

BETTER HERITAGE INFORMATION SUMMARY OF STATE HERITAGE PLACE

COMMENTARY ON THE LISTING

Description and notes with respect to a place entered in the South Australian Heritage Register in accordance with either the *South Australian Heritage Act 1978* or the *Heritage Places Act 1993*.

The information contained in this document is provided in accordance with s14(6) and s21 of the *Heritage Places Act 1993*.

NAME: Emu Bay Coastline, Cape D'Estaing to Boxing Bay **PLACE NO.:** 14548

KNOWN AS: Cape D'Estaing to Emu Bay (west) and Emu Bay (east) to Boxing Bay Coastline (designated place of palaeontological significance)

ADDRESS: Wisanger, Emu Bay and North Cape SA 5223
Near Emu Bay and Cape D'Estaing
CR 5765/375 H110800 S415, CR 5765/376 H110800 S416, CR 5765/377 H110800 S423, CR 5765/394 H110800 S500, CR 5744/569 H110800 S429, CR 5744/570 H110800 S431, CR 5862/290 T110802 A98, CR 5967/728 D70632 A1000, CT 0000/0000 ROAD RESERVE
Hundred of Menzies

CONFIRMED IN THE SOUTH AUSTRALIAN HERITAGE REGISTER:

22 September 1994

DESIGNATED AS A PLACE OF PALEONTOLOGICAL SIGNIFICANCE:

26 May 1994

STATEMENT OF HERITAGE SIGNIFICANCE

The Cape D'Estaing to Port Marsden Coastline is of both geological and outstanding palaeontological significance. The sequence of rocks exposed in the coastal section suggests an Early Cambrian palaeoenvironment of alluvial fans spreading southwards from the rising Mount Lofty Ranges and impinging on tidal flats which were roughly coincident with the present northern shore of Kangaroo Island. Among the most impressive exposures are the boulder and cobble conglomerates of the White Point Conglomerate. These sediments were derived from uplifting fault blocks in the region of the present Investigator Strait. Interbedded with this are sandstones and siltstones deposited by tidal currents.

The upper part of the Emu Bay Shale is comprised of oxidised siltstones, sandstones and conglomerates which together with abundant casts of mud-cracks and tracks of trilobites suggests a shallow depositional environment. The coastal section just east of Big Gully is the type area for the Boxing Bay Formation which overlies the Emu Bay Shale. Odd lenses of conglomerate within this Formation are interpreted as alluvial outwash deposits that were shed from the rising mountains to the north, indicating another episode of uplift similar to that which gave rise to the White Point Conglomerate.

Both the White Point Conglomerate and the Emu Bay Shale contain extremely well-preserved rich fossil animal faunas which include at least three species of trilobites, crustaceans, annelid worms and hyolithids. Particularly outstanding is the large trilobite *Redlichia* which can be seen with little difficulty on the exposed bedding surfaces. Fossil species not previously discovered in Australia, but bearing resemblance to the unique Burgess Shale fauna of Canada, have been found here, making this an area of vital research to the history of life on earth.

Adapted from HB Assessment Report and validated 15 March 2006.

STATEMENT OF DESIGNATION (PROPOSED)

Designated Place of Palaeontological Significance

The Emu Bay Coastline, Cape D'Estaing to Boxing Bay contains highly fossiliferous sections of the Emu Bay Shale, Boxing Bay Formation and White Point Conglomerate. Cambrian-aged fossils from approximately 514-509 million years ago are found readily throughout the Emu Bay Shale. Preservation of the fossils is exceptional with three dimensional and complete soft-bodied organisms abounding. Notable organisms include the apex predator *Echidnacaris briggsi* and abundant *Redlichia* and other trilobites as well as priapulid and polychaete worms, sponges and other small arthropods. The excellent preservation and fossil assemblage in the Emu Bay Shale makes it the only known Burgess Shale-type locality in Australia. Along with body fossils, the coastline preserves trace fossils, including trilobite tracks and organism burrows as

well as examples of soft sediment deformation. The Emu Bay Coastline, Cape D'Estaing to Boxing Bay has outstanding scientific value as a result.

Elements of heritage significance include (but are not necessarily limited to):

- Emu Bay Shoreline fossil site,
- preserved in-situ body fossil specimens,
- preserved in-situ trace fossil specimens,
- preserved soft sediment deformation.

Elements not considered to contribute to significance of place include (but are not necessarily limited to):

- Human-made objects such as fences, trails, roads or infrastructure.

INDICATIVE CRITERIA (under section 16 of the *Heritage Places Act 1993*)

(b) it has rare, uncommon or endangered qualities that are of cultural significance

Emu Bay Coastline, Cape D'Estaing to Boxing Bay, is a rare example of a Burgess Shale-type fossil assemblage containing extremely rare deposits of Cambrian-aged fossils, preserved by the *Konservat-Lagerstätte* process. *Konservat-Lagerstätte* is an uncommon form of preservation where complete, organic or soft-bodied fossils are preserved. The Emu Bay Shale is the only known example of a *Konservat-Lagerstätte* in Australia. These types of fossil sites are also very rare globally with less than 20 sites identified.

The Emu Bay Burgess Shale-type fossil assemblage is incredibly rich in fossilised organisms. Trilobites are the most common organisms present at the site, making up approximately 60 percent of the assemblage. However, in 1997, 2,800 specimens of the soft-bodied organism *Myoscolex* were recorded at Emu Bay Coastline, Cape D'Estaing to Boxing Bay. Various trilobites *Redlichia*, the predator *Echidnacaris briggsi* (previously *Anomolocaris briggsi*), *Chancelloria*, *Naraoia* and priapulid worms are also located at the site.

The fossil assemblage at Emu Bay Coastline, Cape D'Estaing to Boxing Bay also includes fossils retaining a degree of three-dimensional structure. Three-dimensional preservation of soft tissues, particularly those resisting changes such as cuticles, are rare in even Burgess Shale-type localities, where conditions are conducive to fossilisation of organic materials. The Emu Bay Shale is regarded as the best example of a Burgess Shale-type fauna in the Southern Hemisphere.

(c) it may yield information that will contribute to an understanding of the State's history, including its natural history

The Emu Bay Coastline, Cape D'Estaing to Boxing Bay has yielded and is likely to continue to yield information about the natural history of South Australia through its geological formations and fossil assemblages that cannot be obtained from other sources. The site contains geological formations that include at least two type sections, namely the Emu Bay Shale, White Point Conglomerate. The site also contains a Burgess Shale-type fossil assemblage that appears to have formed under different conditions to that of the type locality in British Columbia, Canada.

A type section is the geological formation that is used globally to define qualities and age of formations in stratigraphy. Only a single formation can act as the type section and is used as the point of comparison for stratigraphic studies. The two type sections present within the Emu Bay Coastline, Cape D'Estaing to Boxing Bay, therefore have a high likelihood of yielding information about the geological history of the place.

The geological formations of the Kangaroo Island Group, a geological suite encompassing the Boxing Bay Formation, Emu Bay Shale, and White Point Conglomerate, among other stratigraphic units, provide information unique to the geological history of Kangaroo Island and complex stratigraphy of the place. It also contains fossil assemblages likely to yield information about geological events. Numerous areas contain faults, both normal and reversed as well as dip and strike locations where geological features have been rotated after geological movement. Analysis of these alterations to the succession of rocks can be used to determine how the South Australian landscape changed and evolved over a considerable time period.

Emu Bay Coastline, Cape D'Estaing to Boxing Bay also boasts a diverse fossil record of Cambrian-aged fossil fauna that have already contributed and will continue to provide information to our understanding of the development of animal life in South Australia and by extension, the world. Discoveries such as the identification of the Cambrian's first 'apex predator' within Australia, *Echidnacaris* (previously *Anomalocaris*) are internationally significant. The finding allowed for additional insight into the development of predation in the Cambrian.

The geology and fossil assemblages record seabeds and animal specimens enabling researchers to determine the environment and climates in which these ancient organisms lived as well as providing insight into the formation of rare Burgess Shale-type localities of which the Emu Bay Shale is an outstanding example. Unlike the Type locality in British Columbia and other Burgess Shale-type fossil assemblages that are believed to have formed in deep-water environments, the Emu Bay Burgess Shale-type fossil assemblage likely formed in a shallow-water environment.

The Emu Bay Coastline, Cape D'Estaing to Boxing Bay contains highly significant geological formations that provide detailed information about the geological history

of the area. Additionally, the diverse, intact and exceptionally preserved fossil assemblage within the Place has a high likelihood to provide additional information into the Cambrian Period and the evolution of South Australia's organisms.

(d) it is an outstanding representative of a particular class of place of cultural significance

The Emu Bay Coastline, Cape D'Estaing to Boxing Bay is an outstanding example of Burgess Shale-type fossil assemblage, containing the best representation of Burgess Shale-type fauna in the southern hemisphere. The outcropping of the shale in the cliff face near Big Gully are also an excellent example of Cambrian *Lagerstätte* within Australia. The cliff face site produces exceptionally well-preserved soft-bodied fossils. Unusual for Burgess Shale localities, the fossils are three dimensional, providing better reconstruction of an organism's original appearance.

The cliff-side locality of the Emu Bay Shale remains highly intact, with nearby quarries featuring exposures of the shale with the same fossil assemblage operating as the focus for research activities. Other Cambrian localities within the State, most notably within the Flinders Ranges including the Ajax Mine Fossil Reef (26390) and Wilkawillina Archaeocythae Geological Site (14377) contain Cambrian-aged organisms although not in the same form of preservation or abundance as at Emu Bay Coastline, Cape D'Estaing to Boxing Bay.

SITE PLAN

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548



Aerial view of the Emu Bay Coastline, Cape D'Estaing to Boxing Bay.

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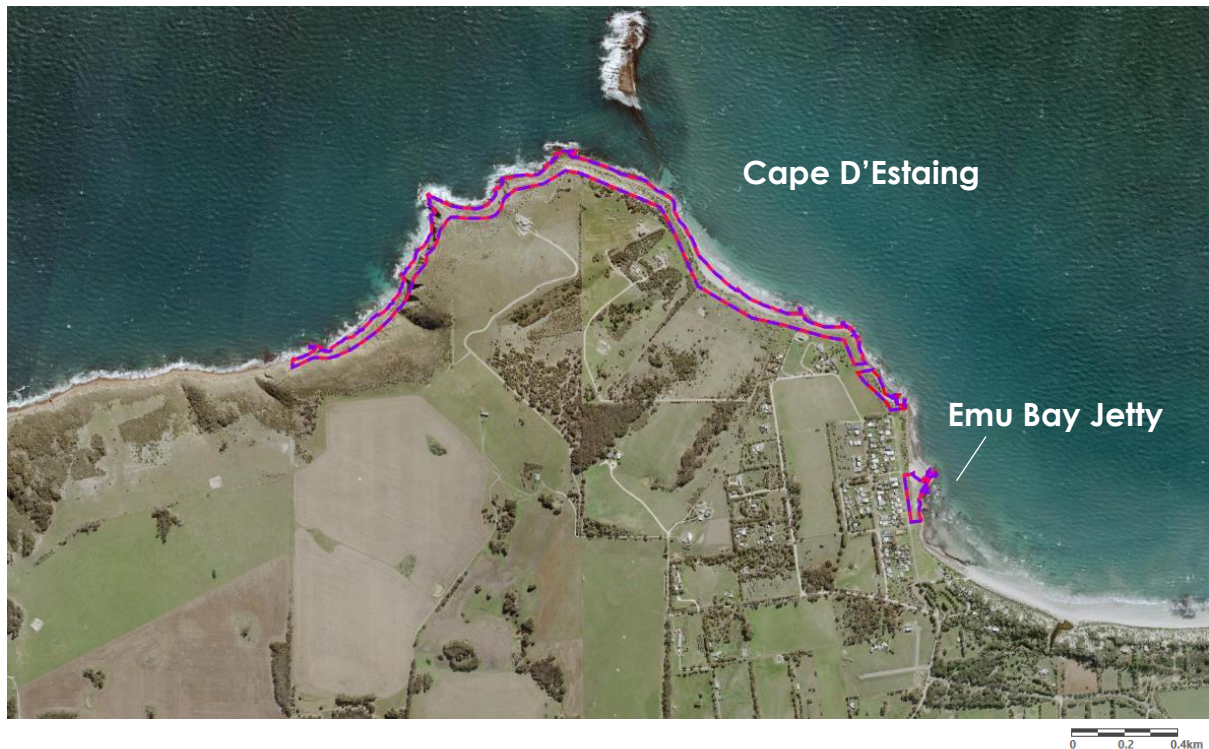
LEGEND

-  Parcel boundaries (Indicates extent of Listing)
-  Existing State Heritage Place(s)
-  Outline of Elements of Significance for State Heritage Place

SITE PLAN

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548



Western section, including Cape D'Estaing and the Emu Bay Jetty

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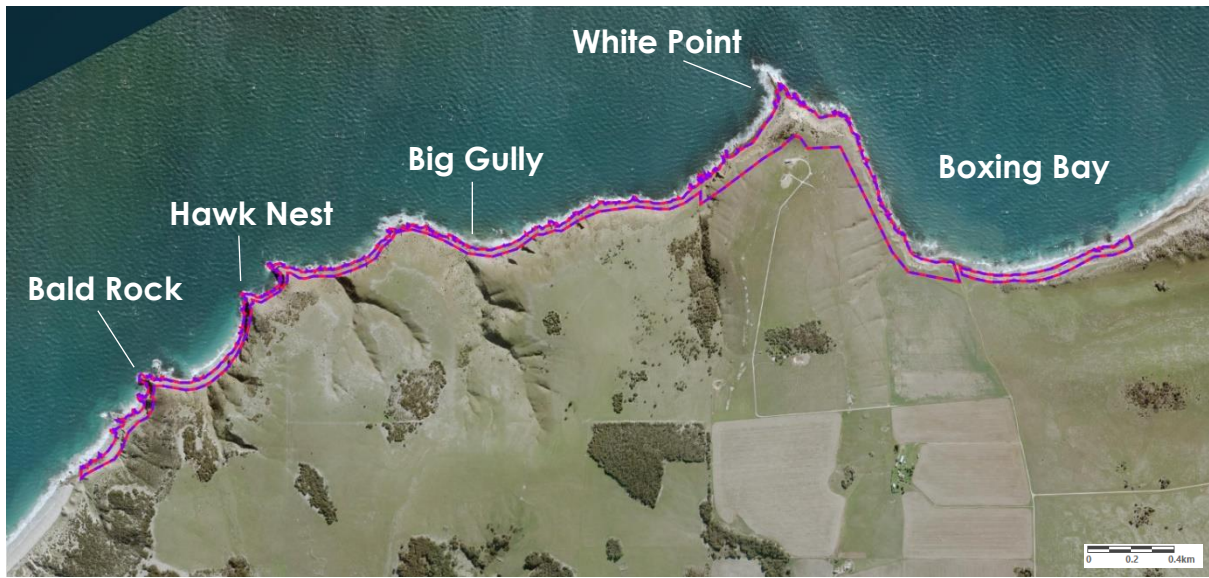
LEGEND

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SITE PLAN

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548



Eastern section, including Big Gully and areas of White Point and Boxing Bay

Using information from 'Terrestrial-marine transition in the Cambrian rocks of Kangaroo Island, South Australia' and 'Early Cambrian Arthropods from the Emu Bay Shale *Lagerstätte*, South Australia'

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LEGEND

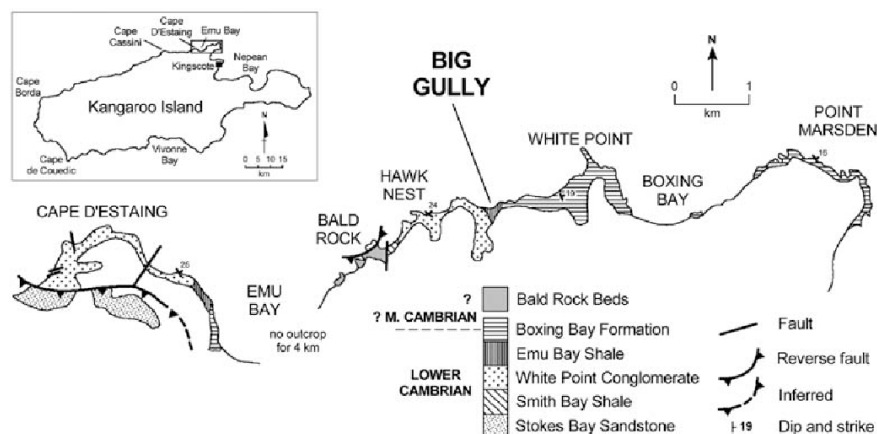
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PHYSICAL DESCRIPTION

The Emu Bay Coastline, Cape D'Estaing to Boxing Bay site is split into five parts along the Northern coastline of Kangaroo Island, extending approximately 9.5km. The area contains a complex geology as part of the Kangaroo Island Group but is best known for the Emu Bay Shale, a very fine-grained type of rock recognised for its preservation qualities. The shale is referred to as a *Lagerstätte* that is a sedimentary layer of rock that preserves organic material exceptionally well. The Emu Bay Shale is the only known example of a *Lagerstätte* in Australia¹. Parts of the shale found in Big Gully are further classified as a *Konservat-Lagerstätte* meaning that it is known for its ability to preserve soft tissue. *Lagerstätten* are very rare and the Emu Bay Shale is the only Cambrian (approximately 514-509Ma) example in Australia. The geological section contains evidence of various geological events including normal and reverse faults, and dip and strike locations.² Additionally, an unmetamorphosed sequence of Kangaroo Island's Cambrian geology.³

Preserved seabeds and fossil specimens can be identified from the site and can provide insight into environments, climates and the formation of the Burgess Shale-type locality.⁴ Trilobite specimens and moults make up approximately 60% of fossils found at the coastal fossil assemblage,⁵ including *Redlichia*.⁶ Other known organisms such as, the predator *Echidnacaris briggsi*⁷ (previously *Anomolocaris briggsi*), *Chancelloria*, *Naraoia* and priapulid worms have also been documented at the site,⁸ as well as 2,800 specimens of *Myoscolex*, in 1997.⁹ Many of the soft-bodied fossils also exhibit rare, three-dimensional appearances.¹⁰

Elements of interest include Emu Bay, the White Point Conglomerate and Marsden Sandstone, and Boxing Bay. Each is discussed in turn.



North east coast of Kangaroo Island showing Cambrian outcrop and the location of the Emu Bay Shale Lagerstätte at Big Gully

Source: Paterson *et al.* (2008).

Emu Bay (Big Gully and the Emu Bay Shale)

The Emu Bay Shale *Lagerstätte* at Big Gully (CR/5744/569) is considered to be 'Australia's most informative Burgess Shale-type locality'¹¹. It is also unique in that the environment preserved at the locality appears to have been a shallow environment, while a majority of Burgess Shale-type fauna's are thought to represent deep-water environments.¹² The shale at Emu Bay is positioned in a gully between exposures of the Boxing Bay Formation to the east and Marsden Sandstone to the west.¹³ The shale is identified as being from the Cambrian Series 2, Stage 4 (Estimated to ~514~509Ma) and the type section of the Emu Bay Shale is to the west of Emu Bay, approximately 7km east of Big Gully,¹⁴ near the Emu Bay Jetty¹⁵, within the SHP.¹⁶ At Big Gully, the Emu Bay Shale overlies Marsden Sandstone. At the very base of the formation where the Emu Bay Shale and Marsden Sandstone meet, there is a maximum 2m thick conglomerate of various rock types and sizes that quickly transitions into the mudstone that makes up the shale. This is the *Konservat-Lagerstätte* containing abundant soft-bodied fossils and is approximately 10m in thickness. Nearing the top of the Emu Bay Shale, fossiliferous sandstone becomes more inclusive due to the presence of the Boxing Bay Formation that is also fossiliferous.¹⁷

The State Heritage Place encompasses the earliest recognised shoreline locality of the Emu Bay Shale¹⁸ that is approximately 78m thick¹⁹ but does not include inland excavation sites such as Buck Quarry, another excavation site within Big Gully with exceptionally preserved soft-bodied fossils²⁰.

The Emu Bay Shale extends in part to the west near Cape D'Estaing, explaining the Heritage Listing of part of CR/5765/394 containing exposures of the Emu Bay Shale.²¹ It is also likely that this is the location of the type locality of the Emu Bay Shale.²²

White Point Conglomerate

The White Point Conglomerate is located to the west of the Emu Bay Shale and is Early Cambrian in age. Though interrupted by other exposures of formations, it continues to Cape D'Estaing (CR5765/375, CR5765/377, a road reserve between CR5765/377 and CR5765/376, CR5765/376 and likely a section of CR5765/394 and CR/5744/569). The type section of the White Point Conglomerate sits between Bald Rock and Big Gully.²³ Conglomerate refers to a rock type that is made up of shards of many other rocks and is held together by a matrix, often sandstone. The rocks forming the conglomerate at white point are "exotic" and have a wide range of origins. Fossilised reefs including archaeocyathans, trilobites, mollusc and sponges can be found within the clasts of the conglomerate.²⁴

Marsden Sandstone

Point Marsden, approximately 2km from the State Heritage Place, is best known for the Marsden Sandstone. This sandstone is located directly west of the Emu Bay Shale (within CR/5744/569), between the shale and the White Point Conglomerate.²⁵ The formation coarsens upward and consists of sediments that were likely deposited in a subtidal or shore-like setting.²⁶ As with elsewhere in the State Heritage Place, this sandstone contains pre-Cambrian aged (>541Ma) Fossils.²⁷ The type section for the Marsden Sandstone likely sits just outside of the State Heritage Place, closer to Buck Quarry.²⁸

Boxing Bay

Known for the Early to Middle Cambrian Boxing Bay Formation²⁹, this area overlies the other formations and contains sandstone with some conglomerate with gneiss and limestone inclusions.³⁰ The type section of the Boxing Bay Formation sits to the east of Big Gully.³¹ Sandstones at the base of the formation are fine-medium and are laminated higher into the succession.³² Abundant trace fossils can be found in the Boxing Bay formation including tracks from arthropods. Features of the formation suggest that the sediment was also rapidly deposited.³³ This includes the presence of soft sediment deformation where a high rate of deposition allows for preservation of sediment such as small sand dunes that demonstrate the flow of water.³⁴ The boxing bay formation extends towards White Point up to the Emu Bay Shale in Big Gully (Part of CR/5744/569, CR/5967/728, CR/5744/570 and CR/5744/571). The formation extends further into the Emu Bay area and to what is now a developed reserve with a boat ramp and parking zone (CR5862/290).³⁵

Elements of Significance:

Elements of heritage significance include (but are not necessarily limited to):

- Emu Bay Shoreline fossil site,
- preserved in-situ body fossil specimens,
- preserved in-situ trace fossil specimens,
- preserved soft sediment deformation.
- Geological formations; Emu Bay Shale, White Point Conglomerate, Boxing Bay Formation and Marsden Sandstone.
- Type localities of the Emu Bay Shale, Boxing Bay Formation and White Point Conglomerate.

Elements not considered to contribute to significance of place include (but are not necessarily limited to):

- Human-made objects such as fences, trails, roads or infrastructure.

HISTORY OF THE PLACE

Approximately 514-509 million years ago, it is likely that the organisms found within the Emu Bay Shale formation lived in a shallow water column. Deeper in the water, fluctuating levels of oxygen within the inner shelf created oxygen-rich and oxygen-poor layers. At the seafloor, the environment was likely exaerobic, a type of low oxygen area, that may have both trapped organisms and allowed for high quality preservation when an event caused sediment to be deposited rapidly.³⁶

Fossils at the Emu Bay Shale were first described in literature in 1952 prompting the recognition of the Emu Bay Shale *Lagerstätte* at Big Gully in 1954 by Brian Daily³⁷. In this same year, both hard and soft bodied fossils were recognised in the area.³⁸ The present trace and body fossils, suggest that the formation likely originated from an intertidal zone during the Cambrian.³⁹

Prior to the recognition of fossilised organisms, the area was a place of great geological interest. Nearby areas were investigated as early as 1802 by French and British geologists. The first geologist employed in South Australia, Johannes Menge, also wrote about the area in 1838, 1841 and 1848.⁴⁰ In 1898, Henry Yorke Lyell Brown conducted another geological survey and identified no fossils from the area.

In 1928, Douglas Mawson, a lecturer at the University of Adelaide, took parties of students to investigate areas west of the Emu Bay Shale cliffs. Douglas Mawson and his research party identified archaeocyathans present within the White Point Conglomerate.⁴¹

In 1952 Reginald Claude Sprigg discovered trilobites on the Emu Bay beach, identifying them as *Redlichia* n. sp., *Lusatiops* n. sp., *Acrothele* sp. and *Hyolithes* sp.⁴² The *Lusatiops* species was then described in 1964 as the new species, *Estaingia bilobata*⁴³, which can also be found in the Flinders Ranges.⁴⁴

In 1984, three areas of the place were recognised as geological monuments, namely Big Gully (KI 3) and Emu Bay – Cape D'Estaing (two separate sections making up KI 4). Soon after in 1985, evidence of predation was found in the Emu Bay Shale for the first time.

In 1991 a major theft of fossils occurred from the shale.⁴⁵ An estimated 300kg of material was removed from the locality, totalling nearly 200 specimens of *Redlichia*.⁴⁶ Some fossils were reportedly seen for sale in Europe within the year. It is likely that this event inspired the nomination of the site for heritage listing and designation as a State Heritage Place. The Emu Bay Coastline, Cape D'Estaing to Boxing Bay was confirmed as a State Heritage Place and designated as a place of Palaeontological Significance in 1994. The fossils were returned to South Australia in 2000.⁴⁷

In 1993, a major discovery from the Emu Bay Shale occurred when the then named 'Anomalocaris' was found. Re-evaluation of the specimen lead to it being assigned

instead as *Echidnacaris briggsi*. Discovery of this predator increased interest in the Emu Bay site.

In 2006, researchers were awarded a grant to expand investigations of the Emu Bay Shale and more fossil sites were identified further in-land at Buck Quarry from 2007 onwards. This new location boasts a different assemblage of fossils that has a higher richness of fauna,⁴⁸ but exists outside of the State Heritage Place. Daily Quarry was also opened sometime shortly before 2016. It also exists outside of the State Heritage Place but, like the cliff face locality, is an exposure of the Emu Bay Shale. Since Buck and Daily quarry's openings, they have been used regularly for professional and student research and thus these quarries work as an additional place for the research of Cambrian organisms. The presence of the Daily and Buck quarries allows the cliff-side site to remain more pristine since the major work on the locality in the 1900's and early 2000's.

CHRONOLOGY

Year	Event
4.6Ga (Billion years)- 541Ma	Precambrian time period - containing the Archean and Proterozoic eons and the Ediacaran Period (635-541Ma)
~570 Ma	Ediacaran organisms (Vendian biota) common.
~540 Ma	Cambrian Explosion – Huge diversification of complex aquatic life.
~539 Ma	Oldest known chordate (predecessor to vertebrates) recorded from what is now China.
~514--509Ma	Deposition of Cambrian organisms in the Emu Bay Shale.
1928	Archaeocyathans found in the White Point Conglomerate.
1952	Recognition of Emu Bay Shale's shelly fossils by Reginald Sprigg. ⁴⁹ Trilobites found on the Emu Bay beach.
1954	Recognition of the 'Big Gully' cliff fossil site. Large trilobite specimens called <i>Redlichia takooensis</i> also identified by Brian Daily. ⁵⁰
1979	First description of soft fossils from the Emu Bay Shale by Glaessner. ⁵¹
1984	Big Gully (KI 3) and Emu Bay – Cape D'Estaing (KI 4) recognised as two separate geological monuments. ⁵²
1985	Evidence of injuries and likely predation identified on <i>Redlichia</i> trilobites from Emu Bay. ⁵³
1991	Considerable theft of fossil specimens from the Emu Bay locality. ⁵⁴
April/May 1992	Nominated to the State Heritage Council
1993	' <i>Anomalocaris</i> ' identified from the Emu Bay Shale by McHenry and Yates. ⁵⁵ Later identified as <i>Echidnacaris briggsi</i> . ⁵⁶

September 1993	Interim/Provisionally entered in the State Heritage register*
1994	26 May, designated as a Place of Palaeontological Significance* 22 September, confirmed as a State Heritage Place*
2007	Buck Quarry excavated. All previous publications from Emu Bay are recorded from the shore platform and cliffs within the SHP. ⁵⁷
2016	First record of Daily Quarry operating, ⁵⁸ though it was likely opened earlier ⁵⁹

*Emu Bay Coastline, Cape D'Estaing to Boxing Bay was interim listed under the *South Australian Heritage Act 1978* in September 1993. The *Heritage Act 1993* that came into effect on 15 January 1994 reassigned interim listings as provisionally entered listings. Under Section 17(3)(a) of the *Heritage Act 1993*:

17—Proposal to make entry in Register

(3) The Authority may designate a place provisionally entered in the Register as—

(a) a place of geological or palaeontological significance;

Hence, the State Heritage Place was designated in May 1994, prior to its confirmation as a State Heritage Place in September 1994.

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- Confirmed in the South Australian Heritage Register on 22 September 1994
- Designated as a Place of Geological significance on 26 May 1994
- The South Australian Heritage Council endorsed the content of this BHI - SSHP on 15 Feb 2024

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SITE DETAILS

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548

DESCRIPTION OF PLACE:	Coastline featuring cliffs and shore platforms, of Cambrian age, containing horizons of fossil bearing rocks.		
DATE OF CONSTRUCTION:	Lower Cambrian (Series 2) 521-509 Million years old		
REGISTER STATUS:	Nominated April 1992 Interim/Provisionally Entered 23 September 1993 Designated as a place of Palaeontological Significance 26 May 1994 Confirmed as a State Heritage Place 22 September 1994		
CURRENT USE:	Leisure, pastoral land		
LOCAL GOVERNMENT AREA:	Kangaroo Island		
LOCATION:	Street No.:	NA	
	Street Name:	NA	
	Town/Suburb:	Wisanger, Emu Bay and North Cape	
	Post Code:	5223	
LAND DESCRIPTION:	Title Reference:	CR 5765/375 H110800 S 415,CR 5765/376 H110800 S 416,CR 5765/377 H110800 S 423,CR 5765/394 H110800 S 500,CR 5744/569 H110800 S 429,CR 5744/570 H110800 S 431,CR 5862/290 T110802 A98,CR 5967/728 D70632 A1000,CT 0000/0000 ROAD RESERVE	
	Hundred:	Hundred of Menzies	

PHOTOS

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548



Specimen P40180. A frontal appendage of *Echidnacaris briggsi*. Collected in 1995 from the shoreline locality of Emu Bay

Source: Paterson *et al.* (2023) from Nedin (1995)



A reconstruction of *Echidnacaris briggsi* by Katrina Kenny, University of Adelaide

Source: Kenny K and The University of Adelaide (2011)

PHOTOS

Emu Bay Coastline, Cape D'Estaing to Boxing Bay
Wisanger, Emu Bay and North Cape, 5223

PLACE NO.: 14548



***Redlichia takooensis* (Lu, 1950). Internal mould of complete exoskeleton from
Big Gully**

Source: Paterson & Jago (2006)

PHOTOS

Emu Bay Coastline, Cape D'Estaing to Boxing Bay

PLACE NO.: 14548

Wisanger, Emu Bay and North Cape, 5223



View south towards Emu Bay Shale exposure at Big Gully, together with original shoreline locality and Buck Quarry in distance.

Source: Kruse and Jago (2016).

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