) Descriptions of two new nests and eggs. *Emu* **18**, 127–128.
Summary: Mr Whitlock visited Barrow Island under a special permit from the Western Australian Government. He was asked to pay particular attention to the black-and-white wren *Malurus leucopterus edouardi* and collect some eggs. He also collected the nest and eggs of *Eremiornis carteri*, desert-bird.

414. White M (1993) Combined vascular plant species list. M White, Perth.
Summary: This combined vascular plant species list includes collection details from Buckley, Lewis & Grierson, Mattiske and Trudgen as well as those held in the Barrow Island, Karratha and Perth herbariums. Copied off: Nature Reserves: Tenure: 11648 Barrow Island and 38728 Middle Island, Boodie Island, Double Island. Volume 7: file no. 034447F3102.

415. Whitlock FL (1918) Notes on north-western birds. *Emu* **17**, 166–179.
Summary: Notes on birds seen on Barrow Island, October 1918.

416. Whitlock FL (1919) Notes on birds breeding in Dampier Archipelago, NW coast of Australia. *Emu* **18**, 240–253.
Summary: Notes of a visit and account of fauna seen by Whitlock to Barrow Island, 1918.

417. Whittell HM (1938) Notes on field-trips of JT Tunney. *Emu* **38(3)**, 322–326.
Summary: An account of the expeditions of JT Tunney who collected specimens for the WA Museum. JT Tunney arrived on Barrow Island on October 20, 1900.

Barge at WAPET Landing (Photograph courtesy of ChevronTexaco)

418. Withers PC (1992) Metabolism, water balance and temperature regulation in the golden bandicoot (*Isoodon auratus*). *Australian Journal of Zoology* **40**, 523–531.
Summary: The Barrow Island golden bandicoot (*Isoodon auratus*) is a small arid-adapted marsupial. It has a low and labile body temperature, a low basal metabolic rate, a low thermal conductance, and a low rate of evaporative water loss. Its metabolic, thermal and hygric physiology resembles that of another arid-adapted bandicoot, the bilby, and differs from temperate and tropical bandicoots.
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419. Withers P, Pedler S, Guppy M (1997) Physiological adjustments during aestivation by the Australian land snail *Rhagada tescorum* (Mollusca: Pulmonata: Camaenidae). *Australian Journal of Zoology* **45**, 599–611.
Summary: Specimens of the camaenid snail *Rhagada tescorum* were collected from Barrow Island, where they typically aestivate underground during the long dry season and emerge after heavy rainfall.
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420. Wood Jones F (1922) The external characters of pouch embryos of marsupials. No. 3, *Isoodon* barrowensis. *Transactions of the Royal Society of South Australia* **46**, 39–45.
Summary: Notes on the three embryonic stages obtained for description. Specimens were from the Perth Museum.
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421. Woodward BH (1905) Recent discoveries regarding the fauna of Western Australia. *Journal of the West Australian Natural History Society* **2**, 7–20.
Summary: A collection of descriptions of mammals and birds.
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422. Wooller RD, Bradley JS (1981) Consistent individuality in the calls of the spinifexbirds *Eremiornis carteri* on Barrow Island, WA. *Emu* **81**, 40.
Summary: The spinifexbird *Eremiornis carteri*, as its name suggests, is found mainly in areas of spinifex *Triodia* spp, in north-western Australia with records from central Northern Territory and central Queensland. On the mainland it is a shy secretive bird and thus rarely recorded by casual observers. It is the most common bird on Barrow Island.
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423. Wooller RD, Calver MC (1981) Diet of three insectivorous birds on Barrow Island, WA. *Emu* **81**, 48–50.
Summary: The diets of the three most common birds on the island: singing honeyeater *Meliphaga virescens*, spinifexbird *Eremiornis carteri* and black-and-white fairy-wren *Malurus I. leucopterus.*
Copyright note: Summary reproduced with permission from Birds Australia – http://www.birdsaustralia.com.au/

424. Young R (1995) Population differentiation in the burrowing bettong *Bettongia lesueur*: determined using restriction fragment length polymorphisms (RFLPs) of the mitochondrial genome. Thesis (BScHons) — La Trobe University, Victoria.
Summary: As the burrowing bettong is an endangered species, information about the genetic structure of the different island populations could be useful for the conservation of the species' diversity.
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Relevant Australian and Western Australian Acts and Codes of Practice

(IN ALPHABETICAL ORDER BY TITLE)

1. Government of Western Australia (1972). Aboriginal Affairs Planning Authority Act 1972. Government Printer, Perth. 1 v.
Summary: An Act to make provision for the establishment of an Aboriginal Affairs Planning Authority, a Commissioner for Aboriginal Planning and an Aboriginal Affairs Advisory Council for the purpose of providing consultative and other services and for the economic, social and cultural advancement of persons of Aboriginal descent in Western Australia, to repeal the Native Welfare Act 1963, and for incidental and other purposes.

2. Government of Australia (1984). Aboriginal and Torres Strait Islander Heritage Protection Act 1984. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act to preserve and protect places, areas and objects of particular significance to Aboriginals, and for related purposes.

3. Government of Western Australia (1972). Aboriginal Heritage Act 1972. Government Printer, Perth. 1 v.
Summary: An Act to make provision for the preservation on behalf of the community of places and objects customarily used by, or traditional to the original inhabitants of Australia or their descendants, or associated therewith, and for other purposes incidental thereto.

4. Government of Western Australia (2002). Animal Welfare Act 2002. Government Printer, Perth. 1 v.
Summary: An Act to provide for the welfare, safety and health of animals, to regulate the use of animals for scientific purposes, and for related purposes.

5. Government of Western Australia (2003). Animal Welfare (General) Regulations 2003. Government Printer, Perth. 1 v.
Summary: The accompanying Regulations to the Animal Welfare Act, 2002, to provide for the welfare, safety and health of animals, to regulate the use of animals for scientific purposes, and for related purposes.

6. Government of Western Australia (2003). Animal Welfare (Scientific Purposes) Regulations 2003. Government Printer, Perth. 1 v.
Summary: The accompanying Regulations to the Animal Welfare Act, 2002, to provide for the welfare, safety and health of animals, to regulate the use of animals for scientific purposes, and for related purposes.

7. National Health and Medical Research Council, Australia (2004). Australian code of practice for the care and use of animals for scientific purposes. – 7th ed. Available at mrc.gov.au/publications/synopses/ea16syn.htm [accessed 25.10.2005]. National Health and Medical Research Council, Canberra. 84 p.
Summary: The Code encompasses all aspects of the care and use of, or interaction with, animals for scientific purposes in medicine, biology, agriculture, veterinary and other animal sciences, industry and teaching. It includes their use in research, teaching, field trials, product testing, diagnosis, the production of biological products and environmental studies. The Code provides general principles for the care and use of animals, specifies the responsibilities of investigators and institutions, and details the terms of reference, membership and operation of AECs. It also provides guidelines for the humane conduct of scientific and teaching activities, and for the acquisition of animals and their care, including their environmental needs. The Code covers all live non-human vertebrates and higher order invertebrates. Investigators and teachers should take into account emerging knowledge, ethical values when proposing to use other animal species not covered by the Code. Animals in early stages of their development, that is in their embryonic, fetal and larval forms, can experience pain and distress but this occurs at different stages of development in different species and thus decisions as to their welfare should, where possible, be based on evidence of their neurobiological development.
Summary reproduced from the Web page

8. Government of Australia (1975). Australian Heritage Commission Act 1975. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act to establish an Australian Heritage Commission.

9. Government of Western Australia (2003). Barrow Island Act 2003. Government Printer, Perth. 1 v.
Summary: An Act: to ratify, and authorise the implementation of, an agreement between the State and the Gorgon joint venturers relating to a proposal to undertake offshore production of natural gas and other petroleum and a gas processing and infrastructure project on Barrow Island; the agreement having been entered into having regard to the need to minimise environmental disturbance on Barrow Island (a class A nature reserve) and providing for the support of conservation programs relating to Barrow Island and other parts of the State; to make provisions to enable land on Barrow Island (but no more than 300 ha in total of uncleared land) to be used, under the Land Administration Act 1997, for gas processing project purposes; to make provisions as to the conveyance and underground disposal of carbon dioxide recovered during gas processing on Barrow Island, and for incidental purposes.

10. Government of Western Australia (1985). Barrow Island Royalty Trust Account Act 1985. Government Printer, Perth. 1 v.
Summary: An Act relating to the royalty payable

under the Barrow Island petroleum lease and incidental and other matters.

11. Government of Western Australia (1985). Barrow Island Royalty Variation Agreement Act 1985. Government Printer, Perth. 1 v.
Summary: An Act to ratify an agreement between the State of Western Australia and West Australian Petroleum Pty. Limited relating to Petroleum Lease 1H granted under the Petroleum Act 1936, to amend the Petroleum Act 1967 and for related purposes.

12. Government of Western Australia (1954). Bush Fires Act 1954. Government Printer, Perth. 1 v.
Summary: An Act to make better provision for diminishing the dangers resulting from bush fires, for the prevention, control and extinguishment of bush fires, for the repeal of the Bush Fires Act 1937 (2) and for other purposes.

13. Government of Western Australia (1984). Conservation and Land Management Act 1984. Government Printer, Perth. 1 v.
Summary: An Act to make better provision for the use, protection and management of certain public lands and waters and the flora and fauna thereof, to establish authorities to be responsible therefore, and for incidental or connected purposes.

14. Government of Australia (1903). Defence Act 1903. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act to provide for the naval and military defence and protection of the Commonwealth and of the several States

15. Government of Australia (1999). Environment Protection and Biodiversity Conservation Act 1999. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to the protection of the environment and the conservation of biodiversity, and for related purposes.

16. Government of Australia (1981). Environment Protection (Sea Dumping) Act 1981. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act providing for the protection of the environment by regulating dumping into the sea, incineration at sea and artificial reef placements, and for related purposes.

17. Government of Western Australia (1986). Environmental Protection Act 1986. Government Printer, Perth. 1 v.
Summary: An Act to provide for an Environmental Protection Authority, for the prevention, control and abatement of environmental pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.

18. Government of Australia (1999). Environmental Reform (Consequential Provisions) Act 1999. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to the protection of the environment and the conservation of biodiversity, and for related purposes

19. Government of Western Australia (1961). Explosives and Dangerous Goods Act 1961. Government Printer, Perth. 1 v.
Summary: An Act to consolidate and amend the law relating to explosives; to regulate the manufacture, importation and use of explosives, and the classification, marking, storage, carriage, and sale of explosives and dangerous goods; and for other incidental purposes.

20. Government of Western Australia (1994). Fish Resources Management Act 1994. Government Printer, Perth. 1 v.
Summary: An Act relating to the management of fish resources, to repeal and amend certain Acts, and for related purposes.

21. Government of Western Australia (1928). Harbours and Jetties Act 1928. Government Printer, Perth. 1 v.
Summary: An Act to amend the law relating to the liability of owners of ships for damage to harbours and jetties, and works connected therewith.

22. Government of Western Australia (1911). Health Act 1911. Government Printer, Perth. 1 v.
Summary: An Act to consolidate and amend the law relating to public health.

23. Government of Western Australia (1990). Heritage of Western Australia Act 1990. Government Printer, Perth. 1 v.
Summary: An Act to provide for, and to encourage, the conservation of places which have significance to the cultural heritage in the State, to establish the Heritage Council of Western Australia, and for related purposes.

24. Government of Australia (1976). Historic Shipwrecks Act 1976. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to the protection of certain shipwrecks and relics of historic significance

25. Government of Western Australia (1997). Land Administration Act 1997. Government Printer, Perth. 1 v.
Summary: An Act to consolidate and reform the law about Crown land and the compulsory acquisition of land generally, to repeal the Land Act 1933 and to provide for related matters.

26. Government of Western Australia (1981). Marine and Harbours Act 1981. Government Printer, Perth. 1 v.
Summary: An Act to provide for the advancement of efficient and safe shipping and effective boating and port administration through the provision of

certain facilities and services, and for incidental and connected purposes.

27. Government of Western Australia (1973). Marine Navigational Aids Act 1973. Government Printer, Perth. 1 v.
Summary: An Act relating to the establishment, maintenance and use of marine navigational aids.

28. Government of Western Australia (1973). Maritime Archaeology Act 1973. Government Printer, Perth. 1 v.
Summary: An Act to make provision for the preservation on behalf of the community of the remains of ships lost before the year 1900, and of relics associated therewith, and for other purposes incidental thereto.

29. Government of Western Australia (1978). Mining Act 1978. Government Printer, Perth. 1 v.
Summary: An Act to consolidate and amend the law relating to mining and for incidental and other purposes.

30. Government of Australia (1993). Native Title Act 1993. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act about native title in relation to land or waters, and for related purposes.

31. Government of Australia (1998). Native Title Amendment Act 1998. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act to amend the Native Title Act 1993, and for related purposes.

32. Government of Western Australia (1999). Native Title (State Provisions) Act 1999. Government Printer, Perth. 1 v.
Summary: An Act to make: alternative provisions to those contained in Part 2 Division 3 Subdivision P of the Native Title Act 1993 of the Commonwealth, in accordance with sections 43 and 43A of that Act; provisions that are supplementary to those in section 24MD(6B) of that Act; and, provision for delegations in respect of the State under section 199F of that Act, to consequentially amend certain Acts, and for related purposes.

33. Government of Western Australia (1989). Occupational Safety and Health Act 1984. Government Printer, Perth. 1 v.
Summary: An Act to promote and improve standards for occupational safety and health, to establish the Commission for Occupational Safety and Health, to facilitate the co-ordination of the administration of the laws relating to occupational safety and health and for incidental and other purposes.

34. Government of Western Australia (1967). Petroleum Act 1967. Government Printer, Perth. 1 v.
Summary: An Act relating to the exploration for, and the exploitation of, petroleum resources, and certain other resources, within certain lands of the State; to repeal the Petroleum Act 1936, and for incidental and other purposes.

35. Government of Western Australia (1969). Petroleum Pipelines Act 1969. Government Printer, Perth. 1 v.
Summary: An Act relating to the construction, operation and maintenance of pipelines for the conveyance of petroleum and for purposes connected therewith.

36. Government of Western Australia (1999). Petroleum Safety Act 1999. Government Printer, Perth. 1 v.
Summary: An Act relating to the safety and health of persons at, and in respect of, petroleum sites and for related purposes.

37. Government of Australia (1967). Petroleum (Submerged Lands) Act 1967. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to the exploration for, and the exploitation of, the petroleum resources, and certain other resources, of, and to the transfer of petroleum resources (wherever recovered) across, the Continental Shelf of Australia and of certain Territories of the Commonwealth and certain other submerged land

38. Government of Western Australia (1982). Petroleum (Submerged Lands) Act 1982. Government Printer, Perth. 1 v.
Summary: An Act to make provision with respect to the exploration for and the exploitation of the petroleum resources, and certain other resources, of certain submerged lands adjacent to the coast of Western Australia, to repeal the Petroleum (Submerged Lands) Act 1967, and for incidental and other purposes.

39. Government of Australia (2001). Petroleum (Submerged Lands) Legislation Amendment Act 2001. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act to amend the Petroleum (Submerged Lands) Act 1967, and for other purposes

40. Government of Western Australia (1987). Pollution of Waters by Oil and Noxious Substances Act 1987. Government Printer, Perth. 1 v.
Summary: An Act relating to the protection of the sea and certain waters from pollution by oil and other noxious substances discharged from ships and places on land and for related purposes.

41. Government of Australia (1981). Protection of the Sea (Civil Liability) Act 1981. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to civil liability for pollution damage

42. Government of Australia (1981). Protection of the Sea (Powers of Intervention) Act 1981. Australian Government Publishing Service, Canberra. 1 v.

Summary: An Act authorizing the Commonwealth to take measures for the purpose of protecting the sea from pollution by oil and other noxious substances discharged from ships, and for related purposes.

43. Government of Australia (1983). Protection of the Sea (Prevention of Pollution from Ships) Act 1983. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to the protection of the sea from pollution by oil and other harmful substances discharged from ships

44. Government of Australia (1908). Quarantine Act 1908. Australian Government Publishing Service, Canberra. 1 v.
Summary: An Act relating to quarantine

45. Government of Western Australia (1967). Shipping and Pilotage Act 1967. Government Printer, Perth. 1 v.
Summary: An Act relating to shipping and pilotage in and about the ports, fishing boat harbours and mooring control areas of the State; to repeal the Shipping and Pilotage Act 1855 and the Ports and Harbours Act 1917; and for incidental and other purposes.

46. Government of Western Australia (1966). Transport Co-ordination Act 1966. Government Printer, Perth. 1 v.
Summary: An Act to provide for the co-ordination, planning and advancement of all forms of transport in this State, to provide for the review, control and licensing of transport services and for incidental and other purposes.

47. Government of Western Australia (1982). Western Australian Marine Act 1982. Government Printer, Perth. 1 v.
Summary: An Act to regulate navigation and shipping.

48. Government of Western Australia (1981). Western Australian Marine (Sea Dumping) Act 1981. Government Printer, Perth. 1 v.
Summary: An Act to provide for the protection of the environment by regulating the dumping into the sea, and the incineration at sea, of wastes and other matter and the dumping into the sea of certain other objects, and for other purposes.

49. Government of Western Australia (1950). Wildlife Conservation Act 1950. Government Printer, 1 v.
Summary: An Act to provide for the conservation and protection of wildlife

50. Government of Western Australia (1970). Wildlife Conservation Regulations 1970. Government Printer, 1 v.
Summary: The accompanying Regulations to the Wildlife Conservation Act, 1950, to provide for the conservation and protection of wildlife