Proposal for a National Framework for the Listing of Geoheritage Sites Suitable for Geotourism

National Geotourism Strategy Working Group 4
Report to the National Geotourism Strategy Steering Committee

The National Geotourism Strategy (NGS) of the Australian Geoscience Council (AGC) has been designed to support the orderly development of major geotourism projects and activities in line with overseas trends and domestic regional development imperatives. It is structured to deliver and interpret for the traveller or visitor, quality natural heritage content, highlighting geology and landscape. The strategy consists of seven goals, each being addressed by a separate working group:

1. Develop a digital platform for the delivery and interpretation of geoheritage information for the traveller.
2. Define an approval pathway for major geotourism projects.
3. Establish a framework for creating high quality, sustainable geotrails.
4. **Establish a national framework for geoheritage listings suitable for geotourism.**
5. Develop geotourism as a key driver for celebrating mining heritage.
6. To strengthen Australia's geoscience standing through geotourism excellence.
7. Develop and enhance geoscience interpretation and communication.

Background

The AGC and its NGS recognise that geoheritage listings are a key consideration when formulating major geotourism projects, an issue which it is understood to be of interest to the Government Geoscience Information Committee, particularly given that some sites need to be protected from public access because of the risk of vandalism, over-collection, or inadvertent damage to sensitive features.

The AGC has already recognised that each jurisdiction has adopted a different listing methodology for geoheritage. For example, the State of Tasmania has a detailed database, whereas in Victoria, the geoheritage listing function is managed by the Geological Society of Australia (GSA). In the 1970s and 1980s, the GSA facilitated identification and description of select geoheritage sites. More recently the GSA has developed a geoheritage assessment toolkit to document the type and significance of geoheritage values, however that has not been uniformly adopted. The GSA has already identified an opportunity to develop a customised geotourism assessment toolkit to ensure geotourism is appropriate for geoheritage and other sites (e.g., protection of sensitive sites, health and safety, access to land), and to identify opportunities to link to other features (e.g., biotic, and cultural) and infrastructure.

A national approach would help geotourists discover geoheritage and geotourism products in a single location on and through the GSA website or elsewhere (e.g., websites, mobile apps, operators, and hard copy publications). The approach would facilitate the provision of existing information, development of coordinated geotourism projects across Australia, and deliver geotourism to regional Australia.

Scope of Working Group 4 activity:

The mission of Working Group 4 (WG 4) was to establish a national framework for geoheritage listings suitable for geotourism. The mechanisms to underpin this will ultimately result in the establishment of a national framework to recommend geoheritage listings, especially those already under statutory protections, for geotourism that is safe and effective for both human use and environmental outcomes. The outcome, measure, target, and recommendation constitute the effective scope of the working group and were as follows:

Outcome: Establishment of a national framework for the listing of geosites suitable for promotion as geotourism sites.
Measure: Extent to which collaboration is achieved with the State/Territory Geological Surveys, the GSA) and other AGC member societies as well as other groups or individuals as appropriate.
Target: A cohesive framework to be formulated within two years.
Recommendation: WG 4 to confer with State/Territory Geological Surveys and other groups as relevant (including but not limited to environmental, naturalist, palaeontological, and speleological groups) to develop a national framework.

Membership and meetings

WG4 was comprised of geoscientists active within geotourism or the geoheritage domain; as state inventory curators, geoconservation practitioners or involved in geological survey or protected area governance and management. Over the course of six online meetings from May 2021 to date, membership has been somewhat dynamic. The process aimed to have representatives (as acknowledged below) from every Australian state and territory engaged in development of this report. In addition, the Chair has participated in recent meetings of Working Group 1 which has been active in developing the *Australian Geotourism Discovery Portal.*

Premise

There is a need to establish criteria for the assessment of geoheritage and other sites of high natural and cultural values that might also be suitable for geotourism. There are three pillars of assessment relevant to this exercise:

1. Identify, using state inventories or other state-based lists, sites of high natural and cultural value,
2. Identify, using geotourism valorisation tools and customer profiles, the types of sites likely to be favoured by geotourists and others; and,
3. Rank and promote a short list of these places based on the likely interesting features at the sites, their relevance to a broader cross-section of the community, and the risk of degradation to these places should they be promoted as visitor attractions.

The proposal to develop this work further involves the use of a digital platform (the *Australian Geotourism Discovery Portal*) to spatially represent these ranked sites. This document outlines the procedure by which we shall select possible sites and what information should be presented online, after acknowledging the aforementioned risks and benefits of this promotion. This procedure will then be provided to the state and territory organisations that are the custodians of existing geoheritage inventories. Those organisations will then be responsible for shortlisting appropriate sites within their realm and supplying the relevant data as per the format outlined below.

Site selection criteria

To be suitable for geotourism a potential site MUST:

- Readily display a natural geodiversity value at the human scale, so that it can be appreciated without requiring either a microscope or satellite imagery.
- Present a story of Earth history, process or nature that can be interpreted in plain language.

To be suitable for geotourism a potential site MUST NOT:

- Be overly sensitive to direct human impacts such as trampling, collection or vandalism.
- Be hazardous, although acceptable hazards may vary with accessibility rating, for example, a hazard regarded unacceptable for a site classed as 'family friendly' might be acceptable at another site classed as 'remote / extreme'.
- Be on private or otherwise restricted land unless it is part of an existing tourism operation.
- Be culturally sensitive unless the traditional custodians agree to its promotion as a geotourism site.

Overview of proposed framework

A schema for the listing of geotourism sites has been developed for incorporation into the broader NGS digital platform. It is important to note that this is not in any way intended to be a geoheritage register, as many geoheritage sites are unsuitable for tourism presentation (see site selection criteria above). It is instead simply our proposed framework for the listing of geosites with geotourism potential.

Four distinct potential user groups are recognised:

- Land managers
- Tourism operators
- Educators
- Visitors and tourists

The proposed framework aims to cater to each, while acknowledging that the first two groups may require more detailed information about their local sites. To that end, links to additional information and references need to be included.

The working group considered it essential that:

- The end user interface is centred around an interactive map.
- Site entries include links to photographs.
- Wherever possible the inclusion of information that may change over time should be avoided.
- A 'landing page' should contain a statement about respectful acknowledgement of country and present some general advice regarding potential hazards.

It was also generally agreed that:

- For simplicity, spatial data should be limited to point coordinates, e.g., the relevant carpark, rather than lines or polygons.
- Coordinates would be linked to an attribute table.
- Permitting selection of multiple categories (e.g., for site type) and allowing links to multiple photos (and captions) demands use of a relational rather than 'flat table' database.

- The attribute table should be kept as simple as possible while remaining fit for purpose, otherwise data entry could become onerous.
- Inclusion of some fields invisible to the public may assist site management.
- Sites should be categorised according to broad type, e.g., coastal, volcanic etc. in order to allow user selection according to personal interest. These types could be distinguished by use of appropriate icons on the map interface.
- Sites should also be categorised according to accessibility (easy, hard, paid tour etc.).
- Sites should also be categorised according to values present, e.g., scientific, aesthetic, recreational, cultural (noting that sites of purely cultural will typically fall under the remit of WG5).
- The attribute table should be searchable so that users could rank sites according to interests or needs (e.g., accessibility).
- There should be two levels of description – a brief one in simple plain English and a more detailed one to cater to the sub-population after greater understanding. While the latter might be copied from existing databases, the former might require some careful wordsmithing.
- Detailed or site-specific advice regarding potential hazards should be avoided as any error or omission in this regard could provide opportunity for litigation in the event of misadventure.
- It would be a good idea to create a 'case study' using a small, defined selection of sites to test the structure and provide proof of concept.

Proposed fields and definitions

To avoid the need for on-going updates, it was agreed that as far as possible only permanent attributes of a site should be listed. However, some site aspects of interest to the traveller, like facilities or mobile phone coverage, will inevitably change over time. Those entries would need to have an 'as at' date appended, but see other options suggested below. The data fields considered essential to a framework for the listing of geosites suitable for promotion as geotourism sites are as follows.

Name [text]. For consistency this should as far as possible follow a 'where - what' format, for example Bicheno Blowhole. This could be followed by Aboriginal name where appropriate and if formally gazetted.

Location [shapefile]. Point geometry of the key location, for example a relevant carpark. This is critical to the map interface but otherwise likely to be of limited value to the end user.

Photos [file links]. At least one relevant photo should be a mandatory requisite for site listing. HD resolution (1920 x 1080 pixels) is suggested for versatility of display, from thumbnail to full screen. All photos must be in the public domain or available under a CC licence or similar.

Photo captions [multiple text]. Photo captions should describe and interpret what is visible in the image in plain language.

Brief description [text]. In plain language (no jargon) and ideally no more than a paragraph, this should succinctly describe not only what can be seen on site, but also its significance and the experience itself. For example: *guided tours of Naracoorte Caves showcase fossils of extinct animals that are of World Heritage listed outstanding universal value due to their abundance, preservation, and diversity*. Suggested field length: up to 500 characters. However, this field length may need to be reduced further to accommodate inclusion within the *Australian Geotourism Discovery Portal*.

Detailed description [text]. This should contain enough information to enable a visitor to appreciate the values of the site. It should be both descriptive and offer an interpretation of what those observations mean

in terms of geological history or landform development. Some jargon may be permissible, but only if it is defined. Suggested field length: up to 4,000 characters.

Site type [multiple categories]. Required to enable plotting of sites by representative icon on the map interface, and to assist user selection according to personal interest. Suggested categories included cave, coastal, extra-terrestrial impact sites, faults & folds, fossil site, geological landscape, granite landscapes, historical, mountains, sedimentary, volcanic. However, a more systematic approach might adopt the hard rock classes and landform themes of the classification of natural geodiversity proposed by Bradbury (2014), translated into plain language. Multiple category choices may be necessary, which means that depiction of complex sites may result in undesirable map clutter unless a choice can be made regarding the single most fundamental aspect.

- Fossils – the history of life
- From molten rock
- From the deep sea
- Restless planet [incl. metamorphism]
- Minerals
- Volcanoes
- From outer space
- Ice Ages
- Unstable land
- Caves, springs, and dissolving things
- Blowin' in the wind
- Rivers and lakes
- Coasts and estuaries
- Weathering features
- Soils – not just dirt!
- Complex landscapes

GeoRegion [unique category]. Required for context in individual States and Territories (detail to be determined by the appropriate Geological Surveys having regard to approved Guidelines).

Additional information [text and URLs]. Source and reference material in the public domain (may include links to the abstracts of copyrighted journal papers).

Facilities [text?]. While this sort of information is undoubtedly of key interest to the traveller, the compilation and maintenance of such a data set is regarded as beyond the capacity of the geoheritage data custodians tasked with populating the other fields. WG4 could agree on only four potential entries: carpark (the default spatial data entry), toilets, wheelchair access (duplicated in the access field, below), and mobile phone coverage. It is therefore suggested that further options for this be explored in collaboration with WG1. Those might include:

- URL links to Google Maps and other existing sites hosting this sort of information.
- Opening input to this field to the general user (perhaps similar to the 'add a review' field found on many retail sites).
- Allowing registered tourism providers to advertise their product. That would have the advantage of helping recover site maintenance costs but is beyond WG4's remit.

Access [multiple categories]. Considered essential, where possible this should follow the national track classification standard (grades 1 -5). Other relevant categories include paid tour, permit required, parks pass required, 4WD required, features best viewed at low tide.

Values [text]. Essentially a statement of significance and the key features that may be observed.

Please respect this geoheritage site [text]. A polite list of dos and don'ts according to the site's particular sensitivities.

Site management [URLs]. To relevant pages of Parks Authority etc. websites where these exist.

The above suggestions for entries to categorical fields are not necessarily exhaustive of all possibilities. Allowance should be made for editors to add extra categories as required. In addition to those fields listed, several housekeeping fields, not least a unique site identifier, will also be required.

Next steps

WG 4 has made no determination regarding the software platform but understands that the *Australian Geotourism Discovery Portal* is being developed on an ArcGIS Hub, under licence from the University of Tasmania.

The procedure for site selection and data entry may vary between States and Territories. As an example, the GSA (Tas) Geotourism Subcommittee has already selected from existing databases a shortlist of almost 300 sites potentially suitable for promotion as geotourism sites. Once the framework and host are established, Tasmanian data entry, including preparation of appropriately revised (jargon-free) descriptions etc. could only be done on an essentially volunteer basis. Different approaches may be possible in other jurisdictions; however, it appears likely that a substantial nationwide volunteer effort will be required to populate the database.

Consideration must also be given to an appropriate review process because some data (especially URLs) will inevitably become outdated. Additional geotourism sites may be identified, while some that may have initially failed the selection criteria may subsequently pass, for example a trampling susceptible site subsequently protected by construction of a viewing platform. To assist review, it is suggested that the various data custodians be granted editing permissions.

Acknowledgements

The Working Group comprised the following geoscientists located in States and Territories as listed.

New South Wales: Dr Joanna Parr, Trish Moriarty, Simone Meakin (Chair WG 7), Phil Gilmore
Victoria: Dr Susan White [#], Dr Sandra Brizga
Queensland: Ian Withnall
Western Australia: Dr Sarah Martin, Dr Heidi Allen, Michael Freeman
South Australia: Dr Carmen Krapf [#], Ian D Lewis
Tasmania: Jason Bradbury (**Chair WG 4**), Dr Melinda McHenry (Chair WG 5), Grant Dixon
Northern Territory: Dr Anett Weisheit, Mark Asendorf
Australian Capital Territory: Dr Doug Finlayson [#]

[#] Current or former roles with the Geological Heritage Standing Committee of the GSA.

Reference

Bradbury J. 2014. A keyed classification of natural geodiversity for land management and nature conservation purposes. *Proceedings of the Geologist's Association* 125: 329 – 349.

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