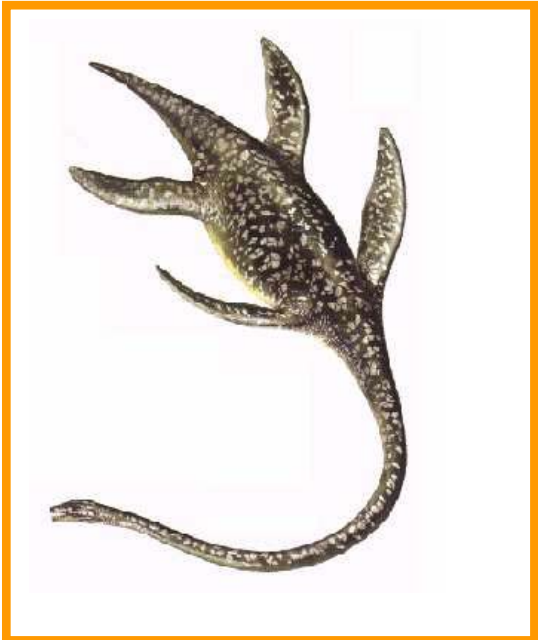
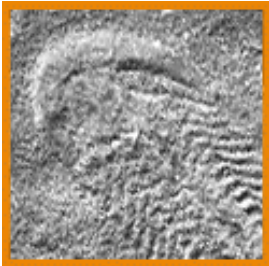


Draft Fossil-based Tourism Scoping Study



Prepared for the South Australian Tourism Commission
By Liz Reed

Executive summary

This document investigates the potential for developing fossil-based tourism in South Australia. South Australia has a diverse range of palaeontological experiences and is well placed to develop a successful fossil-based tourism initiative.

The following provides a brief summary of the key points included in this study:

- The scope objective, mission statement and fossil-tourism objectives are defined.
- Key stakeholders for the initiative are identified.
- The palaeontological resources of South Australia are identified and some preliminary assessments regarding their potential for fossil-based tourism are given.
- Issues relating to the development of the palaeontological resources for tourism are discussed including the types of products that could be generated, the limitations of these products and the human resources needed to develop fossil-based tourism.
- Marketing opportunities for the initiative are discussed and products from around the world and Australia are investigated.
- Target markets for fossil-based tourism in Australia are identified including the profile of the various markets, the size and location of these markets, promotional avenues, potential visitation numbers, potential costs, income and flow-on effects.
- The environmental impact of fossil-based tourism is assessed and actions are suggested to ensure sustainability.
- The ownership and management of fossil-based tourism products is discussed.
- The alignment of fossil-based tourism with goals outlined in the *South Australian Tourism Plan 2003-2008* (SATC) is detailed.
- A proposal for the fossil-based tourism project development is provided including a staged rollout plan and draft coordination role.

Table of contents

Executive summary	i
Introduction	1
Objectives and mission statement	2
Scope objective	2
Fossil-based tourism mission statement	2
Fossil-based tourism objectives	2
The stakeholders	3
The palaeontological resources	4
Development of the resources for tourism	4
What tourism products could be generated?	8
How can fossil-based tourism be tapped for self-drive FIT markets?	9
What are the product limitations?	11
What HR roles will be needed?	11
Marketing opportunities	12
What other fossil-based tourism products are available around the world?	12
How do they combine science with tourism?	13
What other fossil-based tourism products are available around Australia?	13
Target markets	14
Profile of potential customers	14
Size of the target markets	14
Where are they located?	14
How can target markets be reached?	15
Potential visitation numbers	15
Potential frequency of product offering	15
Cost of tourism packages	16
Size of marketing budget	16
Potential income generated	16
Potential flow-on effects	16
Environmental impact	17
Potential impacts to palaeontological resources from tourism	17
Suggested actions to ensure sustainability	17
Would extra facilities be required at localities?	18
Ownership and management of fossil-based tourism products	18
Who will drive the initiative?	18
Who will own the products that are generated?	18
Who will manage bookings?	18
Who will collect revenue as it is generated?	19
Who will invest money in setting up the initiative?	19
Alignment with South Australian Tourism Plan 2003-2008 (SATC) goals	19
Proposal for fossil-based tourism project development	21
Staged rollout plan	21
Draft coordination role – key goals and responsibilities	22
Draft operating budget for project coordinator	22
Appendices	23

Introduction

Fossils have captured the imagination of people for centuries and that fascination continues today. In recent years, interest in fossils and the history of life on Earth has grown rapidly. The popularity of television programs such as "Walking with Dinosaurs", "Walking with Beasts" and the "Jurassic Park" series of movies attest to this. It is also evidenced by the success of travelling palaeontological exhibitions such as the "Chinese Dinosaurs" which attracted 175,000 visitors in Sydney in 2002.

In line with public interest, "Palaeo tourism" (or fossil-based tourism) has recently been identified as a niche tourism market. Internationally, palaeontological localities have been successful tourist destinations for decades, with many sites offering ongoing interpretive, participatory tourism and educational programs (see Appendix 3). These attractions host hundreds of thousands of visitors each year and include the Burgess Shales (Canada), the Dinosaur Provincial Park (Canada), La Brea tar pits (USA), Cradle of Humankind World Heritage site (South Africa) and Hot Springs Mammoth site (USA). Furthermore, there are now nine World Heritage listed fossil sites and these sites are important visitor destinations.

Fossil-based tourism provides experiences at several market levels. Firstly, there are palaeontological experiences and interpretation for the wider public including interpretive centres, guided tours, self-discovery trails and exhibitions. Secondly there are niche market opportunities for providing specialised products such as participatory ecotourism and premium tours. There are also opportunities to develop products for the education sector such as school programs and industry training at tertiary level. Additionally, increased public awareness and revenue from tourism can be utilised to ensure protection of the palaeontological resources. Fundamental to all levels is ongoing research which provides current knowledge and opportunities for participation.

The rich and diverse fossil record of South Australia is another one of its best kept 'secrets', and given this state's exceptional range of fossil localities there is considerable potential for fossil-based tourism. In the Flinders Ranges the Ediacaran deposits contain evidence of the oldest multi-cellular organisms. The vertebrate fossil record is particularly rich and includes giant marine reptiles from the north of the state and ancient marsupials from the Lake Eyre basin. The ice age megafauna that once flourished across Australia are preserved in several key localities including Kangaroo Island, Burra and the World Heritage listed Naracoorte Caves.

While there are fossil localities in other states that are utilised for tourism, there is as yet no unified plan in place to realise the potential for fossil-based tourism in Australia. Therefore South Australia is uniquely placed to lead the way in fossil-based tourism in this country, and to realise its vision of being an "inspiring leader in innovative and sustainable tourism" (see SA Tourism Plan 2003-2008).

This document presents a draft scoping study investigating the potential for developing fossil-based tourism in South Australia. Briefing notes on fossil-based tourism (Appendix 1) were first presented to the Honourable Jane Lomax-Smith, Minister for Tourism by Associate Professor Rod Wells during the Minister's visit to the Rocky River megafauna site on Kangaroo Island (31st May, 2003). At the Minister's request working guidelines for the production of a draft scoping study were produced by Anne Sellar (Industry Development Advisor, SATC) and Mark Gill (Senior Industry Development Advisor, SATC). The current document was developed according to these guidelines.

Objectives and mission statement

Scope Objective

To explore the potential for the development of fossil-based tourism in South Australia.

Fossil-based Tourism Mission statement

The mission of the fossil-based tourism initiative is to interpret and present the rich palaeontological and geological resources of South Australia, creating a wide range of sustainable tourism and educational opportunities.

Fossil-based Tourism Objectives

- To position South Australia as a unique and diverse tourism destination.
- To be a leader in developing niche and sustainable nature-based fossil-based tourism and education products.
- To align any development with SATC priorities and South Australian Tourism Plan (2003-2008) goals and objectives.
- To align any development with current fossil site management strategies and to ensure and promote the protection and preservation of the state's unique palaeontological and geological resources.
- To value-add to the state's rich natural assets and enhance the visitor experiences to the state's national parks.
- To position the universities, DEH, SA Museum and DECS as leading, world class centres for palaeontology, research, education and palaeontological resource protection and management.

The Stakeholders

Table 1 lists the key stakeholders, their connection and objectives for the fossil-based tourism initiative. Establishing a strong cooperative venture between stakeholders will be critical to ensuring the protection of the fossil resources, diversity of product and sustainability of the initiative.

Table 1. Key stakeholders in the fossil-based tourism initiative.

ORGANISATION	CONNECTION	OBJECTIVES FOR FOSSIL-BASED TOURISM
GOVERNMENT		
Department for Environment and Heritage (DEH)	Manage and administer palaeontological and geological resources through the Regional Conservation section	Access, education, training, awareness, understanding, financial reward; improved protection and management of palaeontological resources
South Australian Tourism Commission (SATC)	Providing assistance with the development of an effective fossil-based tourism plan	Create an innovative marketing strategy and be a leader in developing sustainable, fossil-based tourism products; value add to the state's rich natural assets
Local Government (LGt)	Ownership / management of palaeontological and geological resources	Community involvement, enhancing opportunities in regional areas, education, awareness, understanding, financial reward
Department of Education and Children's Services (DECS)	Curriculum links for primary and secondary level educational programs and products	Utilisation of palaeontological resources for education, assistance with the development of educational products
Primary industries and Resources South Australia (PIRSA)	Ownership / management of palaeontological and geological resources	Educational opportunities, fossil site protection and improved management, geological monuments program
EDUCATION SECTOR		
South Australian Museum (SAM)	The public face of palaeontology; research facility and houses scientific collections of SA fossils	Provide the gateway to the fossil sites of the state and a central interpretive facility for public programs and exhibitions; palaeontological expertise
Flinders University (FU)	Palaeontology research group has active research program at the fossil sites; SAM links	Foster research to keep knowledge current and to promote palaeontology in SA; palaeontological expertise for product development, staff training, implementation, site assessment and protection
Flinders Uni Ecotourism & Cultural Tourism	Degree program producing high quality graduates in the tourism industry	Developing product, provide marketing links and internal support; in kind support through student projects
Primary/Secondary schools; Australian Science Teachers Assoc. (ASTA) SA Branch	Curriculum links, target market	Integrate palaeontological resources into teaching and curriculum development; utilise resources for educational purposes
Adelaide University (AU)	SAM links	Education
OTHER		
Private tourism operators	Have operational and marketing expertise	Developing products; provide means to access sites; responsible use
Links and partnerships e.g. Telstra Country Wide, The Advertiser	Financial support and promotion	Promotion, support, event development, educational support

The palaeontological resources

The rich fossil record of South Australia is evidenced by the number and diversity of its palaeontological resources. These resources include internationally significant invertebrate fossil localities (eg. the Ediacara deposits in the Flinders Ranges), and vertebrate localities (eg. the Naracoorte Caves World Heritage area). Complementing the palaeontological resources are the state's rich geological resources. These elements combine to provide a fascinating history of the South Australian landscape through time.

Fossil localities with tourism potential are spread across the state (see Figure 1) and can be grouped by tourism region: Adelaide & Fleurieu Peninsula - SA Museum, Hallett Cove, Aldinga; Kangaroo Island - Black Swamp (Rocky River, Flinders Chase NP), Emu Bay; Limestone Coast - Naracoorte Caves NP (World Heritage fossil site), Naracoorte limestone quarries, Mount Gambier sinkholes; Riverland & Murraylands - Mannum, Morgan, Black Hill; Clare Valley - Redbanks CP Burra; Flinders Ranges and the Outback - Ediacara deposits, Flinders Ranges NP, Andamooka, Coober Pedy, Stuart Creek, Lake Callabonna Fossil Reserve, Lake Palankarina Fossil Reserve, Cooper and Warburton Creeks; Eyre Peninsula - Nullarbor NP. The majority of sites occur on public lands and many are already established for tourism. Those on privately owned lands may be available for opportunities following consultation with land owners and local communities.

Appendix 2 provides a list of the palaeontological localities within South Australia, with details on fossil relevance, management/ownership, current tourism programs, geological features, access availability and tourism opportunities.

Development of the resources for tourism

Several key localities within South Australia (see Appendix 2) are 'fossil-based tourism ready', with suitable infrastructure or established programs.

- The South Australian Museum (SAM) provides the gateway to the fossil localities of the state and has recently developed an exhibition showcasing the opalised Plesiosaur fossils from Coober Pedy and Andamooka. Further permanent exhibitions are planned or near completion including a display featuring the Ediacaran fauna, and a Pleistocene megafauna display. Cooperative ventures between fossil-based tourism stakeholders could focus on museum displays that showcase South Australia's diverse fossil resources and facilitate the museum's role as the gateway to fossil-based tourism destinations.
- The Naracoorte Caves National Park provides a model for fossil-based tourism in SA with many fossil-related tourism and educational programs well established and new products being trialled. As the state's only World Heritage Area, the Naracoorte Caves could play a key role in facilitating the development and marketing of fossil-based tourism in SA.
- The sinkholes of the Mount Gambier region also provide an established tourism destination with fossil relevance and will form part of the proposed Limestone Coast trail. These resources are particularly relevant to the self-drive tourism market. Additionally, the Lady Nelson discovery centre in Mount Gambier has fossil displays and interpretation.
- On Kangaroo Island, the Black Swamp locality (Rocky River, Flinders Chase National Park) contains significant Pleistocene megafauna remains which are currently the subject of a three year research project. Recent re-developments at Rocky River include a new interpretive centre with fossil content, an interactive children's fossil display, interpretive walking trails and upgraded camping facilities. Ongoing excavations at the Black Swamp sites provide opportunities for visitor interaction with palaeontologists and viewing of excavation sites. Future developments for fossil-based tourism at Rocky River could include guided tours, viewing areas to be developed adjacent to the excavation sites and interpretive signage.

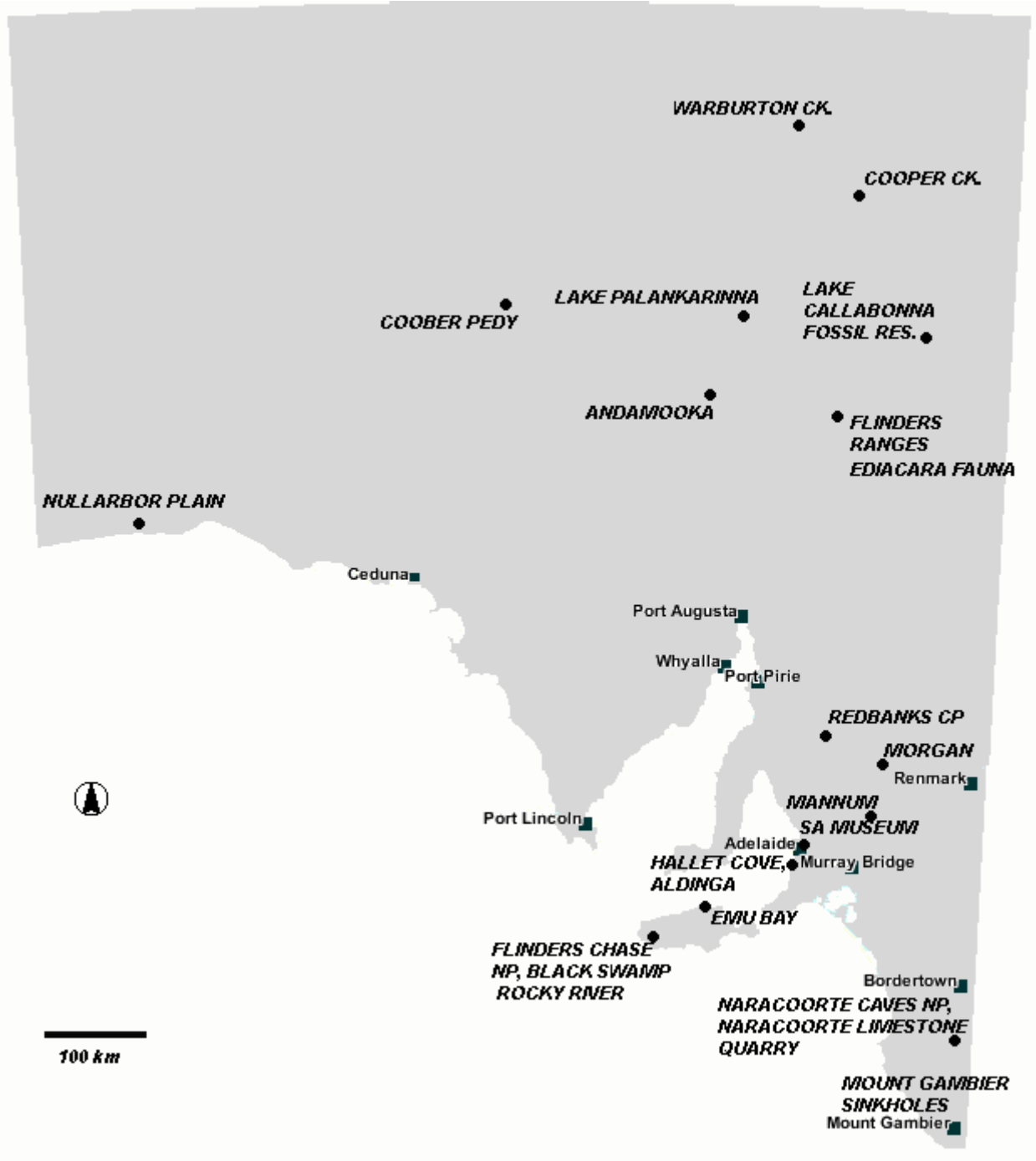


Figure 1. Location of fossil localities discussed in the text.

Other localities listed in Appendix 2 have potential for fossil-based tourism with further assessment and development.

- The Cretaceous localities of Coober Pedy and Andamooka are scattered and would be difficult to develop for tourism. However, there is great potential for the self-drive touring market and for local community facilities and local businesses (eg. opal museums) to develop displays and tours. Interpretive signage relating to the palaeontology and landscape history of the region could be provided along the established Outback touring route from Port Augusta through to Coober Pedy.
- The Flinders Ranges is already a significant tourist destination in South Australia and fossil-based tourism would value-add to the existing experiences. Interpretive signage along self-drive routes and walking trails could focus on the palaeontological, geological and landscape histories of the region. The region is renowned for its Ediacaran sites and there is already interpretive signage in some areas (eg. Brachina Gorge geological trail, Flinders Ranges NP). As there are existing issues with protection of the Ediacara deposits, development of the more significant sites for tourism (some of which are on private land), would require special consideration and assessment. There is potential for developing niche premium tours with specially trained and accredited guides to some areas. Other tourism opportunities should be explored for the area such as virtual experiences (eg. fossil exposures re-created in interpretive centres), enhanced signage and interpretive displays in regional centres. As many tour operators currently incorporate Brachina Gorge and other relevant sites into tours (eg. Aussie Heritage Tours, Ecotrek). Other key geological localities within the region provide additional fossil-based tourism opportunities eg. ancient stromatolite reef sites, the Acraman ejecta layer.
- The Lake Callabonna Fossil Reserve is a highly significant Pleistocene megafauna site as it contains complete skeletons of *Diprotodon* and other species. Due to its remoteness and potential protection issues the site would require further assessment, but may be suitable for niche, premium tours with accredited operators or palaeontological expeditions. Some operators already utilise this locality on tours.
- The, Cooper Creek, Warburton Creek, Lake Palankarina Fossil Reserve and Stuart Creek areas have significant Tertiary to Pleistocene vertebrate and plant fossil sites. Due to their remoteness and protection issues these sites would require further assessment, but may be suitable for niche, premium tours with accredited operators or palaeontological expeditions. Some operators already utilise these localities.
- The caves of the Nullarbor Plain have yielded Pleistocene vertebrate remains and archaeological deposits. While many of these localities require further assessment due to protection issues, there is the possibility of exploring the potential for developing some caves for tourism (either guided or self-guided). There is also potential for the self-drive market with interpretive signage being established on existing touring routes (eg. 'cruising the coast' route). This interpretive material could focus on the palaeontological, geological and landscape history of the area.
- The Hallett Cove (a geological monument – PIRSA) and Aldinga areas south of Adelaide contain deposits of Pleistocene vertebrates and Tertiary marine deposits (Aldinga). Interpretive signage is already in place at Hallett Cove and further signage could promote the palaeontological significance of the site. The coastal cliffs at Aldinga have potential for interpretive trail development. Both sites have educational value for school children from the Adelaide region, and programs could be further developed.
- The Riverland and Murrayland regions have abundant exposures of Tertiary marine invertebrate fossils and these provide opportunities for value-adding to existing self-drive touring routes ('the river run' route) and also for local community involvement with interpretation and product development. Interpretive signage could be provided at non-sensitive localities and there is potential for fossicking opportunities for visitors. This would provide an excellent educational opportunity if regulated effectively.

- The Naracoorte limestone quarry contains excellent geological sections of the ancient coastal ridges of the region and has abundant exposures of Tertiary marine invertebrate fossils. Quarrying activity is currently being assessed by the local council due to the presence of newly discovered caves, therefore there is potential for developing the site as a self-discovery interpretive facility and geological monument. There would also be the opportunity for the public to fossick for fossils in the quarried areas. This venture would have great educational value and could be explored by the Naracoorte local council.

Several of the localities listed in Appendix 2 require special consideration due to protection issues or sensitivity of location access.

- Ediacara and the Lake Eyre basin sites have previously been mentioned. Redbanks Conservation Park fossil sites have yielded significant Pleistocene megafauna remains and a management strategy for the park is currently being drawn up. Until this is complete, public access should be restricted. However, there is potential for interpretive displays in Burra and local community involvement.
- The Emu Bay Shales of Kangaroo Island have yielded significant invertebrate faunas of Cambrian age (Burgess Shales age faunas). Unfortunately these deposits have been subject to extensive amateur collection by fossil dealers and increased public access would exacerbate existing protection issues. The palaeontology could be interpreted at visitor centres on the island providing 'virtual' experiences while maintaining the integrity of the site. Further investigation of tourism potential at this locality could be undertaken in the future.



Left – Visitor viewing recent excavations at Black Swamp, Rocky River, Kangaroo Island.

Right – School children listening to the SAM director and palaeontologist Dr Tim Flannery at the opening of "Out of the Glass Case", Naracoorte Caves 2003.



What tourism products could be generated?

A diverse range of tourism products could be generated from the fossil-based tourism initiative incorporating mass market interpretation, educational products and specialised niche tourism products.

Potential and/or existing products include the following:

- Palaeontological displays in the South Australian Museum that showcase the fossil heritage of SA. SAM are currently developing their 'gateway concept' ie. fossil displays will provide a gateway to the fossil localities of the state. The museum could be the starting point for many visitors and provide information on accessing other fossil-based tourism destinations.
- Self-drive trails (see next section).
- State-wide fossil trail linking attractions with fossil significance; develop accompanying guide book or brochures.
- Guided on-site tour programs including specialised tours for niche market (eg. the World Heritage tour conducted at the Naracoorte Caves and led by a palaeontologist).
- Self-guided on-site interpretive programs eg. walking trails, interpretive centre displays, fossicking in quarry sites.
- Regional and local community interpretive centres, displays and tour products.
- Travelling palaeontological exhibits could be targeted for Adelaide (most of these do not come to SA and have been hugely successful interstate).
- Special fossil-related events such as the "Palaeontology Week" initiative at the Naracoorte Caves.
- Educational programs (primary and secondary), and curriculum based materials related to palaeontology.
- Expansion of vertebrate palaeontology course run by Flinders University to include full fee paying overseas students.
- Links with backpacker nature-based tourism market through tour operators (eg. OzExperience) and information networks (eg. Lonely Planet).
- Links with inbound tour operators to tap into international tourism and educational markets (Naracoorte Caves fossil site has already hosted educational bookings from Asia and the United States).
- Participatory ecotourism with opportunities for tourists to assist with excavations and accompany palaeontologists on expeditions; (Gondwana Dreaming tour is being trialled at Naracoorte Caves in September).
- Premium, niche tours accompanied by palaeontologist or trained and accredited guide. These tours could provide revenue towards site protection and continued research.

How can fossil-based tourism be tapped for self-drive FIT markets?

- Fossil-based tourism is particularly well placed for incorporation into the self-drive markets and would significantly enhance existing products. Furthermore, there is great potential to develop a fossil trail (or series of trails) for South Australia which would link all sites with fossil resources.
- SATC currently promotes the "discover the unwinding roads" concept through its 'Secrets' campaign (refer to document of same name produced by SATC 2002). There have been four theme trails developed for this program and these are 'cruising the coast', 'the river run', 'the wine lover's pilgrimage' and 'the great outback odyssey'.
- Figure 2 shows the currently promoted trails map with the location of palaeontological resources plotted in. Nearly all of these resources are located along existing trails, providing an excellent opportunity for the fossil-based tourism attractions to further enhance these experiences.
- There is also the potential for the establishment of a specific fossil trail perhaps with the SA Museum logo theme of "in the footsteps of time". This trail could link fossil attractions through self-drive routes that could incorporate day trips through to five day self-drive holidays as is already promoted in the 'unwind your own way' concept within the self-drive promotion.
- The establishment of a fossil trail would particularly benefit regional areas, where local communities could be involved in developing interpretive programs, signage and displays. The economic flow-on from this venture could be significant for these areas, and would particularly enhance the range of tourism experiences along the Murray River.
- State-wide or nation-wide fossil trails have already been successfully developed overseas with the Great Canadian Fossil Trail (Canada), the Jurassic Coast Fossil trail (England) and the Vanished Worlds Fossil Trail (New Zealand).
- A saleable guide book could be produced which would provide revenue from the program.
- Fossil trail web site development would further enhance the program and provide mass marketing and allow visitors to plan ahead.

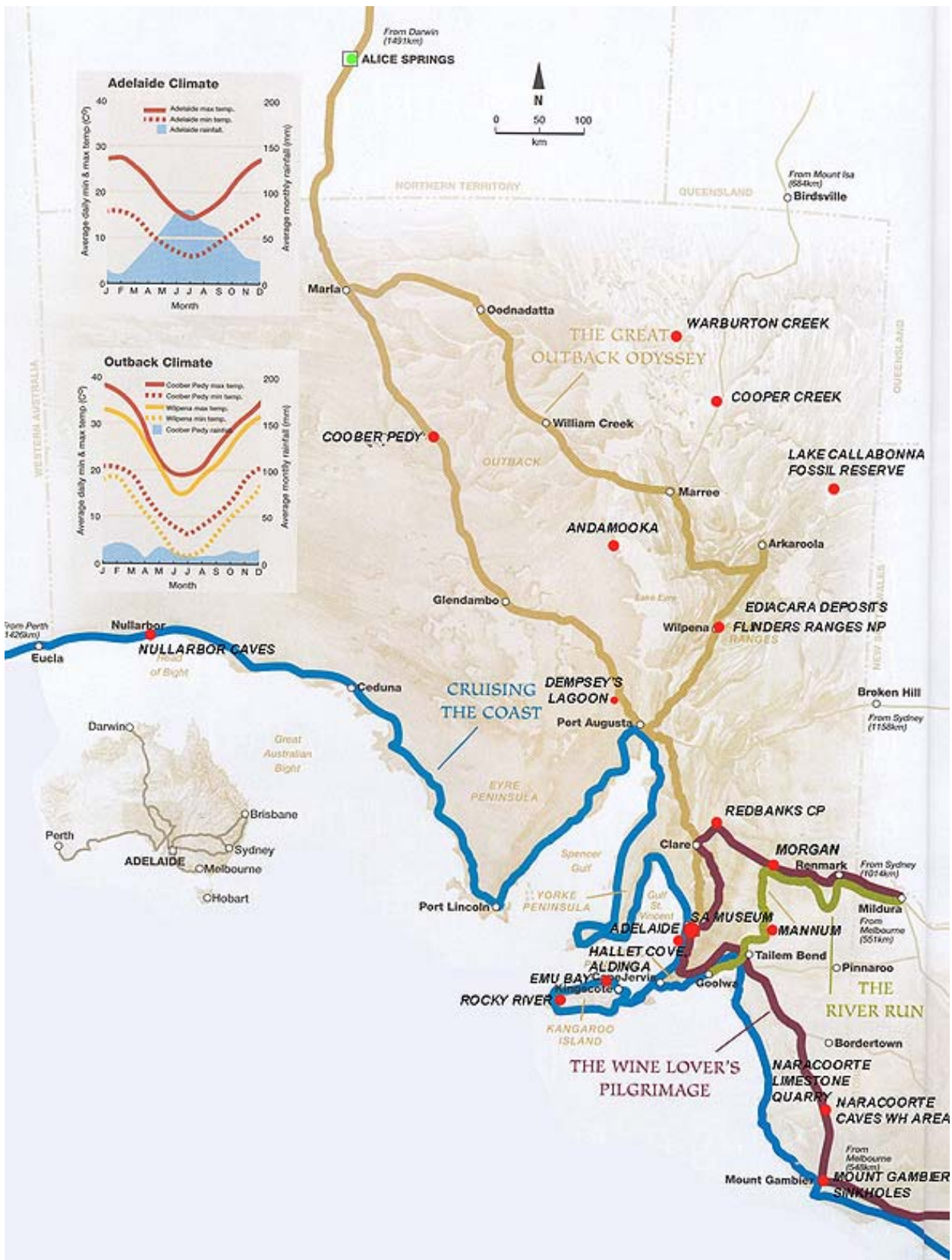


Figure 2. Fossil localities (indicated by red dots) aligned with self-drive trails currently marketed in the "Discover the unwinding roads" campaign in the South Australian Secrets program. Map sourced from publication "Discover the unwinding roads" produced by SATC (2002).

What are the product limitations?

- Fossil sites are finite resources. Vandalism, theft and illegal sale of fossils are becoming increasing problems for fossil site managers in Australia and overseas.
- The development of any fossil-based tourism products should be sustainable and the protection and proper management of the palaeontological resources must be a priority. It must be accepted that due to protection issues, some sites will be unsuitable for public access or only be available to limited numbers of people.
- This should not be seen as a limitation, but rather as an opportunity to educate the public about the value and fragility of our palaeontological resources.
- Other sites are well set up to handle large numbers of visitors and there are no real limits to these ventures, self-drive markets, educational programs, museum visitation and special events if adequate sustainable practice is maintained.

What HR roles will be needed?

- A central person/s to drive the initiative and liaise with stakeholders.
- Effective management of the fossil resources is a priority; therefore adequate staff would be required to ensure this.
- Palaeontological expertise is critical to the initiative and palaeontologists should play an active role in developing management and protection plans for sites, assessing site suitability for tourism, knowledge and information exchange, assistance with interpretive materials development, training of staff and operators, guiding tours, public talks and special events, providing participatory ecotourism opportunities and conducting research to further knowledge and understanding.
- A strong marketing strategy is essential for the success of the initiative and skilled persons would be required to develop marketing and business plans for the initiative.
- Trained and knowledgeable tour guides will be needed to conduct tours at sites (largely publicly employed as the majority of resources are on public land).
- Private tour operators could provide premium niche tour products.
- Education providers will be required to assist with development of product for the educational sector.
- Skilled persons to develop interpretive and promotional materials.

Marketing opportunities

What other fossil-based tourism products are available around the world?

The concept of fossil-based tourism is not new. Fossil-based tourism has been enormously successful overseas for many years, particularly in the United States and Canada.

Products available overseas include:

- On-site interpretive centres with fossil displays, self-discovery activities, guided tours, preparation laboratories for public viewing, volunteer programs, educational programs.
- Self-guided interpretive walking and driving trails.
- Participatory ecotourism where visitors assist palaeontologists.
- Expert guided tours and talks by palaeontologists (most sites have on-site palaeontologists).
- Covered excavation sites where visitors can observe work in progress.
- Private tour operators providing niche tours (eg. Paleotours a company based in South Africa – <http://myweb.absa.co.za/chmenter>).
- Touring palaeontological exhibitions, permanent museum displays and public programs.

Appendix 3 provides examples of overseas fossil localities offering fossil-based tourism products and details management, fossil relevance, facilities, products, visitation and web sites.



Above left – visitors viewing excavations, Ashfall Fossil Beds; above right – “dig for a day” program, Wyoming Dinosaur Centre; bottom left – fossil laboratory for public viewing, La Brea Tar pits LA; bottom right – display from “Chinese Dinosaurs”, Australian Museum.

How do they combine science with tourism?

- As the vast majority of these localities are on public land, tourism and science programs operate in line with established management and protection plans for the sites.
- Tourism never directs the science, but rather aims to interpret and present the knowledge gained by the science.
- Most facilities overseas have on-site, employed palaeontologists who assist with management and public programs as well as conducting research.
- In many cases the tourism has paid for lab facilities and research (e.g. the T-rex discovery centre utilises tourism revenue for furthering research and having an on-site palaeontological presence to aid interpretation).
- All management bodies emphasise the importance of continued research to ensure new knowledge for public dissemination and interpretation.
- All facilities focus heavily on educational programs for interpreting the science.

What other fossil-based tourism products are available around Australia?

Several fossil localities and museums in Australia offer fossil-based tourism products, but no state has initiated the development of fossil-based tourism as a unified concept, nor do they badge what they are doing as fossil-based tourism. The only state that will potentially investigate the possibility in the near future is Queensland, therefore it is important for South Australia to be the innovative leader.

Fossil localities offering fossil-based tourism products in Australia are:

- NSW – The Australian Museum, Wellington Caves, Canowindra Age of Fishes Museum, Lightning Ridge opal fields, National Opal museum.
- VIC – Museum Victoria, Monash Science Centre, Dinosaur Cove (volunteer program).
- ACT – National Dinosaur Museum.
- WA – WA Museum, CaveWorks, Gogo fish locality, Broome dinosaur trackways.
- TAS – Queen Victoria Museum.
- NT – Central Australian Museum, Alcoota 'Megadig'.
- QLD – Lark Quarry Dinosaur stampede centre, Riversleigh Fossil Centre, Queensland Museum.

Target markets

Profile of potential customers

- The great advantage of fossil-based tourism is that it has very broad market appeal and can capture all markets.
- Age groups from pre-school to seniors.
- Potential to target both domestic and international markets.

Potential markets can be categorised as follows:

- Education – entire sector from pre-school through to Tertiary, links with curriculum and essential learnings; international students.
- Mass market interpretation – eg. museum visitors, National park visitors, interpretive centre visitors.
- Self-drive domestic market.
- Backpacker market.
- Inbound market; Inbound operators.
- Niche fossil-based tourism market

Size of the target markets

- The size of the target markets for fossil-based tourism would range from mass market domestic and international markets, the entire education sector and smaller niche fossil-based tourism product market.
- Large numbers of visitors can be handled at several of the fossil-based tourism attractions in SA, while others are only suitable for the smaller niche market.

Where are they located?

- There would be a strong domestic market due to the self-drive appeal, the SAM exhibitions, special events and educational programs.
- Fossil-based tourism has definite appeal to international visitors, and World Heritage is particularly appealing to internationals.
- The international education market is growing (evidenced by international school bookings to the Naracoorte Caves fossil site).
- The Asian international market should be a particular target.

How can target markets be reached?

- Regular SATC marketing pathways and publications as they are widely available and are powerful marketing tools for the domestic market.
- The internet is becoming increasingly critical as a marketing tool and many visitors plan their holidays by 'surfing the net'. It is a very effective means for global marketing. Web-site development or links with established sites should be a priority for the fossil-based tourism initiative.
- Print and electronic media should be utilised both here and overseas.
- Trade shows are an excellent way to reach the domestic market and also special interest groups such as campers, caravan owners.
- Promotions with international and inbound tour operators.
- Promotions with domestic tour operators.
- Tourist information networks such as Lonely Planet.
- The SAM receives over 750,000 visitors per year and could act as a gateway to other fossil attractions.

Potential visitation numbers

- The examples from overseas fossil-based tourism attractions provided in Appendix 2 demonstrate that high visitor numbers are possible for localities able to sustain them.
- This experience is mirrored by our only World Heritage site, Naracoorte Caves National Park, where visitor numbers almost doubled and education visits increased by over 500% as a direct response to the opening of the Wonambi Fossil Centre.
- The numbers for self-drive visitation are potentially very high.
- The potential for developing a sustainable niche product is also high. A trial of this type of tour is being undertaken by Gondwana Dreaming at Naracoorte in September and the tour booked out within a week (20 people maximum).
- Travelling exhibitions are an excellent method of attracting high visitor numbers as is evidenced by the successes of interstate ventures (eg. Chinese Dinosaurs has 175,000 visitors at the Australian Museum and 72% of visitors to the museum saw the exhibition – http://ww.amonline.net.au/chinese_dinosaurs/museum/index.htm)).

Potential frequency of product offering

- Fossil-based tourism products could be offered year-round at key localities (eg. SAM, Naracoorte Caves, Kangaroo Island, self-drive).
- Other products would be offered on a seasonal basis (eg. excavation viewing, participatory ecotourism, special annual events).
- Some products could be offered as once-off big drawcards (eg. 'blockbuster' touring exhibitions)

Cost of product packages

- The cost of fossil-based tourism products would range from free (eg. SAM entry) and affordable tour options (eg. day trips, self-drive, guided tours), through to high-end specialised tours which may cost several thousand dollars.
- The range of costs associated with the product ensures that there is something for everyone. This is important as most sites fall within the public domain.

Size of marketing budget

- Initial marketing could be established with cooperation between stakeholders, both financial and in kind, with fossil-based tourism-ready products. The ongoing marketing requirements will be driven by new products as they are developed.
- Including the fossil trail in current self-drive literature is an inexpensive option to launch the concept.

Potential income generated

- Direct revenue to sites from ticket sales, entry passes, tour charges, souvenirs, guide books, interpretive products.
- Revenue from touring exhibitions and special events.
- Revenue to tour operators and development of new businesses.
- Income from saleable guide book for self-drive fossil trail.
- Flow-on to local businesses, employment.
- Sponsorship and partnership opportunities.
- Grant funding to research bodies.

Potential flow-on effects

- Economic flow-on to small and large businesses, accommodation providers, National Parks, museums and other heritage facilities.
- Increased employment opportunities in the tourism industry.
- Economic and social opportunities for regional South Australia.
- Economic and social opportunities for Indigenous communities.
- Educational benefits to schools and opportunities for Tertiary students.
- Recognition and protection of South Australia's unique natural heritage.
- Establishing South Australia as a leader in innovative tourism initiatives.
- Furthering South Australia's goal to develop a strong professional, profitable and industry by encouraging new, sustainable business ventures, fostering continuous learning and improvement and forging strong partnerships.

Environmental Impact

Fundamental to any potential fossil-based tourism venture is recognition that priority consideration should be given to the management, protection and sustainable use of the palaeontological resources. It is critical that tourism initiatives comply with current management strategies and practices employed by the relevant resource managers. Tourism should not jeopardise or impact upon the scientific and research values of the resource, but should aid in public education and awareness of these values.

Potential impacts to palaeontological resources from tourism

- Increased access and knowledge of site locations may lead to inappropriate collection of material, theft, vandalism and illegal sale of fossil material.
- Increased access by foot and vehicle traffic may cause deterioration of the fossil resource eg. erosion, direct damage.
- Increased access may threaten other significant values the locality may possess.
- Tourism infrastructure may lead to damage of the palaeontological resource.

Suggested actions to ensure sustainability

- Ensure adequate management and protection plans are in place prior to commencement of fossil-based tourism ventures at the locality.
- Assist current attempts to develop and implement fossil site protection legislation for public lands (a model for this is available from the US National Parks Service).
- Conduct a thorough palaeontological survey of each locality (site managers to initiate), and critically assess the potential for fossil-based tourism and potential impacts from same. Some sites will not be suitable and assessments should be made on a site-specific basis as sites will differ from one another and generalised strategies will not be sufficient to ensure protection. A draft assessment framework is presented in Appendix 3.
- Monitor sites where fossil-based tourism is suitable and operating to ensure good practice and sustainable visitation numbers.
- For particularly sensitive localities precise location data should not be made available to the general public (eg. refer to the model employed by the Lake Mungo WH Area) and access should be restricted. For these sites virtual experiences can be provided (ie. Interpretation in visitor centres, recreation of fossil site) to ensure site protection. There will be some sites where total exclusion of the public is the best protection strategy.
- Tours to remote or sensitive localities should be conducted only by expert guides to ensure best practice.
- A training and accreditation program for guides and tour operators should be initiated or designed to enhance programs already in place such as the NEAP program.
- Consultation with palaeontologists is critical to site protection, and significance assessments should only be made by experts in the field.
- Ensure that scientific research or specimen collection is done so under current permit systems (as imposed by the resource management) and only by suitably qualified persons.

Develop protocols for data collection, specimen curation and data retention in consultation with the South Australian Museum.

- It should be recognised that there is more to fossil site management and protection than restricting access and drawing up legislation. Greater public awareness of the importance of the state's palaeontological resources will lead to acknowledgement that they warrant protection. In this respect, public awareness that can be provided by sustainable fossil-based tourism could be a powerful management and environmental protection tool.

Would extra facilities be required at localities?

- Site specific assessments would need to be made regarding the need for extra facilities based on the results of the suitability assessment, the type of products to be offered and the potential visitation.
- Those localities that are fossil-based tourism ready have adequate facilities in place.

'Ownership' and management of future tourism products

Who will drive the initiative?

- The fossil-based tourism initiative should be driven by those responsible for the management of the sites, the state collections and those best situated to market the initiative.
- Suggest initiative could be driven by DEH, SAM and SATC supported by the stakeholders previously identified.
- All stakeholders should establish lines of communication and begin forming working groups at their individual levels to assess whether they wish to support the initiative.
- A project development manager should be employed to oversee the establishment of the fossil-based tourism initiative.
- The initial development period would require a high level of expertise in palaeontology and tourism. Once established the major roles would be marketing and ongoing site and product management.

Who will own the products that are generated?

- The products should be 'owned' by the individual stakeholders in accordance with guidelines outlined by the relevant site management bodies where applicable.

Who will manage bookings?

- Booking management should be assessed on a site-specific basis with the site management responsible for providing booking services for tourism products.
- Tourism operators should be responsible for their own bookings following granting of permission (through a licence or permit system?) to utilise the resource by the relevant site management body.

Who will collect revenue as it is generated?

- This should be the responsibility of the 'owner' of the product.
- Private or niche tour operators could contribute a portion of revenue earned towards site management and research.

Who will invest money in setting up the initiative?

- Initially, the key stakeholders that agree to support the initiative should seek to provide some funds to start developing the initiative.
- Other support could be in-kind support and sponsorship.
- Grants, corporate sponsorships and partnerships, linkage grants should be sought where possible.
- Any other funding sources should be explored.

Alignment with South Australian Tourism Plan 2003-2008 (SATC) goals

The fossil-based tourism initiative aligns well with the key goals and objectives outlined in the *South Australian Tourism Plan 2003-2008* (SATC). Fossil-based tourism would provide social, economic and environmental benefits for the state.

The following provides a brief summary of how fossil-based tourism aligns with these goals and provides references to particular objectives and strategies outlined in the aforementioned document.

GOAL 1 – “Enhance and grow the state’s authentic experiences”.

- Value-add to current natural attractions and develop partnerships between stakeholders to increase the profile of nature-based tourism. (Refer to Objective 1.2, strategies 3-5, 8-11).
- Provide opportunities for innovative events and exhibitions. (Refer to Objective 1.4, strategies 2, 4 & 7).
- Provide a 'gateway' for visitors to the Outback and other regional areas through the SAM and proposed fossil trail. (Refer to Objective 1.5, strategies 2, 3, 8).
- Value-add to the Murray River experience through fossil-based tourism opportunities for local communities. (Refer to Objective 1.6, strategies 2, 3, 6, 7).
- Provide opportunities for Indigenous communities to become involved with landscape history interpretation and site management. (Refer to Objective 1.9, strategies 1, 3, 4, 7).
- Value-add to adventure tourism experiences including walking trail and 4WD experiences. (Refer to Objective 1.10, strategies 1, 3, 5, 6).
- Development of niche fossil-based tourism products (Refer to Objective 1.13, strategies 1-3, 8).

GOAL 2 – “Be productive in marketing the state”.

- Fossil-based tourism has great potential to target the most profitable domestic markets, in particular the self-drive market. (Refer to Objectives 2.1 and 2.2, all strategies).
- Fossil-based has potential for marketing to international markets, particularly as SA has a World Heritage fossil site and several icon destinations ie. The Flinders Ranges and Kangaroo Island. (Refer to Objective 2.3, strategies 2, 3, 6, 7).
- Enhance and value-add to nature-based tourism opportunities for the backpacker market. (Refer to Objective 2.4, strategies 1, 6).
- Realise potential for hosting a diverse range of exhibitions and conventions. (Refer to Objective 2.6, strategies 1, 3, 6).
- Collaborative opportunities for marketing fossil-based tourism. (Refer to Objective 2.7, strategies 6, 8).
- Fossil-based tourism provides an opportunity for South Australia to be innovative and competitive in the National tourism industry.

GOAL 3 – “Achieve strategic tourism policy, investment and development”

- Fossil-based tourism provides opportunities for innovative and strategic development of sustainable products for tourism in SA and for enhanced management and awareness of our natural heritage. (Refer to Objective 3.1, strategies 1, 2, 5, 7-9, 11 and Objective 3.6, strategies 1, 6).

GOAL 4 – “Develop a strong professional and profitable industry”

- Fossil-based tourism would allow innovative development of information technology projects to enhance the tourism experience eg. fossil trail web-sites and virtual experiences. (Refer to Objective 4.2, strategies 1-3).
- The fossil-based tourism initiative would provide opportunities to develop new and sustainable products in tourism. (Refer to Objective 4.3).
- The initiative would encourage participation of providers in accreditation programs to enhance the quality of interpretation offered and foster “continuous learning and improvement”. (Refer to Objective 4.5, strategies 1, 3 and Objective 4.6, strategies 1, 2, 4-6, 9).

Proposal for fossil-based tourism project development

The following provides a draft proposal for the development of the fossil-based tourism initiative. It also provides suggested key goals and responsibilities for the project coordination position and a draft operating budget for this position.

Staged rollout plan

Stage one

- Meeting of stakeholders to establish steering committee and determine roles and contributions of stakeholders in order to facilitate stage one of project development. Stakeholders and locality managers to form working groups to facilitate initiative.
- Initiate project coordination position.
- Project coordinator to liaise with managers, owners, tour operators and lead research organisations for all potential localities in order to facilitate assessment for fossil-based tourism and to identify products. Coordinator to give expert advice regarding assessment and complete reports of investigations that can be used for planning project development. A draft assessment framework is provided in Appendix 4.
- Development of marketing and business plans for discussion with stakeholders. Explore all funding opportunities for the initiative.

Stage two

- Explore development of products following completion of assessment process.
- Insertion of established products into current self drive literature as a 'Fossil Trail', perhaps utilising the South Australian Museum's "in the footsteps of time" concept (potential for a cooperative venture between SATC, SAM and DEH). Link with SAM exhibits and market 'gateway concept'.
- Implement marketing plan for established products. Explore marketing opportunities for less established products.
- Explore opportunities for attracting travelling palaeontology exhibitions and fossil-related special events.
- Explore cooperative ventures with education sector stakeholders.

Stage three

- Further product development.
- Explore production of saleable guide book and other materials for the 'Fossil Trail'. Develop web-site for SA fossil trail.
- Investigate/develop training and/or accreditation programs (training manual, permit systems?) for tour operators.
- Further implementation of marketing plan.
- Investigate means for facilitating further palaeontological research at identified localities in order to enhance interpretive and tourism opportunities.

- Assessment of the staged plan and future directions.

Draft Coordination Role – key goals and responsibilities

- Liaise with stakeholders to determine needs and opportunities.
- Coordinate communications between stakeholders eg. meetings, workshops.
- Facilitate implementation of project development plan.
- Assist with initiating development of marketing and business plans.
- Facilitate palaeontological resource assessment.
- Explore funding opportunities for the fossil-based tourism initiative.
- Facilitate product development including trialling products.
- Facilitate palaeontological research in the state.
- Facilitate development of interpretive programs, displays and materials.
- Liaise with local communities in order to enhance opportunities for these groups and regional areas.
- Assist with training and accreditation programs.
- Investigation of parallel programs overseas and in Australia.
- Linking of SA product with other states.
- Explore international links and opportunities.

Draft operating budget for project coordinator

- Salary for project coordinator - ~\$54,000 per annum (based on possessing higher degree or equivalent – example used Level B, step 1 for academic staff Flinders University) plus ~16% oncosts.
- General maintenance & travel budget for project coordinator – \$6,000.
- Initial stage one marketing development and implementation - \$10,000.

Appendices

APPENDIX 1. *Briefing notes to the Hon. Jane Lomax-Smith, Minister for Tourism regarding the opportunity to develop fossil-based tourism. Provided by Assoc. Prof. R. T. Wells.*

APPENDIX 2. *Palaeontological localities within South Australia, listed in order of geological age.*

APPENDIX 3. *Overseas fossil localities offering tourism products and educational programs.*

APPENDIX 4. *Draft assessment framework for palaeontological resource assessment.*

APPENDIX 1. Briefing notes to the Hon. Jane Lomax-Smith, Minister for Tourism regarding the opportunity to develop fossil-based tourism. Provided by Assoc. Prof. R. T. Wells.

**Meeting with the Hon. Jane Lomax-Smith, M.P.
Flinders Chase Visitor Centre
Saturday 31st May 2003**

Rod Wells
Assoc. Prof. (Emeritus) Biology Flinders University
Hon. Research Fellow Palaeontology, SA Museum
Hon. Research Fellow Royal Zoological Society of SA

Issues:

- **Opportunity to develop tourism with a deeper base, ie. More educational tourism**

‘Educational’ tourism to serve the retiring baby-boomer market, family market, youth/backpacker market, primary, secondary and tertiary education market.

Palaeo-tourism (‘fossil’ tourism) is a fast growing international market eg *Burgess Shales*, Canada; *Dinosaur Provincial Park*, Canada; *Drumheller*, Canada; *John Day Beds*, USA; *Miguasha* Fossil Fish World Heritage Site Quebec, *Rancho La Brea* Tar Pits, Los Angeles USA; *Messel Pit* World Heritage Site Germany; *Mammoth Site*, *Hot Springs*, Dakota USA; *Cradle of Humankind*, World Heritage Site, South Africa; *Atapuerca Human Heritage Site*, Spain; *Hagerman Fossil Beds National Monument*, Idaho, USA etc.

- **South Australia is a world class fossil province, another SA Secret**

The South Australian Museum’s Origin Energy Fossil Galleries are being developed as gateways to the State’s outstanding fossil heritage.

(Megafauna, ‘giant’ extinct marsupials, birds and reptiles, Naracoorte World Heritage Site; Black Creek Swamp Flinders Chase KI; Redbanks Burra; **Ediacara**, first metazoan life on earth, Flinders Rangers; **cretaceous marine reptiles**, Coober Pedy, Andamooka)

- **Propose a scoping study of fossil-based tourism. Examine feasibility and develop business plan for fossil-based ecotourism in South Australia.**

Envisage participatory tourism (pay premium to help excavations), more conventional guided and interpretive tourism and curriculum-based educational tourism.

Steering Committee to include representatives of departments of Tourism and Science, Environment and Heritage, the Arts, Education, Economic Development, Local Government as well as expert(s) in palaeontology.

Suggest say \$10,000 from each agency, if minister agrees then a letter to other agencies to commit.

Background: Rod Wells

- Architect of the Flinders University Ecotourism Degree 1995.
- Discovered (1969) and developed the Naracoorte Caves fossil deposits to World Heritage Listing (1994).
- Wrote the Contextual Framework for Assessment of World Heritage Fossil Site Nominations for IUCN (now UNESCO Policy 1996) which also lists sites of potential World Heritage value including South Australian sites Ediacara and Lake Callabonna.
- 1992-1998 Board Member and Vice-President of Royal Zoological Society of S.A.

APPENDIX 2. Palaeontological localities within South Australia, listed in order of geological age. Refer to Table 1 for abbreviations for stakeholders. ** = fossil-based tourism ready, * = potential with assessment / development, X = requires special assessment; protection issues. mya = millions of years ago, ka = thousands of years ago

Locality	Fossil relevance	Managed by	Lead research organisation	Current tourism infrastructure/ programs	Geological features	Access availability	Tourism opportunities
South Australian Museum **	Major state fossil collection	State Govt.		Tours, educational program, displays, outreach	All of the State's geological resources	Year round public access	<ul style="list-style-type: none"> Gateway to the fossil sites of SA, exhibitions
Ediacara deposits, Flinders Ranges */X	Precambrian, first multi-cellular organisms 600 – 540 mya.	DEH, private land owners?	SAM	Some interpretive signage, accommodation, camping, dining, tour operators	Wilpena Pound, Flinders Ranges geology	Year round to Flinders Ranges NP; other sites to be assessed	<ul style="list-style-type: none"> Self-drive Virtual experiences Interpretive displays Niche tours with palaeontologist or trained guide Indigenous involvement & interpretation Landscape history interpretation Fossil display SAM
Emu Bay, Kangaroo Island X	Lower Cambrian marine deposits ~500 mya	Crown / private	SAM	None	Coastline, caves	Needs to be assessed; currently unsuitable	<ul style="list-style-type: none"> Virtual experiences Interpretive displays Niche tours with palaeontologist Landscape history interpretation
Coober Pedy and Andamooka *	Cretaceous marine reptiles & dinosaurs 100-120 mya	LGt	SAM	Local amenities, opal interpretive centres	Opal mines	Year round public access, SAM excavations periodically	<ul style="list-style-type: none"> Self-drive Interpretive displays & signage Expeditions with palaeontologist Local community involvement Indigenous involvement & interpretation Landscape history interpretation Educational activities Addyman Plesiosaur gallery SAM
Hallett Cove, Aldinga *	Geological monument, Pleistocene megafauna <100ka	DEH, PIRSA	SAM	Interpretive signage, walking trails	Permian glacial pavements	Year round public access	<ul style="list-style-type: none"> Self-drive Interpretive signage Fossicking Educational activities Landscape history interpretation
Naracoorte limestone quarries *	Tertiary marine invertebrates & vertebrates 35 – 15 mya	LGt, DEH	FU	None	Tertiary limestones, glacial coastlines	None at this stage	<ul style="list-style-type: none"> Self-drive Interpretive signage & viewing areas Fossicking Educational activities Landscape history interpretation

Appendix 2 continued

Locality	Fossil relevance	Managed by	Lead research organisation	Current tourism infrastructure/programs	Geological features	Access availability	Tourism opportunities
Mannum, Morgan, Black Hill – Murraylands *	Tertiary marine invertebrates & vertebrates 35 – 15 mya	LGt	SAM	Local amenities, visitor information centre	Tertiary limestones	Year round public access, river cruises	<ul style="list-style-type: none"> • Self-drive • Interpretive signage & viewing areas • Fossicking • Local community, Indigenous involvement & interpretation • Educational activities • Landscape history interpretation
Cooper & Warburton Creeks; Lake Palankarinna Fossil Res., Stuart Ck palaeo-channels*	Tertiary plants & vertebrates >35 – 15 mya & Late Pleistocene vertebrates <100ka	DEH, SAM	SAM, FU	Some 4WD tours incorporate Lake Palankarinna Fossil Reserve	Tertiary channel deposits and alluvial fans	4WD access only, limited	<ul style="list-style-type: none"> • Niche 4WD tours • Participatory expeditions with palaeontologists • Indigenous interpretation
Naracoorte Caves World Heritage fossil site **	Mid to Late Pleistocene megafauna 500 ka to <10ka	DEH	FU, SAM	Wonambi Fossil Centre, guided tour program, fossil bed & laboratory tours, participatory tours, café, shop, camping, dormitories for educational groups.	Caves and karst landscape	Year round guided tour program, fossil excavation viewing	<ul style="list-style-type: none"> • Guided site tours • Self-drive • Excavations viewing • International World Heritage fossil site links through UNESCO • Walking trails • Fossil centre • Guided tours with palaeontologist • Fossil laboratory tours • On-site palaeontologists • Participatory eco-tourism • Educational programs • School holiday activities • Indigenous interpretation • Landscape history interpretation
Lake Callabonna Fossil Reserve X	Late Pleistocene megafauna <100 ka	SAM	SAM, FU	None	Regional geology	4WD access only, limited	<ul style="list-style-type: none"> • Niche 4WD tours • Participatory expeditions with palaeontologists • Indigenous interpretation • Landscape history interpretation

Appendix 2 continued

Locality	Fossil relevance	Managed by	Lead research organisation	Current tourism infrastructure/ programs	Geological features	Access availability	Tourism opportunities
Mount Gambier sinkholes **	Late Pleistocene megafauna <100 ka	DEH, Forestry SA, Lifeline	SAM, FU	Interpretive signage and viewing platforms	Caves, sinkholes, volcanoes	Year round self-drive access	<ul style="list-style-type: none"> • Self-drive (part of planned Limestone Coast trail) • Engelbrecht Cave guided tours • Educational activities • Landscape history interpretation
Redbanks Conservation Park, Burra X	Late Pleistocene megafauna <100 ka	DEH	SAM, FU	Basic facilities	Alluvial fan and spring deposits	Year round self-drive access to Conservation Park, fossil site access during excavations	<ul style="list-style-type: none"> • Niche 4WD tours • Participatory expeditions with palaeontologists • Local interpretation centre opportunities, virtual experiences • Educational opportunities • Indigenous community involvement & interpretation • Landscape history interpretation
Nullarbor National Park *	Late Pleistocene megafauna; archaeological sites <100 ka	DEH	SAM	Currently limited but DEH investigating opportunities	Caves, sinkholes, coastline	Year round self-drive access	<ul style="list-style-type: none"> • Self-drive • Expeditions with palaeontologists • Niche 4WD tours • Indigenous community involvement & interpretation • Archaeological interpretation • Development of caves for tours (guided or self-guided) • Landscape history interpretation
Black Swamp, Rocky River, Flinders Chase National Park, Kangaroo Island **	Late Pleistocene megafauna <100 ka	DEH	FU, SAM	Interpretive centre, interpretive walking trails, camping, cafe	Caves, coastline	Year round access to National Park, seasonal excavations	<ul style="list-style-type: none"> • Self-drive • Guided tours • Participatory eco-tourism • Viewing excavations • Interpretive displays • Educational activities • School holiday activities • Indigenous & archaeological interpretation • Talks & tours with palaeontologists • Participatory ecotourism • Landscape history interpretation

APPENDIX 3. Overseas fossil localities offering tourism products and educational programs. mya = millions of years ago, ka = thousands of years ago.

LOCALITY	SITE MANAGED BY	FOSSIL RELEVANCE	FACILITIES	PRODUCTS OFFERED	VISITOR NUMBERS	WEB SITE
NEW ZEALAND						
Vanished World Fossil Centre & trail	Tourism Waitaki	Extinct fauna of NZ; moas. <40 ka	Visitor centre, self-drive trail.	Visitor centre; guided tours along trail and self-drive; guidebook and brochures	Relatively new, but recorded 1000 visitors	http://www.tourismwaitaki.co.nz/index.cfm/news/Vanished/
USA (Additional fossil parks under directorship of the US National Parks Service can be viewed at http://www2.nature.nps.gov/grd/geology/paleo/fossil/park.htm)						
La Brea Tar pits	The Natural History Museum of Los Angeles County	Pleistocene megafauna <40 ka	George Page museum	Interpretive centre, tours, observing excavation and laboratory work, school programs.	Hundreds of 1000's; exact stats requested	http://www.tarpits.org/
The Mammoth Site	The Mammoth site NP organisation	Pleistocene mammoths ~26 ka	Interpretive centre including covered dig site	Guided tours, self-discovery, participation and volunteer programs, school programs	118,000	http://www.mammothsite.com
John Day Fossil Beds National Monument	US National Parks Service	Tertiary mammals ~54 – 6 mya	Thomas Condon visitor centre	Museum exhibits and displays; tours, expert talks	115,000 recreational visits	http://www.nps.gov/joda/
Dinosaur National Monument	US National Parks Service	Cretaceous dinosaurs 150 mya	Headquarters visitor centre and Quarry visitor centre	Interpretive centres, watch palaeontologists work in the fossil lab, self-guided and guided tours/trails	~300,000	http://www.nps.gov/dino/index_old.htm
Hagerman Fossil Beds	US National Parks Service	Tertiary mammals 5.3 – 2 mya	Interpretive centre	Interpretive centre, self-guided trails	13,576	http://www.nps.gov/hafo/home.htm
Fossil Butte National Monument	US National Parks Service	Green River Formation, Tertiary fish, insects & plants ~50 mya	Interpretive centre, laboratory	Walking trails with interpretive brochures, visitor centre, summer programs with palaeontologists,	25,000	http://www.nps.gov/fobu/expanded/index.htm
Agate Fossil Beds National Monument	US National Parks Service	Tertiary mammals 19 mya	Interpretive centre	Visitor centre, self-guided walking trails, educational programs	17,634	http://www.nps.gov/agfo/
Badlands National Park	US National Parks Service	Tertiary mammals 35 – 23 mya	Interpretive centre	Visitor centres, walking trails, educational programs, full time on-site palaeontologist	~900,000 total park visits	http://www.nps.gov/badl/exp/home.htm

LOCALITY	SITE MANAGED BY	FOSSIL RELEVANCE	FACILITIES	PRODUCTS OFFERED	VISITOR NUMBERS	WEB SITE
Ashfall Fossil Beds State Historical Park	University of Nebraska State Museum & Nebraska Game & Parks Comm.	Tertiary mammals 12 mya	Interpretive centre, laboratory	building over dig site, visitor centre, fossil preparation lab, meet the palaeontologists, schools programs	Information requested	http://ashfall.unl.edu/index.html "An intact fossil site left in place for public viewing" is their logo;
Florissant Fossil Beds National Monument	US National Parks Service	Tertiary insect and plant fossils 35 mya	Visitor centre	Visitor centre, interpretive tours, walking trails, education programs, palaeontologist talks	63,944	http://www.nps.gov/flfo/
Wyoming Dinosaur Centre & dig site	Private with on-site scientists directing digs	Cretaceous dinosaurs 140 mya	Interpretive centre, lab, excavations	Interpretive centre, dig site tours, fossil lab to view preparation, "dig for a day".	Information requested	http://server1.wyodino.org/index_frames.htm
CANADA						
T-rex Discovery Centre	Eastend Community Tourism Authority, Royal Saskatchewan Museum	Cretaceous dinosaur site; 'Scotty' the T. rex 65 mya	Interpretive centre	Public seminar programs, educational activities, interpretive centre tours, participatory tours, tours of excavation site to meet palaeontologist; tourism dollars support research.	Information requested	http://www.dinocountry.com/
Joggins Fossil Cliffs	Nova Scotia Museum	Carboniferous flora, amphibians and early reptiles 355 – 300 mya	Joggins Fossil Centre	Guided tours, interpretive centre, self-discovery.	Information requested	http://museum.gov.ns.ca/places/joggins/joggins.htm http://museum.gov.ns.ca/fossils/sites/joggins/
The Great Canadian Fossil Trail	The Great Canadian Fossil trail society	Multiple fossil attractions	Linked fossil sites/attractions on a self-discovery trail	Range of products offered by forty linked providers/facilities	Information requested	http://www.fossiltrail.org/index.htm
Burgess Shales – World Heritage site	Yoho National Park, Parks Canada ~500 mya	Cambrian marine invertebrates ~500 mya	Yoho National Park Centre	Guided hiking tours (limited numbers), interpretive centre, self-guided interpretive trails.	Information requested	http://www.parkscanada.gc.ca/pn-nc/bc/yoho/natcul/natcul15_e.asp http://www.burgess-shale.bc.ca/
Royal Tyrell Museum	Royal Tyrell Museum	Palaeontology of Canada, particularly dinosaurs	Major National Museum	Museum displays, activities, schools programs, guided tours, tour operators	Information requested	http://www.tyrellmuseum.com/home/

LOCALITY	SITE MANAGED BY	FOSSIL RELEVANCE	FACILITIES	PRODUCTS OFFERED	VISITOR NUMBERS	WEB SITE
Miguasha National park World Heritage site	Parks Quebec	Devonian fish and plants 370 mya		Museum and interpretive centre, guided and self-guided tours, teaching laboratory, palaeontologists, educational groups	36,500 (in 1997 prior to WH listing)	http://www.llbean.com/parksearch/parks/html/1636llt.htm http://www.sepaq.com/En/index.cfm
Dinosaur Provincial Park World Heritage site	Government of Alberta	Cretaceous dinosaurs 75 mya	Interactive visitor centre	Interpretive bus tours and guided hikes, interpretive centre, self-guided interpretive trails, tours, special events, lab talks, meet palaeontologists and observe them work.	Reservation system in place due to high visitor numbers	http://www.cd.gov.ab.ca/enjoying-alberta/parks/featured/dinosaur/intro.asp
ARGENTINA						
Ischigualasto-Talampaya World Heritage site	Argentina government	Triassic dinosaurs and other vertebrates 250 – 200 mya	Interpretive facilities being developed	Private tour operators, guided tours, trails, visitor centre, other facilities still being developed	Site under development, 600,000 visitors projected.	http://www.turismo.gov.ar/eng/REG3/reg3.htm#Act
SOUTH AFRICA						
Cradle of Humankind WH site	Gauteng Provincial Govt.	Pliocene hominid cave sites ~3 mya	Interpretation centre	Site inspections, niche tour product by palaeotours, interaction with palaeontologists	Information requested	http://www.cradleofhumankind.co.za/ http://myweb.absa.co.za/cgmenter/
West Coast Fossil Park	South African Museum	Pliocene mammals 5 – 2 mya	Under development, interpretative centre, building covering dig site.	Expert tours, 'meet the palaeontologist', special monthly activities including talks by palaeontologists, guided tours, participation, school program	~90,000 estimated	http://www.museums.org.za/wcfp/
OMAN						
Saiwan Formation	Directorate General of minerals	Early Permian marine invert. 290 mya	Natural History Museum	Promoted as "Geo-tourism";	Unavailable	http://www.geooman.org/geotourism_saiwan.html
EUROPE						
Jurassic Coast Project, England	Various linked sites	Multiple fossil attractions	Linked fossil sites/attractions on a self-discovery trail	Range of products offered by forty linked providers/facilities, cooperative marketing strategy	Unavailable	http://www.swgfl.org.uk/jurassic/links.htm

Fossil Locality survey for tourism potential – draft assessment framework

1. Objectives

- Collect baseline data for the palaeontological resource at the locality.
- Produce a report detailing the scientific significance, history, interpretive, tourism and educational value for the palaeontological resource at the locality.
- Provide recommendations for the fossil site protection and management, identify risks/threats
- Assess potential/suitability for public visitation and make recommendations for product development if suitable, with protection of the palaeontological resource a priority.

2. Significance assessment and literature review

- Identify the scientific values associated with the palaeontological resource.
- Identify any historical significance associated with the locality.
- Identify any Indigenous significance associated with the locality.
- Interpret the palaeontological significance of the locality.
- Conduct a literature search for any materials relating to the locality and collate materials for retention by locality manager.

3. Scientific research history

- Review scientific research at the locality and compile a taxonomic inventory for the locality.
- Summarise major findings of research from the locality; produce bibliography of relevant publications.
- Liaise with current / ongoing researchers to identify their research priorities for the locality.

4. Palaeontological resource baseline data (this information generally not for public disclosure)

- Visit site to record details including precise location data for the locality and all excavation and collection sites.
- Detail geological context and stratigraphy of the fossil-bearing (or potentially fossil-bearing) units.
- Identify the nature of the palaeontological resource e.g. fossils (vertebrate/invertebrate), trace fossils, palaeobotanical materials, materials suitable for dating, geological materials.
- Assess state of preservation of any exposed fossil material.
- Photo-document the locality including stratigraphy, fossil exposures, previous excavation sites.

5. Collections

- Identify the location of all previously collected material from the locality.
- Assess conservation and storage needs where relevant and photograph significant specimens.
- Assess potential for public display of specimens.

6. Fossil site protection, management and suitability for tourism

- Identify threats to the palaeontological resource at the locality and review records for any incidence of theft or vandalism at the locality.

- Liaise with locality manager / owner / local community where appropriate to identify known issues.
- Critically assess suitability for public visitation and give recommendations for development for public access and regulation of access if suitable.
- Assess suitability for excavation and fossil collection within context of site protection and preservation.
- Initiate routine checks by locality manager to ensure ongoing protection of palaeontological resource.
- Make recommendations for any human resources and/or infrastructure that may aid in protection of the site e.g. rangers, signage, fencing.
- Support and facilitate palaeontological research to further knowledge, understanding and to further site interpretation.
- Utilise expertise of palaeontologists for developing site protection and management strategies.

7. Tourism, interpretation and education

- Assess potential for public interpretation and tourism programs e.g. signage, trails, tours, virtual experiences, visitor centre.
- Identify tourism products that may be offered at the locality or off-site e.g. in the SA Museum or interpretive centre in the vicinity.
- Assess potential for educational programs both on site and material-based.
- Incorporate the palaeontological resources into established interpretation, tourism and education programs where applicable.
- Forge partnerships with government departments, universities, museums, and other bodies associated with research, resource management, tourism and education.
- Explore the potential for exhibits, interpretive materials and media for the palaeontological resources.
- Undertake public awareness programs to ensure protection of the site.
- Utilise expertise of palaeontologists for tourism, interpretive and educational program development and implementation.
- Identify training needs of staff or tour operators associated with the locality and initiate necessary training and accreditation where necessary e.g. seminars, training manuals, participatory training.

Reference material used: "What constitutes a comprehensive National Park service paleo survey?" US National Parks Service by Vincent Santucci. www.nps.gov.

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