

## SUMMARY OF STATE HERITAGE PLACE – DESIGNATION

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### REGISTER ENTRY

Entry in the South Australian Heritage Register in accordance with the *Heritage Places Act 1993*

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**NAME:** Hallett Cove Conservation Park & Sandison Reserve **PLACE: 14033**

**ADDRESS:** Karna Country

Clifftop Crescent Hallett Cove

CR 5428/687 H105500 S1577, CT 5546/805 F148355 A17, CR 5772/819  
S105500 S1550, CR 5361/119 D2387 A1, CR 5361/120 D2387 A2, CR  
5772/819 F28675 A20,21, Hundred of Noarlunga

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### STATEMENT OF DESIGNATION

#### Designated Place of Geological Significance

Hallett Cove Conservation Park & Sandison Reserve displays a detailed and exceptionally high quality geological record of South Australia, imparting important insights about the State's geological history. The Park and Reserve yields evidence of significant glaciations of worldwide significance, recording approximately 645 million years of geological history. It also contains fossiliferous deposits and geologically significant unconformities.

Hallett Cove Conservation Park & Sandison Reserve demonstrates four separate periods of glacial activity within one site, a combination that is not seen anywhere else in Australia. Overall, the site's extensive geological evidence for glaciation is considered among the best in the world. Significant features include:<sup>i</sup>

- striations and cuts within smooth-topped rocks at Black Cliff created by glacier movements approximately 280Ma (Million Years ago),
- a glacial lake formed by a 280 million year old glacier where silt deposition has created distinctive multi-coloured layering patterns denoting the depositional environment,
- large 'erratics' or 'dropstones', rocks dropped from melting sheets of ice, believed to originate from Encounter Bay,
- glacial sediment deposit illustrating ripples and wave patterns that are preserved within the rock. While of a similar age to the other deposits, it demonstrates a higher energy depositional environment.<sup>ii</sup>

Additionally, the depositional patterns at Hallett Cove Conservation Park & Sandison Reserve infer detailed, cycling changes in sea level,<sup>iii</sup> as illustrated by the abundant shelly fossil deposits including both impressions of and physical shells<sup>ii</sup> at the top of the cliffs surrounding the beach. The sandstone matrix also denotes a warm and shallow environment<sup>iv</sup> that was deposited only 3Ma.

The area also shows evidence of unconformities, examples of periods of erosion or breaks in deposition in the geological record<sup>v</sup>. For example, along Waterfall Creek a missing time period of approximately 320Ma is exposed, while just above it is an example of a missing period from 277Ma, with a third unconformity showing the absence of another 1 million years of sediment. As such, a succession of environmental changes across approximately 600 million years can be seen within the one cliff-face.

### **Elements of Significance:**

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

- The best in-depth evidence of glacial periods in Australia, such as:
  - Striations and cuts in rock
  - Erratics deposited from distant formations
  - Glacial lake deposits
- Unconformities showing evidence of changes in depositional capabilities
- Eleven distinctive geological landforms and formations including the 'Amphitheatre' and 'Sugarloaf'
- Well-documented geological formations allowing for numerous education, tourism and research opportunities

Exclusions include non-geographical formations or points of interest such as:

- Built additions (including footpath layout, boardwalks, stairs, signs)

## **COMMENTARY ON THE LISTING**

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

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#### **Physical Description**

The Hallett Cove Conservation Park & Sandison Reserve area has been recognised as a geological landmark by The South Australian Division of the Geological Society of Australia since 1966<sup>vi</sup>. It has also been a focus point of one of the two geological 'Discovery Trails' developed by the South Australian Government and SARIG (South Australian Resources Information Gateway). The trail, consisting of 11 stops throughout the Hallett Cove Conservation Park & Sandison Reserve details important geological formations that cannot be seen anywhere else in the State<sup>ii</sup>.

#### **Aboriginal Cultural Considerations**

The Heritage Places Act 1993 makes provision for the identification, recording and conservation of places and objects of non-Aboriginal heritage significance. The protection and preservation of Aboriginal heritage is provided for under the Aboriginal Heritage Act 1988. Contact the Aboriginal Heritage Unit for listings.

The Hallett Cove Conservation Park & Sandison Reserve holds great significance in the history of the Kaurna people as the Tjilbruke Dreaming Tracks run through this area. Tjilbruke rested at Hallett Cove on his journey to place the remains of Kulultwi, his favourite nephew, in a perki cave. Overwhelmed by sadness, Tjilbruke's tears fell to ground and a freshwater spring welled up where they fell.<sup>vii</sup>

Further information about the Tjilbruke story can be found at:

<https://www.cityofpae.sa.gov.au/explore/arts-and-culture/explore-first-nations-culture/m2y/more-stories/tjilbruke-story>

## References

Alley, NF (2010) 'Glacially striated and polished bedrock at Black Cliff, with several populations of crossing striae and small crescentic gouges and chatter marks. The view is to the northwest, in the general direction of ice movement.', Image, SARIG Online Database.

Beater, CD (1982), 'The significance of unconformities in the development of Witwatersrand gold and uranium placers', *Dissertation. Rhodes University*.

Douglas, K (2006), "'Forsaken Spot' to 'Classic Ground': Geological Heritage in Australia and the Recuperative Power of the Deep Past', *Environment and History*, Vol. 12, pp. 269-296.

Gerrard, C (2016) 'Hallett Cove, sugarloaf and boardwalk.', Image, SARIG Online Database.

Glenie, RC, Schofield, JC & Ward, WT (1968), 'Tertiary sea levels in Australia and New Zealand', *Palaeogeography, Palaeoclimatology, Palaeoecology*, Vol. 5, pp.141-163.

Major, RB (2018), 'Hallett Cove Geological Trail', *Geological Society of Australia (South Australian Division) and the Field Guide Subcommittee* in collaboration with *South Australian Resources Information Gateway*, Government of South Australia, Adelaide. <https://discoverytrails.sarig.sa.gov.au/story/41>, (Accessed 4-11-2021).

Major, R (2010) 'Put your hand on the base of the Hallett Cove Sandstone. This represents a gap in the geological record (unconformity) of about 277 million years of time. - Hallett Cove.', Image, SARIG Online Database.

Preiss, W (2019) 'A new geological map of Hallett Cove', *MESA Journal*, Vol. 91, pp. 33-50.

Schultz, C & The Kaurna Warra Pintyanthi (KWP) Team (2016) 'Kriidhung and Murrkangga - Place Name Summary (PNS) 3/10', *The Southern Kaurna Place Names Project*, Australian Government, Indigenous Languages & the Arts (ILA) program.

Telfer, K & Malone, G (2013) 'Tjilbruke Story', *City of Port Adelaide Enfield*, <https://www.cityofpae.sa.gov.au/explore/arts-and-culture/explore-first-nations-culture/m2y/more-stories/tjilbruke-story>, (Accessed 22-11-2021).

Williams, GE (1989). 'Late Precambrian tidal rhythmites in South Australia and the history of the Earth's rotation', *Journal of the Geological Society*, Vol. 146, pp 97-111.

PHOTOGRAPHS

Hallett Cove Conservation Park & Sandison Reserve

PLACE NO.: 14033

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"Hallett Cove, sugarloaf and boardwalk." Gerrard, C Oct 2016, SARIG Online Database



"Put your hand on the base of the Hallett Cove Sandstone. This represents a gap in the geological record (unconformity) of about 277 million years of time. - Hallett Cove."  
Major, R 2010 SARIG Online Database.

**PHOTOGRAPHS**

Hallett Cove Conservation Park & Sandison Reserve

**PLACE NO.:** 14033

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“Glacially striated and polished bedrock at Black Cliff, with several populations of crossing striae and small crescentic gouges and chatter marks. The view is to the northwest, in the general direction of ice movement.” Alley, NF 2010 SARIG Online Database

SITE PLAN

Hallett Cove Conservation Park & Sandison Reserve

PLACE NO.: 14033



Clifftop Crescent, Hallett Cove

(CR 5428/687 H105500 S1577, CR 5772/819 S105500 S1550, CR 5361/119 D2387 A1, CR 5361/120 D2387 A2, CR 5772/819 F28675 A20, A21)

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LEGEND

-  Parcel boundaries
-  Existing State Heritage Place (Indicates extent of proposed Designation Area)

<sup>i</sup> Preiss, W (2019) 'A new geological map of Hallett Cove', MESA Journal, Vol. 91, pp. 33-50.

<sup>ii</sup> Major, RB (2018), 'Hallett Cove Geological Trail', Geological Society of Australia (South Australian Division) and the Field Guide Subcommittee in collaboration with South Australian Resources Information Gateway,

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Government of South Australia, Adelaide. <https://discoverytrails.sarig.sa.gov.au/story/41>, (Accessed 4-11-2021)

<sup>iii</sup> Williams, GE (1989). 'Late Precambrian tidal rhythmites in South Australia and the history of the Earth's rotation', *Journal of the Geological Society*, Vol. 146, pp 97-111.

<sup>iv</sup> Glenie, RC, Schofield, JC & Ward, WT (1968), 'Tertiary sea levels in Australia and New Zealand', *Palaeogeography, Palaeoclimatology, Palaeoecology*, Vol. 5, pp.141-163.

<sup>v</sup> Beater, CD (1982), 'The significance of unconformities in the development of Witwatersrand gold and uranium placers', Dissertation. Rhodes University.

<sup>vi</sup> Douglas, K (2006), "'Forsaken Spot' to 'Classic Ground': Geological Heritage in Australia and the Recuperative Power of the Deep Past', *Environment and History*, Vol. 12, pp. 269-296

<sup>vii</sup> Telfer, K & Malone, G (2013) 'Tjilbruke Story', City of Port Adelaide Enfield, <https://www.cityofpae.sa.gov.au/explore/arts-and-culture/explore-first-nations-culture/m2y/more-stories/tjilbruke-story>, (Accessed 22-11-2021).