



The Dinosaur Coast

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NATIONAL HERITAGE MANAGEMENT PLAN

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SUMMARY



The Fossils

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The coastline of the Dampier Peninsula is rich in ichnofossils, otherwise known as 'trace fossils': rocks showing the traces or imprints of animals and plants that once lived or moved there but left no physical remains.

Dinosaurs left their footprints on the ancient fine sands and mud that later hardened into Broome Sandstone. Most of the tracks are found in the intertidal zone, accessible at low tide, but a few are found higher up the beaches. Some of them are quite clear and still sharp, but many have eroded away over the millennia. You may still see warping in the exposed rock that lay underneath now-vanished tracks, caused by the huge animals' weight. The big tides, which can reach ten metres, carry quantities of silt in and out, concealing some tracks and exposing others. The search for 'new' tracks can be rewarding.

Besides individual tracks, there are many trackways, where one or more dinosaurs left several footprints as they walked along. These may occur on a platform of rock, less eroded than the surrounding sandstone. Dinosaur trackways offer a window into the life of a dinosaur, telling us about their size, stride, speed and group behaviour.

The Dampier Peninsula tracks belong to four types of dinosaur: sauropods and theropods are the commonest, but tracks of ornithopods and thyreophorans also occur on the Peninsula; however, there are no thyreophoran tracks within the Management Plan area. Sauropods were the massive, long-necked, four-legged dinosaurs. Theropods were the bird-like three-toed dinosaurs that walked on their hindlegs and had much smaller forelimbs or arms. Thyreophorans were medium-sized, four-legged dinosaurs with armoured plates and spikes. Ornithopods were small to medium-sized herbivores that walked on their hind limbs and had smaller forelimbs. Within these broad categories were many different species.

Some of the sauropod prints are the biggest ever found, and the variety of prints show that many kinds of dinosaur walked this land back in the Lower Cretaceous Period (approximately 140 to 127 million years ago).



Dr. Anthony Romilio of UQ creating 3D surface imagery from a handheld laser. Image: Julia Rau

In August 2011, the West Kimberley was added to the Australian National Heritage List (NHL), which was established under the Environmental Protection and Biodiversity Conservation (EPBC) Act, 1999. It is described as

...ONE OF AUSTRALIA'S MOST SPECIAL PLACES. IT IS A VAST AREA OF DRAMATIC AND RELATIVELY UNDISTURBED LANDSCAPES THAT HAS GREAT BIOLOGICAL RICHNESS AND PROVIDES IMPORTANT GEOLOGICAL AND FOSSIL EVIDENCE OF AUSTRALIA'S EVOLUTIONARY HISTORY.



Assoc. Prof. Steve Salisbury of UQ inspecting a theropod trackway. Image: Damian Kelly

The West Kimberley National Heritage area was listed because it meets listing criteria b) and d):

Criterion b): The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural and cultural history.

Values: Ecology, biogeography and evolution

Criterion d): The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural and cultural places; or (ii) a class of Australia's natural and cultural environments.

Values: Ecology, biogeography and evolution

Dampier Coast Cretaceous landscape

Besides dinosaur tracks, the Broome Sandstone bears ichnofossils of other classes of animals, invertebrates and plants, as well as ancient geological formations, making it the major landform on the Dampier Peninsula with National Heritage values.



UQ researchers examine sauropod trackways. Image: Damian Kelly



Vehicles have driven over fragile dinosaur tracks. Image: Damian Kelly

Protecting the Ichnofossils

Only in recent years have the Dampier Peninsula dinosaur tracks been actively surveyed, and we are still learning about their importance in the world of fossils. While National Heritage Listing provides legal protection for the ichnofossils under the EPBC Act, there are no official measures to monitor and enforce the legislation, or even to inform the public about it. There are regulations in WA about collecting and selling fossils, and many sites within the state have been registered by the Geological Survey of WA, but these sites have no legal protection from destruction by development. Absence of controls leaves the fossils vulnerable to damage.

In an attempt to fill the gap, in 2015 the Dinosaur Coast Management Group (DCMG) started life as an NGO. Its volunteers do their best to manage and protect the dinosaur track sites through public education materials, school field excursions, school visits and events, and by providing feedback to local government about proposed developments that may damage them.

The DCMG obtained funding from the Australian Government to develop the Dinosaur Coast National Heritage Management Plan (DCNHMP) for Broome Sandstone located in the intertidal zone between

Crab Creek and Willie Creek. The DCMG recruited and chaired a project steering group made up of representatives of the land managers and key stakeholders, including relevant government departments, the School of Biological Sciences of the University of Queensland, the Shire of Broome, Yawuru PBC and Goolarabooloo Millibinyarri Indigenous Corporation. The DCMG employed consultants to draft up a management plan, to which all steering group members contributed.



Richard Hunter and Assoc. Prof. Steve Salisbury. Image: Damian Kelly



Shire of Broome Councillors and staff with DCMG at Reddell Beach. Image: Damian Kelly

The DCNHMP sets out the steering group’s proposed actions and goals to protect the dinosaur tracks.

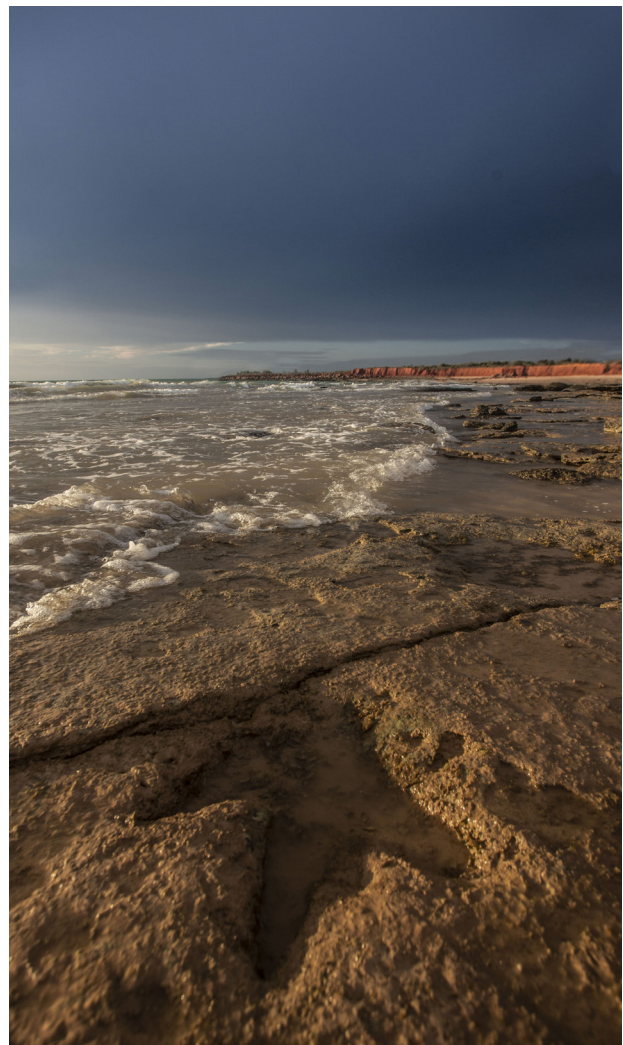
Separately from this, the Yawuru Native Title holders have made Indigenous Land Use Agreements with the State Government and the Shire of Broome, in which they have set up four conservation parks, some of which include dinosaur tracks. The parks are near to or overlap with the DCNHMP.

There remain extensive areas of Broome Sandstone that the DCNHMP does not cover, including many sites that have only been surveyed in the years since the NH listing. To protect lesser-known and newly discovered sites and their cultural heritage from incursion by the public, only the better-known, more accessible NH-listed sites have been mapped for public release.

The main purpose of the DCNHMP is to inform the public about the significance of the Dinosaur Coast and to protect it from harm caused by visitors and/or coastal development, while keeping an eye on erosion.

THE PLAN ALSO CREATES OPPORTUNITIES FOR BROOME PEOPLE, THROUGH EDUCATIONAL ACTIVITIES AND GUIDED TOURS, TO ENHANCE THE EXPERIENCE OF VISITORS.

Under the NHL guidelines, the Plan should be reviewed every five years, giving those responsible opportunities to review and modify or refine the Actions.



Theropod track, Reddell Beach. Image: Damian Kelly

Management Zones

The management area has been divided into nine zones, each of which has its own characteristics. Some threats are the same for all or most of the zones and some are specific to individual zones. The most popular spots along the coast are inevitably at greatest risk. Threats to the fragile rock-bearing surfaces include damage through more and more people walking over or cleaning tracks, from boats, cars, quad bikes, motorbikes and fat bikes driving over the platforms. Land adjoining the intertidal area is occupied by car parks, toilets and tourism facilities, which attract more people. Stormwater drains dump sediment onto the Broome Sandstone and mudflats, which, on occasion, cover tracks.

The dinosaur tracks, which used to be little known, have now been closely studied by palaeontologists from the University of Queensland. Partly as a result of this work, the tracks have also been much publicised in recent years, attracting more and more visitors and tourists hoping to see them. The DCMG members want to inform visitors about the significance of the tracks, their importance to local Aboriginal people, and their fragility, as well as facilitating self-guided and guided tours to accessible tracks and trackways. They also have longer-term plans to build a palaeontology interpretive centre-cum-research laboratory, for use by the public, schools and scientists.

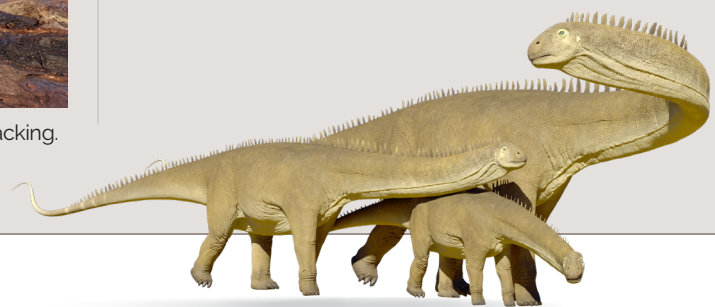


Wangkatjunga Remote Community School have gone tracking. Image: Damian Kelly

BESIDES THEIR INTRINSIC AND SCIENTIFIC VALUE, THE ICHNOFOSSILS CARRY CULTURAL SIGNIFICANCE FOR LOCAL TRADITIONAL OWNERS.

Stories are associated with particular landforms and places, as well as with the fossils themselves. Both land managers and would-be developers need reliable information about the tracks and their values, in order to prevent them from being damaged.

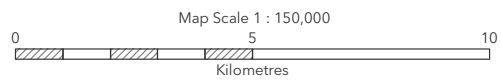
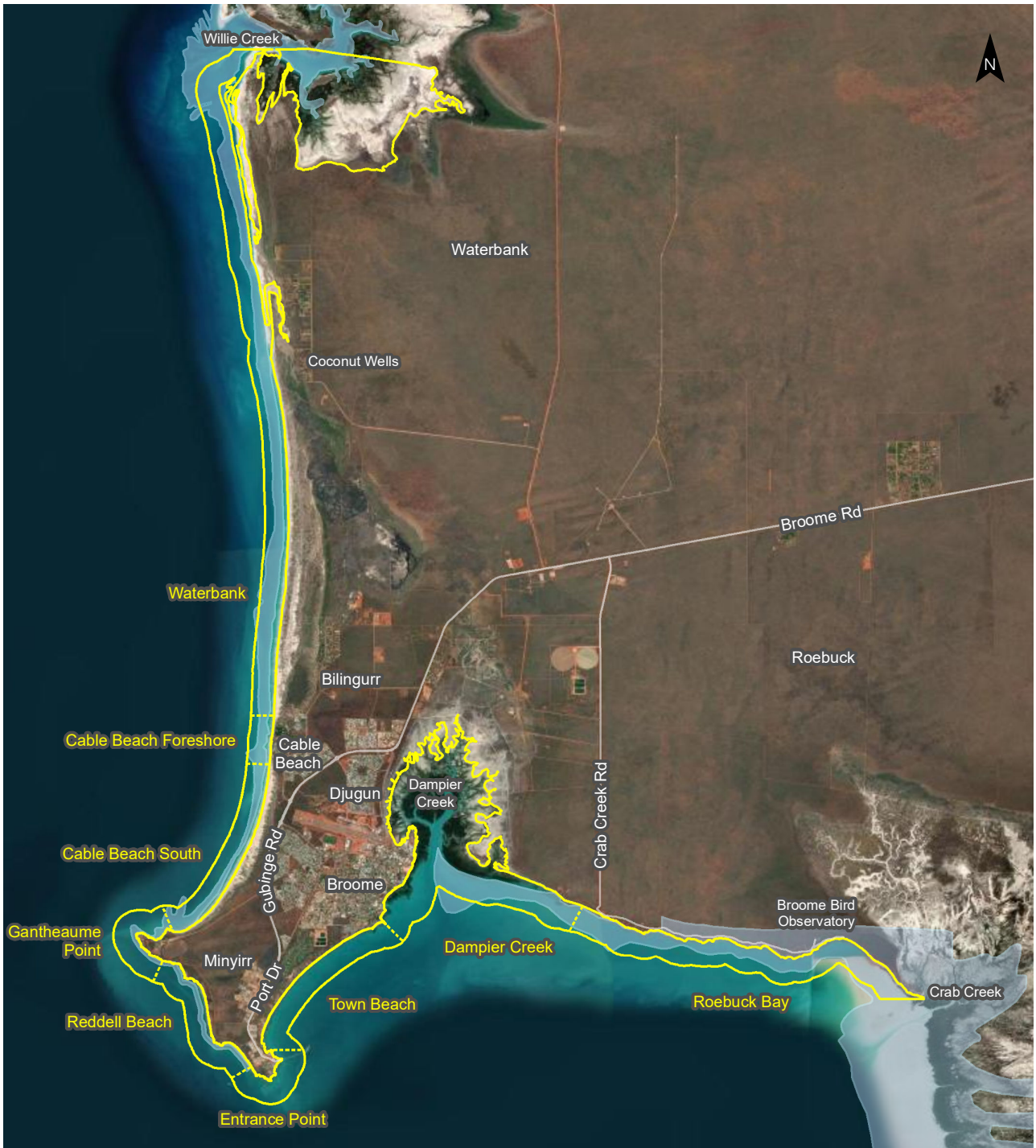
Damage to tracks is often the result of ignorance rather than indifference or malice. Illegal campers and groups of visitors shown the tracks by enthusiastic but poorly informed tour guides can trample and inadvertently break friable rock, or abrade tracks by repeatedly cleaning sand from them to reveal them more clearly. Without adequate monitoring, the fossils are also vulnerable to deliberate defacement or even theft.



OPPORTUNITIES

The matchless array of dinosaur tracks on the Broome Sandstone, within a beautiful and unspoilt setting, provides a variety of opportunities for enterprising locals. The more that is known about the tracks, the more tourists will want to come to Broome and stay to see them. An interpretive centre, employing local people, would itself be an attraction, hosting scientists, offering talks and running conferences, while local Indigenous informants and trained amateurs could provide guided tours. Numerous spin-offs are possible, such as producing educational materials and quality merchandise, and running events for children.

The EPBC Act only covers the area within the official boundaries, and actions that may adversely affect the values within or adjacent to these boundaries. Because of the probable Outstanding Universal Values within the DCNHMP area, DCMG believes a Tentative Listing process should begin, to enhance its protection and preservation for future generations.



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| DCNHMP | NHL Gazette |
| --- Zone Boundary | ■ The West Kimberley |
| □ Project Area | |

Dinosaur Coast National Heritage Management Plan management area and management zone boundaries.



. Image: Damian Kelly

The Management Plan

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VISION:

**TO UNDERSTAND, PROTECT AND PROMOTE THE DINOSAUR COAST
AND CREATE OPPORTUNITIES FOR THE BROOME COMMUNITY**

The objectives of the Plan, each of which has a strategy and a number of proposed actions, can be accessed on a separate 'Implementation Plan' handout.

The Dinosaur Coast Management Plan 2022 received grant funding from the Australian Government.

