The roles of Geoheritage and Geotourism in advancing the heritage and tourism industries of the Northern Territory.

ABSTRACT
Preserving our geoheritage assets is a prime objective for the Northern Territory as many sites in the Territory have a unique story and are irreplaceable. Other sites may be suitable for geotourism and promotion for regional development and prosperity. This report documents the current state of geoheritage and geotourism in the Northern Territory, and some of the opportunities available for the establishment of this industry.

Mark Asendorf
MARMEL ENTERPRISES, 2019.
EXECUTIVE SUMMARY

Tourism is a major employer and contributor to the Northern Territory (NT) economy, employing over 10 000 people and contributing in excess of $1.1B to the economy in 2016/17. Two World Heritage listed attractions - the Kakadu, and Uluru and Kata Tjuta National Parks - are important drawcards for both international and domestic visitors. There is further opportunity and capacity to foster, preserve and develop geoheritage and geotourism capabilities in the NT. For example, the Purnululu National Park in Western Australia and Riversleigh fossil mammal site in Queensland are within a day’s drive of the NT border.

Several factors (e.g. low population base, low density of infrastructure and facilities, vast distances between towns and attractions, adverse climate), have focused tourists into localised areas of the NT, including the capital Darwin and the regional centres of Alice Springs, Katherine and Tennant Creek. This has limited visitation and economic opportunities in the regions, but has at the same time, helped preserve the natural environment from widespread urban development, domestic waste concerns and industrial influence.

The NT is also characterised by its strong indigenous heritage, vast rolling landscapes and a ‘Territory Larrakinism’ that is not replicated anywhere else in the country. A visit to the NT is a unique experience and this has been the focus of several tourism related initiatives over recent years. It has also influenced decisions of the many visitors to stay longer, come back again, or base themselves and their families here.

The Developing Northern Australia Agenda is aspirational and faces significant challenges from a variety of factors, and the reliance on resources and tourism sectors in particular for its growth and prosperity is unlikely to change in the foreseeable future.

The opportunity now exists for the NT to leverage its existing and accessible geoscientific, natural, historic and cultural resources, and enhance other sites of interest along with integrated policy, planning, and capability development. This will see the NT and the rest of Northern Australia well positioned to preserve its unique geoheritage, promote selected sites and regions through targeted geotourism campaigns, and benefit from the robust and diversified resources industry at all stages of the mining value chain.

This paper outlines the current state of geoheritage and geotourism in the NT, and options for the advancement of geotourism related interests in the NT. It encourages interested parties to get involved and to assist in creating an industry that will benefit the people, economy and environment of Northern Australia.

1 RDA NT Economic Profile.
2 Australian sites on the World Heritage List, Reference 1
Geoheritage – An Australian and Northern Territory context.

Geoheritage is a concept applied to sites that demonstrate remarkable value for their scientific, research, aesthetic and cultural aspects. Sites can range from microscopic to regional extents and be relevant from a local, regional, national or international perspective. Unfortunately, sites also are vulnerable from disturbance through gaps in legislation as summarised in the Geoheritage Policy 2016.

“(In) Most states, the abiotic natural environment has no standing in Planning Law and so cannot be protected unless it is on a heritage list”

The Northern Territory Heritage Register has several entries for natural features but for the most part has focused on the human history relating to the first people, early European settlement, and World War 2 sites of significance. There are some sites relating to historical mining activities, but overall, there is a limited contribution of geoheritage listings with respect to other sites.

Despite this, many sites in the NT are protected from significant disturbance through various parks and reserves. For the remainder, there remains a significant risk to losing valuable geoscientific history by disturbance or degradation. Degradation can be caused by infrastructure or regional development, resource-based activities, pastoral and agricultural activities, excessive and unregulated tourism, or malicious damage. Sites may also be damaged through negligence or ignorance.

Fortowski, 1988 lists over a hundred sites in the NT which detail their significance, regional setting and an assessment of threats relevant at the time of publication. It is unclear whether these sites have been included on any internal government databases or are actively considered in planning developments as no other corroborating evidence of their existence other than the 1998 publication has been identified. Parts of the Fortowski report may have been incorporated into subsequent publications such as A Guide to Geology and Landforms of Central Australia (Thompson 1995).

The importance, value and reasons behind protecting our Geoheritage assets is best described by Cowley W, 2003.

“Exposures or outcrops of rocks are numerous and diverse......but surprisingly, relatively few provide outstandingly significant scientific data. The ones that do however constitute irreplaceable physical segments of Earth history.

Unlike most traits for living systems, features possessed by these monuments are not reproducible and when they are damaged or destroyed, they are lost forever”

Broek, 1980 indicates potential geoheritage sites as part of the planning and resource assessment of the Palmerston and Yarrawonga Industrial Estates. These sites shown in figure 2 have been under threat by the rapid development of the City of Palmerston. A field check was conducted on the 9 and 10 March 2019. Sites 1, 2 and 5 remain (see appendix 2), but 3 and 4 have been lost. Sites 3 and 4 exist in parklands managed by the Palmerston Council, but no remnant of their existence remains.

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3 Geoheritage Policy, 2016, Geological Society of Australia.
Figure 1: Known documented geoheritage sites in the Northern Territory, Fortowski 1988 and Broek 1980, ESRI basemap.

Figure 2: Potential Monument sites in the Palmerston area pre-development referenced in Broek, 1980.
Geotourism – International, Australian and Northern Territory contexts.

Geotourism is a significant emerging and growing global phenomenon. Geotourism has now been defined by the Geological Society of Australia (GSA) as ‘tourism which focuses on an area’s geology and landscape as the basis for providing visitor engagement, learning and enjoyment’. It has links with adventure tourism, cultural tourism and ecotourism, but is not synonymous with any of these forms of tourism, although in broad terms it embraces them all.

In summary, geotourism

- adds considerable content value to traditional nature-based tourism (the primary motivator of travel to Australia) as well as cultural tourism, inclusive of indigenous tourism, thus completing the holistic embrace of ‘A’ (abiotic –landscape and geology) plus ‘B’ (biotic) plus ‘C’ (culture) aspects. It empathises an approach of increasing interest to protected area managers, particularly given the experience gained from the now discontinued Australian National Landscape Programme;
- celebrates geoheritage and promotes awareness of and better understanding of the geosciences - of increasing interest to geological survey organisations;
- contributes to regional development imperatives in areas experiencing social and economic difficulties through increased tourist visitation, particularly from overseas – of increasing interest to local government authorities (LGAs) and state based, regional development commissions and agencies;
- creates professional and career development for geoscientists and other natural and cultural heritage professionals;
- provides a means of highlighting and promoting public interest in mining heritage;
- provides the means of increasing public access to geological information through a range of new information and communication technology (ICT) applications e.g. smartphones, 3D visualisation etc. – of increasing interest to geological survey organisations and visitor information centres; and
- Engenders an increasing awareness of the importance in geology as a fundamental science that has had and will continue to have major impacts on civilisations.

Geotourism promotes tourism through visits to geological features (geosites), use of ‘geotrails’ and viewpoints, guided tours, geo-activities (such as geological time trails, fossil walks, rock gardens etc.), and patronage of visitor centres and museums. Geotourism attractions are now being developed around the world primarily as a sustainable development tool for the development of local and regional communities. A major vehicle for such development is through the concept of geoparks as exemplified by the UNESCO Global Geopark program. A geopark is a unified area with geological heritage of outstanding significance and where that heritage is being used to promote the sustainable development of the local communities who live there.

Geotourism is being nurtured by our closest neighbours Indonesia and New Zealand with the establishment of geoparks, geotrails and a variety of interactive applications to drive, promote and enhance the visitor experience. One of our largest trading partners, China has 320 provincial
geoparks (originally labelled as ‘scenic areas’) among which 200 have already gained national status. China’s 37 UNESCO Global Geoparks are each estimated to contribute around $34M (AUD) a year towards the local economy\(^5\). UNESCO Global Geoparks are also being developed in India, Malaysia, Vietnam, South Korea and Japan.

The uptake of geotourism in Australia has been impeded by several factors and the nation lags other countries in developing a distinct geotourism industry. Professional societies including the Geological Society of Australia (GSA) and more recently the Australian Institute of Geoscientists (AIG) have had geotourism on their agenda for over a decade, but initiatives have been built upon the work of dedicated and passionate individuals (notably Angus M Robinson, Professor Ross Dowling OAM, and Associate Professor Bernie Joyce) through their professional societies rather than through an integrated, national approach.

Advances in New South Wales, Victoria, South Australia, Tasmania, Western Australia and Queensland, have indicated an increased awareness of the opportunities that sustainable geotourism may provide, however these have been case-driven and not from an overall strategic, integrated national approach. It is understood that this issue is now being addressed by the Australian Geoscience Council Inc\(^6\). and building upon earlier work and efforts of the GSA through its Geotourism and Geological Heritage Standing Committees, their various sub committees, and GSA members.

Geotourism within the NT is virtually non-existent as a self-contained or uniquely branded industry, yet there exists boundless potential due to the prevalence of scientific research prospects, and the abundance of aesthetic and cultural features in the NT.

Apart from the World Class Kakadu and Uluru and Kata Tjuta National Parks, several other parks, reserves, sites and trails are well known to visitors and locals and can form the basis of a fledgling geotourism movement. Three well defined trans-continent road adventure currently exist as self-paced and self-drive tours. These are shown on Figure 3 and include:

1/. The Explorers Way Extending from Port Augusta to Darwin, and

2/. The Savannah Way which passes East-West from Cairns to Broome through the Gulf Country, Katherine Region, Victoria River District and the Kimberley.

3/. The Overlanders Way, which connects Townsville (QLD) to Tennant Creek via Julia Creek and Mount Isa.

A fourth - the Outback Way - is under construction with $330M identified in the Northern Territory 10 Year Infrastructure Plan\(^7\) to seal and widen the Plenty Highway and eventually connect Bouiila (QLD) with Laverton (WA).

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\(^5\) Young Ng, 2017.


\(^7\) Northern Territory Government, 2019
A fifth potential route as suggested in this white paper is the largely unsealed, “Gold Rush Way” linking the historic Arltunga and Halls Creek (WA) gold fields via the Tamani region – a known and active gold producing area. This new route is proposed based on the $680M multi-year project to upgrade the Tanami Road to a sealed standard as identified in the 10 Year Infrastructure plan. This will forge another vital link from the Red Centre to the North-West Kimberley region in Western Australia.

![Map of Australian outback with geotrails](image.jpg)

*Figure 3: The Existing, Planned and Proposed Tran-continent geotrails.
Image Source, Marmel Enterprises using PSMA, Commonwealth and Northern Territory Government Data under creative commons licensing, and ESRI Software and Base maps.*

The “Drive the NT” page on the Northern Territory Governments Tourism NT website lists 9 self-drive tours along with suggested itineraries, attractions guides exists. In addition to the transcontinental routes previously mentioned, 5 self-drive tourist routes and loops include:

- **Darwin:** Greater Litchfield Loop & Natures Way
- **Katherine:** Arnhem Highway extending to Nhulunbuy (Gove).
- **Alice Springs:** Red Centre Way, also known as the Mereenie Loop Road.
- **Other:** The enigmatic and adventurous “Binns Track” which extends from the SA Border near Dalhousie Springs (SA), through the Eastern MacDonnell Ranges, The Davenport Ranges and the Gregory National Park concluding in Timber Creek.

8 [https://northernterritory.com/drive](https://northernterritory.com/drive)
Further detail and recommendations are included in the section, “Growing Geotourism in the Northern Territory – potential next steps”.

*Figure 4* shows existing regions around Australia deemed suitable for both geotourism and ecotourism under the auspices of the former Australian National Landscape Program and introduces another seven potential regions also deemed suitable for geotourism that enhance the total offerings in the NT. These new areas are detailed in the section, “Growing Geotourism in the Northern Territory – potential next steps”.

*Figure 4*: Existing Geotourism regions around Australia, and proposed NT and SA Extensions. Image Source, Marmel Enterprises using PSMA, Commonwealth and Northern Territory Government Data under creative commons licensing, and ESRI Software and Base maps.
The Tourism double edge – grasping the sword by the hilt.

Tourism is a major contributor to the economy of the NT and well supported by the NT and Australian Governments. Tourism numbers have trended upwards in the long term, and continued expenditure on improving infrastructure and promotional activities have improved visitor numbers. Direct flights to China and Singapore announced by the NT Government on 30 May 2018\(^9\), and Darwin International Airport & Silk Air\(^{10}\) on the 11 January 2019 are expected to provide direct link into significant international markets.

Yet headwinds remain, including getting in and out of the NT from non-aerial routes. Our current connections include:

- one East-West translational sealed roadway connecting the Northern Territory to Queensland and Western Australia,
- one North-South Highway, linking Darwin to Adelaide,
- one railway connecting Darwin to the Indo-Pacific rail at Tarcoola (South Australia),
- 3 International grade airports at Darwin, Alice Spring and Yulara, and
- 3 deep-sea port at Darwin, Nhulunbuy and Alyungula.

The Outback Way is currently being sealed and will eventually connect Boulia in remote Queensland to Laverton in central Western Australia. This nation building infrastructure development will forge a new sealed road linkage between Perth and Cairns, and improve the services and accessibility of the pastoralists, resource industry and the aboriginal communities that exist along the route.

The Australian Government has also announced significant expenditure over the next 10 years to improve many regional roads in the NT including sealing, widening, and flood immunity. These all improve accessibility to potential points of interest yet are driven by resources and agriculture with increased tourism an anticipated beneficial outcome. Yet one that is not without concerns.

Examples of ‘over-tourism’ exist around the world, with Venice being a prominent international example. Visitor numbers impact the city adversely and strain existing infrastructure and services. From a domestic perspective of the same issue, many traditional owners within the NT are concerned that the impact of increased tourism on the landscape and communities will outweigh the benefits tourism may deliver. As vast areas of the NT are Aboriginal Lands as described under the Aboriginal Land Rights Act (Northern Territory), 1976, cooperation and support from traditional owners will be essential for the success of any regional geotourism prospects. Reluctance from Aboriginal peoples to participate can be considered as a potential impediment to geotourism initiatives, or at the very least as a signal for caution and reflection.

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\(^9\) Gunner M & Moss L, 2018
\(^{10}\) Darwin International Airport, 2019
\(^{11}\) ‘Unearth the Etheridge Scenic Region Through Geotourism’
Recent experience in the Etheridge Shire Council region of Far North Queensland has shown that grazing communities have similar issues about geotourism development that do need to be addressed.\textsuperscript{11}

The resource industry is realising the potential of repurposing end-of-life mine sites, and corporations have an increasing awareness of social licence to operate, ensure legacy mine issues are avoided. During the OECD mining and regions meeting in Darwin in 2018, examples from Canada and the US were put forward of mining regions which had depleted their economic resources but had successfully transitioned their economies for tourism activities. The communities that were able to make the transition tended to be ‘healthier’ communities than those that hadn’t. The Northern Territory is facing two examples of mine closure and transition to post-mine economies in Jabiru and Nhulunbuy and navigating the complexities that these closures and transitions will bring. Geotourism, and repurposing mining infrastructure and services to other nearby resources remain an option for these communities to consider.

Pine Creek, Tennant Creek, and the historic Arltunga area in the Eastern Arunta region of Alice Springs are all historic mining regions in the NT and could be promoted for their mining heritage and the supporting industries established to encourage and foster tourism interest in the region. Success will depend on the goodwill, support and capabilities of the relevant stakeholders, and the success of the marketing campaigns that promote the regions to the geotourism market as exemplified by nature-based tourism generally.

The three major question concerning geotourism in the NT and/or Northern Australia are:

1/. Can geotourism be adequately supported and grown,
2/. Which regions are ideally positioned, and
3/. Where is further governance, investment and promotion needed?

Geotourism in the NT will be optimally enabled by a visible and coordinated collaboration across disparate industries, land holders, interest groups and across all three tiers of government. A national policy and increased strategic partnerships with other States is needed to strengthen the connectivity of prospective regions deemed suitable for geotourism and the markets of willing visitors. Our visitor experiences must be unique, authentic, compelling and unforgettable.
Growing Geotourism in the Northern Territory – potential next steps.

The position of this report with respect to the question “Can geotourism be adequately supported and grown” is an emphatic and enthusiastic ‘YES’. Questions 2 and 3 will need to be considered at trans-national, regional and local scales.

As the proposed National Geotourism Strategy being considered by the Australian Geoscience Council is still in development and subject to review, negotiation and agreement, this report focuses on the areas of interest and immediate opportunity for the NT.

- The augmentation of established tourist routes with a geotourism focus and content.
- Establishing new geotrails routes around regional centres,
- Linking new and existing regions with indicated geotourism potential and
- Identifying key success criteria and monitoring and evaluation needs.

The self-drive tours listed on the TourismNT website and Figures 3 & 4 within this report outline the known national landscapes and existing trans-continental routes linking the NT to the rest of Australia. Figure 4 proposed 7 regions more relating to the Northern Australia or the central corridor. Details pertaining to these regions, the augmentation of existing self-drive routes for geotourism, and new conceptual routes are defined and described in more detail below.

The suggestions below have not formally been endorsed by the relevant stakeholders and are described for review and consideration at a conceptual level only at this point.

Modified or new regions.

Australia’s Timeless North – Tiwi and Arnhem Extensions (NT).

The rationale behind the Tiwi and Arnhem extensions is to incorporate the Aboriginal owned lands of the Tiwi Islands, Arnhem Land and Groote Eylandt under the single existing “Timeless North” umbrella. Darwin, Jabiru, Wurrumiyanga (Tiwi), Nhulunbuy, and Alyungula (Groote Eylandt) become the focal and dispersal points within this region.

This region encompasses Kakadu, Litchfield, Nitmiluk and numerous other Parks and Reserves, two proposed fossicking areas, the Pine Creek historic mining region, several active mines and the NT capital, Darwin.

The major geological provinces are the Pine Creek Orogen and the McArthur Basin encompassing the geological history from 1.43 to 2.05 Billion years ago. Outcrops of Archean aged rocks exist near Batchelor, and within limited parts of Kakadu and western Arnhem land.
**Big Rivers (NT)**

The Big Rivers region encapsulates the lands from the Pine Creek to the north, Wadeye to the West, The Gulf of Carpentaria to the East and Daly Waters to the South including the Nitmiluk and Elsey National Parks.

Katherine, Ngukurr, Wadeye, and Barunga, and Mataranka become the main focal and dispersal points within this region. 

This Region encompasses the Limmen and Elsey Parks and is the Gateway to Nitmiluk National Park and its gorges. It is known for its karst landscapes and thermal pools at Mataranka and is the agricultural centre of the NT. Both the Explorers Way and Savannah Way pass through the Region.

The major geological provinces are the Carpentaria, Daly, Victoria River and McArthur River Basins and collectively span a period of earth’s history from 65M to 1800M years ago.

**Gregory-Keep (NT, WA)**

The Gregory-Keep Region consists of the Gregory and Keep River National Park and is located along the Victoria Highway from Katherine to Kununurra.

Timber Creek and Kununurra (WA) are the main focal and dispersal point for this region.

This area encompasses the Keep and Gregory National Parks and two designated Fossicking Areas, Newry and Wave Hill, and is adjacent to the eastern part of the Kimberley region including Lake Argyle.

The major geological provinces are the Victoria River, Birrindudu and Wolfe Basins and the Kalkarindji Province spanning from 500M to 1780M years ago.

**Gulf-Isa (NT, QLD)**

The Gulf-Isa Region is located along the Carpentaria Highway and Wollogorang Road from Borroloola to Mount Isa (QLD) and a part of an alternative unsealed section of the Savannah Way. The area includes the World Heritage listed Riversleigh fossil site in North west Queensland. Active mines exist in the region and the Overlanders Way transects the southern limits of the region.

Borroloola and Mount Isa (QLD) are the main focal and dispersal point for this region.

The major geological provinces are the McArthur and Georgina Basins and the Murphy Inlier spanning from 360M to 1800M years ago.

**Tennant Plateau (NT)**

The Tennant Plateau is located along the Stuart Highway and extends from Newcastle Waters to the North to Ali Curung in the South and is bounded to the West and East by the Wiso and Georgina Basins respectively. The Devils Marbles and Davenport Ranges are included in this area along with the Warrego designated fossicking area and a collection of active and historic mines.

Tennant Creek and Elliott are the main focal and dispersal point for this region.

The major geological provinces are the Tomlinson, Warrumanga and Davenport Provinces spanning from 1400M to 1870M years ago. The surrounding Wiso and Georgina Basins are significantly younger.
Firestone Plains (SA)

The Firestone Plains are of interest to the NT as some of the regions is within a days drive from Alice Springs or Adelaide and are a natural stop-off points with a unique offering to visitors.

The Firestone plans include the opal towns of Coober Pedy, Andamooka and Mintibie and are connected by the Stuart Hwy as it passes from Port Augusta north and northern-west to Alice Springs. Townships in this part of Australia are few and far between with Coober Pedy and Roxby Downs being the most sizable with around 3500 residents each.

Several world-class mining operations such as Olympic Dam and Prominent Hill are located in the region, and Coober Pedy produces 70% of the worlds gem-quality opal.

Musgrave (SA, WA, NT)

The Musgraves straddles the south west NT, eastern WA and north west SA and can be considered ‘frontier territory’.

The major service centre is Yulara and a secondary supply base is Marla (SA). Optional service centres include Ernabella and Fregon within the APY lands, subject to the approval of the Traditional Owners of the APY lands.

Ancient Desert Seas (SA, QLD, NT)

The ancient desert seas are the vast inland river and lake networks that extend from Queensland to the eventually deposit their waters in Lake Eyre. Mound springs, and other ‘oasis’ in the arid regions of South Australia are includes in this region. Like the Musgraves, this is considered ‘frontier’ territory, with limited service centre or capacity to service significant tourism numbers.

The major service centres are Coober Pedy and Roxby Downs with an alternative secondary supply base’s being Marree (SA) and Birdville (QLD).

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Modified or new self-drive routes and trails.

**Explorers Way** – no changes suggested, increase promotion and update geoscientific content.

**Overlanders Way** – no changes suggested, increase promotion and update geoscientific content.

**Outback Way** – no changes suggested, but highlight interlinkage with Explorers Way and ‘next adventure’ promotion as people continue either north or south along the Explorers Way.

**Savannah Way** – review and incorporate Big Rivers, Keep-Gregory and Timeless North extensions

**Greater Litchfield Loop:**

1/. Incorporate ‘Geotourism’ aspects such as Southport township near Berry Springs,

2/. Highlight historical (Rum Jungle, Bamboo Creek) and current mining interests in the region.

3/. Consider introducing a dedicated fossicking reserve in Blackmore River reserve. Gold was reported there in 1800’s.

4/. More geoscientific content on storyboards in the area, including Archean aged outcrops near Batchelor, some of the oldest exposed rocks in Australia outside of WA.

5/. Dedicated interactive apps.

**Natures Way – Suggestions.**

1/. Incorporate ‘geotourism’ characteristics such as the Cutta Cutta Caves, Mary River Wetlands, and the Douglas Hot Springs.

**Arnhem Highway** – no changes suggested, but further promotion of activities along the route suggested, such as the Window on the Wetlands, Mary River and Djukbinj National Parks and, potentially, more information about historic mining activity in the Mount Bundy area.

**Red Centre Way:**

1/. Duplicate Red Centre way into its “East” and “West” loops.

2/. On East Loop, promote Arltunga and Ruby George and historical gold area and fossicking-friendly areas.

3/. Include Day trip to the tropic of Capricorn marker, Gemtree and other fossicking areas in the Area.

4/. Promote the geology of the Red Centre and its influence on the landscape, flora and fauna and culture, both indigenous and post European settlement

5/. Dedicated interactive apps.

**Binns Track:** – no changes suggested, increase promotion and update geoscientific content.
New self-drive routes and trails.

**NEW – Southport to Pine Creeks Historic Gold Trail:**

1/. Celebrate the history and pioneering spirit of the Pine Creek mining era and connections with other gold fields of the era around Australia.

2/. Include Grove Hill, Burrundie and an alternative loop through Pine Creek Orogen.

3/. Highlight the proposed fossicking areas of Margaret Diggings and Spring Hill.

4/. Visit active mine site on tours (subject to approval and agreements).

5/. Learn about mining rehabilitation at Rum Jungle. It’s history, legacy and modern thinking on remediating old sites (subject to approvals).

6/. Dedicated interactive apps.

**NEW - Tennant Mining Trails:**

1/. Celebrate the history and pioneering spirit and mining endeavours of the Tennant Creek area.

New Premium Tourism Experiences.

The purpose of the premium tours is to offer experiences a step up from the self-drive tours. They are designed for those that want the best experiences and services, are time poor and have the means to pay.

Services and capability constraints are impeding realities for many parts of the Territory and so these remain aspirational at this stage.

**NEW - “Top End, Gulf, Rainforest and Reef” Coast-skimmer**

**NEW - “Top End-Kimberly” Highlights.**

**NEW – Yulara, APY & Firestone Plains**

**NEW – Coober Pedy – Binns Track Firestone and Ancient Rivers extensions**
Ancillary factors influencing a Resources-focused Geotourism industry in the NT.

The NT Project Pipeline

The ICN NT projects website lists numerous billion-dollar projects in committed, planned and proposed phases across the Northern Territory which, should they all be approved, would indicate positive economic conditions for the Northern Territory in the medium to long term. The NT economy is currently constrained with the migration of the INPEX project moving from construction to operation and no significant projects immediately available to fill the void. Darwin has felt the ‘boom-bust’ aspect of the resources industry in this instance and overall business sentiment is cautious (DTBI, 2018).

Darwin, the NT capital, has significantly better infrastructure and capacity to service the needs of tourists than other regions at the present time. The joint funding announcements by the Department of Prime Minister and Cabinet and the NT Department of Chief Minister along with the details of projects within the 10 year Infrastructure Plan highlight expenditure of over $500M in multiple projects for Darwin including:

- $200M City Deal
- $200M luxury hotel and associated infrastructure works
- $350M + for Larrakeyah facilities
- $50M water theme park
- And numerous other economically significant projects specifically benefiting the Darwin Central Business District, Wharf Precinct and Larrakeyah.

Limited visibility, understanding or interest in geotourism.

The major concern of establishing and supporting a thriving geotourism industry is the lack of visibility and engagement with the concept with critical decision makers in Government, non-government, commercial and academic organisations. The professional society, the GSA has championed the geotourism for the last few years, and the Australian Geoscience Council Inc appears committed to establishing a national geotourism strategy and supporting framework. The exposure of the geotourism concept with enabling parties will only increase.

There is a perception that geotourism may deflect attention from traditional resource exploration and mining interests. A paradigm change – or at least adjustment – may be required to establish the governance frameworks in which both interests can coexist and mutually benefit each other.

The stakeholders in geotourism are numerous and diverse, and a common platform to successfully inform and engage the relevant parties does not yet exist. The TourismNT site has been built as a vehicle to promote the NT from a traditional tourist perspective and is a potential vehicle for disseminating the geotourism messages. A bespoke option for marketing, promotion and engagement is also a possibility, but with additional costs, time and coordination required.

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Climate

Climate plays a major role in the NT, with both the wet tropics and dry interior both relying on visitation between March-November. This not only impacts numbers but acts to isolate communities and regions during the monsoon periods. Much of the planned regional transport infrastructure works announced in the 10-year infrastructure plan is directed towards improved accessibility and flood immunity and ensure essential access roads remain open year-round. With the right incentives, amenities and services in place, geotourism could be a year-round industry delivering benefits to the regions and their host communities.

Energy and Telecommunications Infrastructure and interconnectivity

The NT remains isolated from the rest of Australia in terms of power grid interconnectivity and until late last year, and stand-alone gas infrastructure. The completion of the North East Gas interconnector has now connected the NT to the Eastern Australian gas pipeline networks and the domestic markets, and a proposed Tennant Creek to Mount Isa Railway will also increase the NT’s eastern connectivity. Our Southern and Western infrastructure linkages remain limited.

Likewise, Australia has a comparative lower level of telecommunications coverage than other countries in regard to their modern digital communication networks. The NT, with a lower base of population and vast distances, has also suffered from the digital divide.

Both energy and telecommunications factors may limit the full potential of establishing an information-rich geotourism industry, as travellers might not have access to the reliability, coverage, or quality of service they might expect. Investments in both areas as detailed in the 10-year Infrastructure plan, indicate an awareness and commitment by the NT Government to address these issues, however as both industries are capital intensive, improvements are likely to be implemented in locations and timeframes that may not align with prospective Geotourism needs.

![Figure 5: Sparse and isolated Telecommunications and Power Networks coverage](Sources: Telstra, 2019, "Coverage Map" and Power and Water Corporation, 2019 “Electricity Networks”.)
Conclusion

The NT has boundless potential opportunity in establishing a thriving geotourism industry and has the means, capabilities and capacity to do so. Our unique geoscientific heritage is largely untouched, but also largely under-explored. The Development the North agenda potentially places significant sites at risk through infrastructure or tourism development. Planning systems and paradigms need to progress.

Other Australian states have realised the potential of geotourism as a viable industry, and all except the Northern Territory are establishing skills, expertise and experience. A national strategy can assist in developing the frameworks in which initiatives are considered and potentially act as an endorsement of new ideas and areas worth of geotourism.

Funding geotourism initiatives remains a concern as a ‘golden sponsor’ has yet to be found, however there are several stakeholders that will need to be informed, or even contribute, to the geotourism discussion. As indicated in the quote below, geotourism has many facets which could lead to increased diversity of interpretive content.

“In the practice of geotourism, it is recognised that interpretation should be expanded to include biotic characteristics of landscape i.e. the living parts e.g. fauna (animals) and flora (plants), in other words, biodiversity as well as cultural features – past and present (including indigenous culture), non-living and built.” (GSA, 2018)

The geotourism movement in the NT may be a multitude of quiet voices with a lot of small things happening and collectively adding to a lot, or it may track faster, as more individuals and organisations see the potential and position into the industry.

It is hoped this paper is a catalyst to establishing a flourishing and viable geotourism industry in the NT.
Appendix 1.

Value of Tourism and hospitality in the NT Regional Development Area 2000-2017

Figure 5: Economic Value of the Tourism Industry in the NT, Source: Economic.id.com.au 11 March 2019.
Appendix 2:
Field Check of Geo monument Sites in the Palmerston area – 9th and 10th March, 2019.

Broek indicated 5 sites of potential conservation potential in his 1980 report, but without detailed coordinate points, these positions were estimated from rectification of Figure 19 – Map of planning considerations and checked via desktop studies and field checks. Details of these additional studies are listed below.

1/. Knuckey Lagoon, Point 1.

Confirmed as preserved and an identified as a conservation reserve managed by the Conservation Commission.

https://nt.gov.au/leisure/parks-reserves/find-a-park-to-visit/knuckey-lagoons-conservation-reserve

The features exist on LOT 2933, Randall Road, Knuckey Lagoon.
2/. Marlow Lagoon, Point 2.

Confirmed as preserved and identified as a recreation reserve managed by the Palmerston City Council.


The Feature exists on Lot 4153, Elrundie Avenue, Palmerston.

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3/. Unnamed Subsidence Doline, Point 3.

The site is believed to have been located within Widdup Park in Driver, but no visible evidence of the monument.

No evidence of the monument. The site is believed to have been located within the Marlow Lagoon Recreation Reserve but is now a sporting oval.

5/. Laterite Profile Road Cutting. Point 5.

Determining whether this site still exists was an adventure and involved two visits to the area on the 9\textsuperscript{th} and 10\textsuperscript{th} of March. It cannot be conclusively stated that the monument has been found, but a road cutting believed to be on the old Stuart Hwy alignment was found in the suburb of Johnston near the WW2 heritage site. It was the only road cutting found in the area and thus is either the site mentioned, or the original site has been destroyed as part of the urban development in the area.

The surrounding area has seen significant urban development, the realignment of the Stuart Hwy, and Historic Area declaration, and the site was found as overgrown near a moderately sized tract of native bushland as per the photo below.

The site, estimated from the rectification of Figure 19 in Broek 1980, is believed to have been located on Lot 12711 Johnston. A geoscientific assessment is needed to see if the site retains its original value as a Geoheritage site.
References:


2/. Australian Government (1), 2019, [Viewed 3 March 2019]
http://www.environment.gov.au/heritage/places/world-heritage-list

3/. Australian Government (2), 2019, [Viewed 3 March 2019]


5/. Commonwealth of Australia, 2018, *Darwin City Deal* [Viewed 9th March 2019]

6/. Cowley WM (compiler), 2003, *Geological Monuments of South Australia 1:2000000 scale*. Department of Primary Industries and Resources SA.


10/. Department of Primary Industry and Resources (1), 2019, ‘Declared Fossicking Areas’ [Viewed 26 Jan 2019]

11/. Department of Primary Industry and Resources (2), 2019, ‘Proposed Fossicking Areas’ [Viewed 26 Jan 2019]
https://fossicking.nt.gov.au/proposed-fossicking-areas

12/. Department of Trade, Business and Innovation (DTBI), 2019, ‘Business Confidence Survey’ [Viewed 24 March 2019].


16/. Geotourism Resource Centre


20/. Marmel Enterprises, 2019, FossickingNT v4.0 Application
https://arcg.is/0rTXaz

https://northernterritory.com/map
https://northernterritory.com/drive


www.ntlis.nt.gov.au/heritageregister/


25. Power and Water Corporation, 2019, Electricity Networks [Viewed 2 April 2019]


27/. Robinson, Angus M, ‘Unearth the Etheridge Scenic Region Through Geotourism’ [viewed 2 April 2019]


29/. Telstra Corporation, 2019, Coverage Map, [Viewed 2 April 2019]

http://whc.unesco.org/en/list/

About the Author, and Marmel Enterprises.

Marmel Enterprises’ Managing Director Mark Asendorf has a professional and personal interest in seeing Geotourism flourish in the NT. In addition to his duties as the owner of the business, Mark Asendorf has been involved with several significant ICT related projects within the NT Government since his return with his family to the NT in 2014 including the following.

1/. STRIKE – The Department of Primary Industry and Resources Titles and Geoscience mapping system
   http://strike.nt.gov.au

2/. BushTel re-launch. The Department of Local Government, Housing and Community Development online information service about remote aboriginal communities and open data concerning the services, facilities and basic community information to encourage improved engagement and collaboration.
   https://bushtel.nt.gov.au

Mark’s interests are the advancement of the NT as a place of opportunity and growth for all who call the call the north their home.

Through Marmel Enterprises, Mark has released and built application based on publicly available information for the public to use to encourage public awareness and engagement on subjects of interest to the NT.

These include:

1/. A lightweight online fossicking assistant to encourage responsible fossicking in the NT. The app contains known mineral occurrences, specimen location, details and images, and pointers for potential fossickers to obtain the right information and permissions prior to heading out to try their luck.
   https://arcg.is/0a9HX4

2/. 10 Year Infrastructure Plan re-imaging.

The NT Department of Infrastructure, Planning and Logistics released a 10 year infrastructure plan to highlight committed, planned and probably projects within the NT. The objective was to provide some industry visibility of the project pipeline and as an engagement tool.

Marmel Enterprises undertook to re-assign projects to their source locations instead of the default ‘by project’ view. The beta of the resulting application is available at the link below.
   https://arcg.is/1jbPXq

3/. A personal family trip with the Family to the Kimberley’s in 2018 was recorded and a story map produced detailing the journey to encourage others to explore the region. It is listed below.
   https://arcg.is/1n848a

4/. The ‘GeoDiscoverNT’ application developed as part of this report.
   https://arcg.is/15GDyg

5/. The GeoheritageNT Explorer (Not public), to assist in the management and preservation of Geoheritage sites in the NT.