Rottnest Island geotourism

Geosites, geoheritage & geotourism – the integration

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Ivor Roberts and Mike Freeman

Ecotourism and Geotourism

What is the relationship?

- Ecotourism is sustainable tourism of natural areas

What is the criteria that underpins the naturalness of natural areas?

- *The landforms, the soils, and these are all dependent on* ***THE GEOLOGICAL ATTRIBUTES***

Here I am, enjoying a crawl on the sea floor, living my life in peace

- But, as the years pass, my arthritis becomes painful
- My backache increases
- And my aging muscles weaken

My kids help at first, but then consign me to an old-folks home to see out my existence on this earthly planet.

My time has come and I pass away R. I. P.

- The Old Folk's management is tired of taking care and throw me out of the door
- Passing waves and unceasing currents wash me into shallow waters
- Towards the coastline
- Into the turmoil of the raging surf and breaking waves

My epitaph is a sorry story

- My remains are broken, smashed against other remains as we are thrown around by the waves
- Pulverised, becoming mere sand grains

  but, not ordinary sand but <u>LIMESAND</u>

Sand grains are washed onto the beach

My sand grains, plus neighbours, become sand dunes

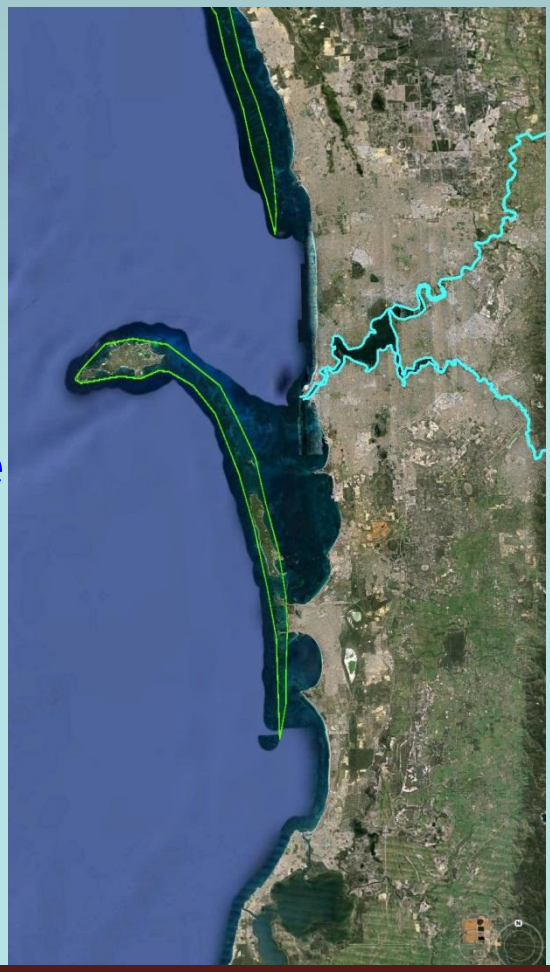
My sand grains, in company with billions of other grains, are blown up the beach, into a ‘frontal dune’

But my remains are changed – through the magic of chemistry

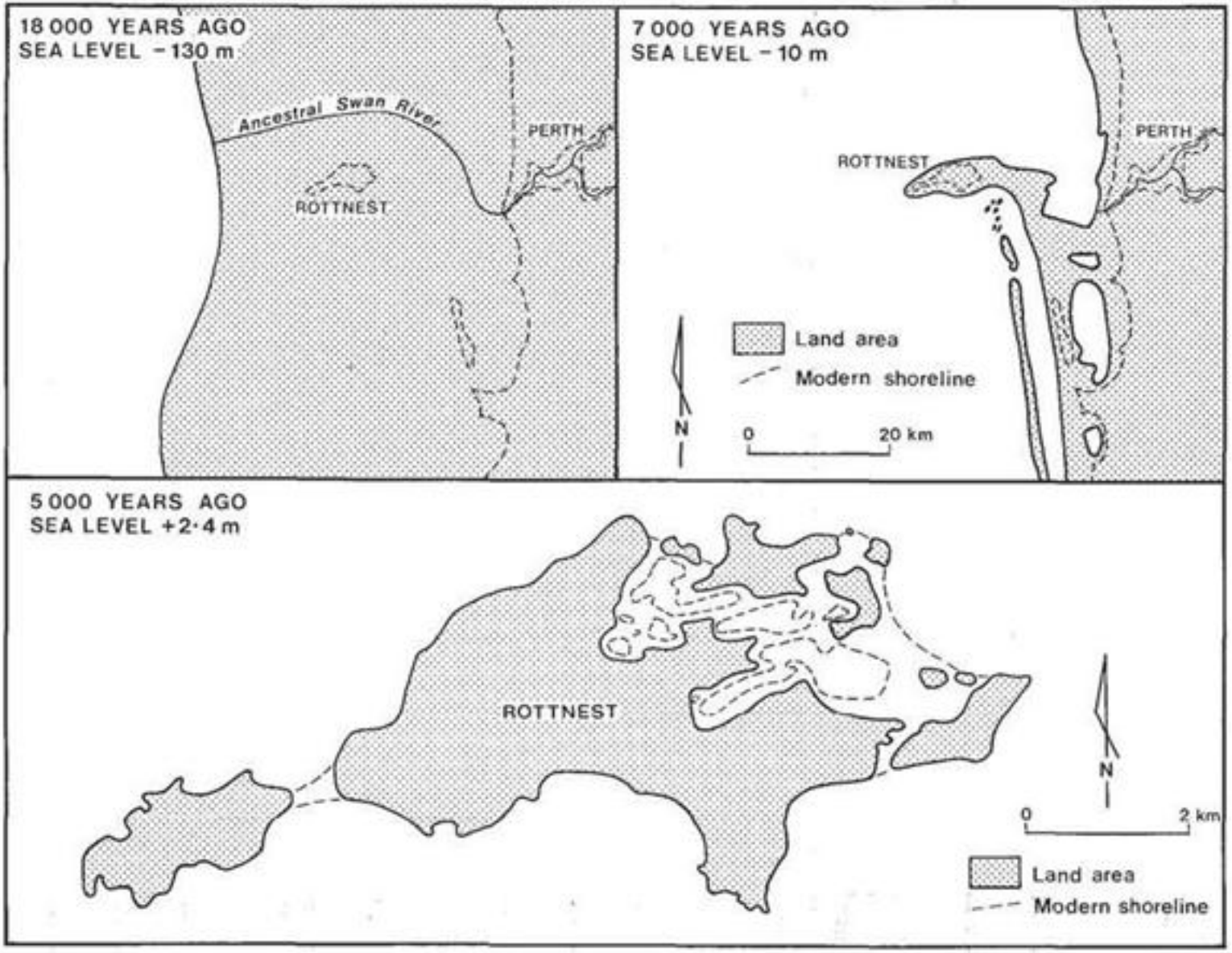
- Winter rains come
- Rainwater sinks into the limesand dunes
- Water dissolves lime, but then precipitates it when summer heat dries out the dune
- Lime cements the grains together
- Limesand becomes limestone

The geological underpinnings of Rottnest Island

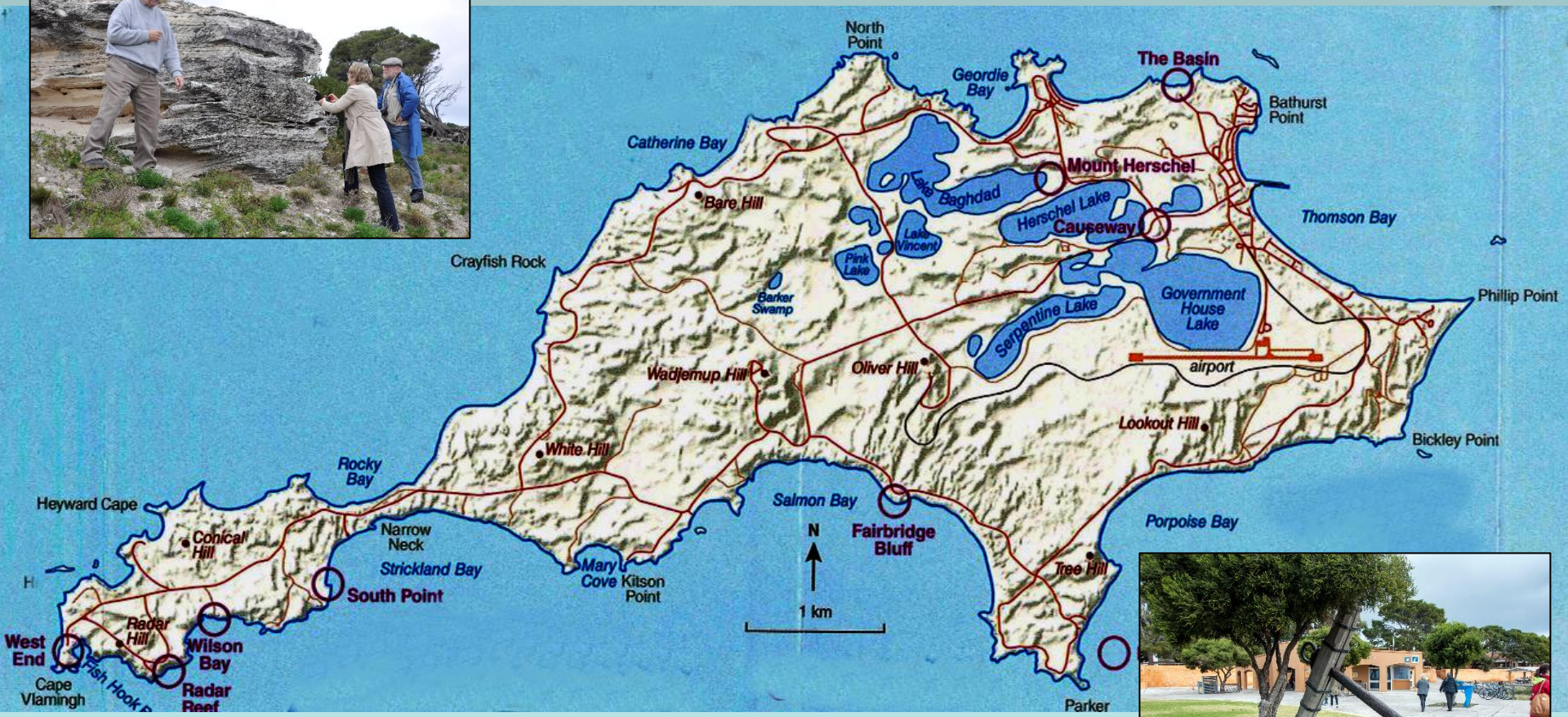
- 18 000 years ago sea levels were 130 metres lower
- High coastal dunes formed linear ridges
- As icecaps melted, the sea rose and by 7000 years ago reached near the present level
- Many coastal limestone dunes became offshore reefs
- Rottnest became an island, linked by reefs to Garden Island



History of Rottnest

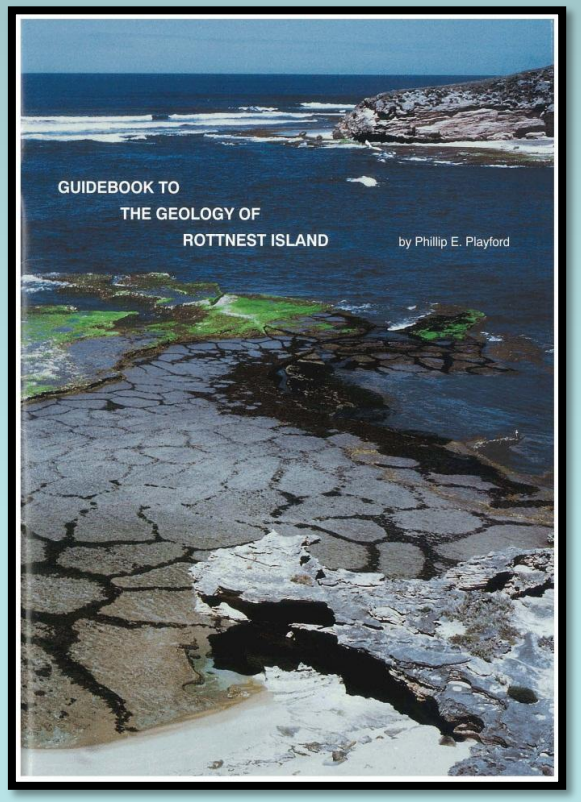


Rottnest today



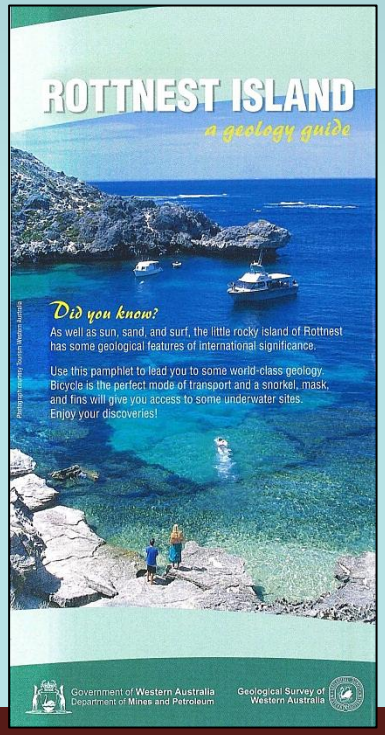
Significant Geological Sites

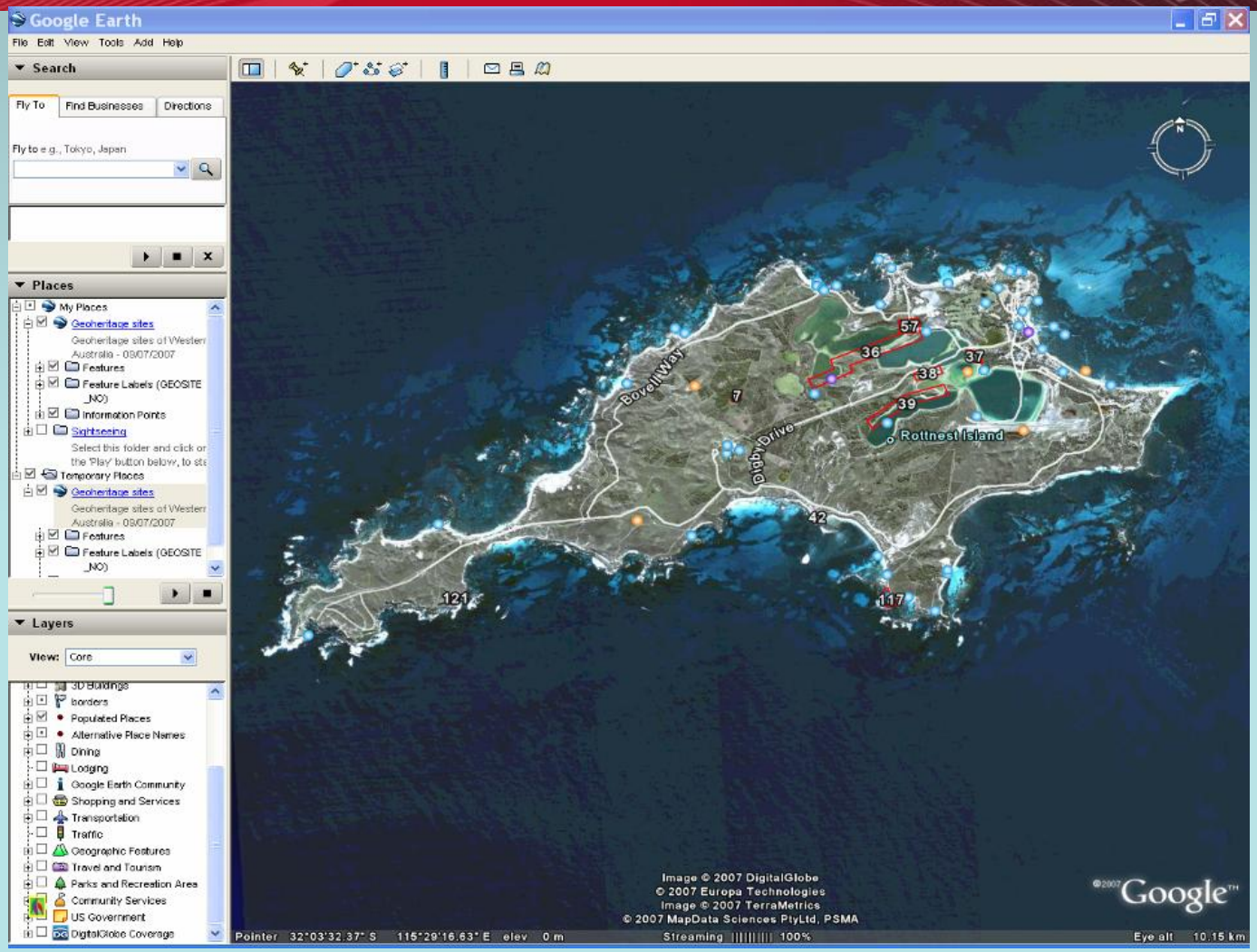
- DEPOSITIONAL:
  - Cross Bedding, South Point
- ACCUMULATIONAL:
  - Older reef, Fairbridge Bluff
  - Younger reef, Pocillopora Reef
  - Shell Bed, Mt Herschell quarry
- EROSIONAL
  - Shoreline platform. The Basin
  - Storm beach development, Radar Reef
  - Platform with algal polygons, Wilson Bay
  - Storm beach and shoreline platform eroded blocks undercutting, West End
  - Shoreline platform, notches and visors, Causeway
- Collapse features
  - Salt lakes
  - Swamps



Geoheritage of Rottnest Island

There is a claim to fame at sites across Rottnest Island

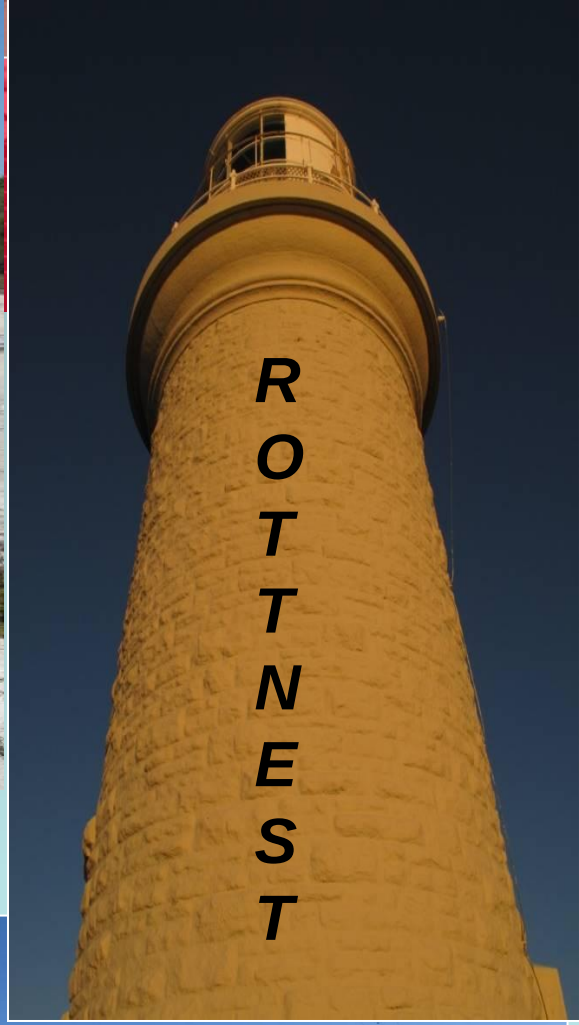




WA Register of Geoheritage Sites

Geoheritage site	Feature of significance	Status
Barker Swamp	Sedimentology and stratigraphy	State
Bay/Hers/Vin area	Elevated platforms aged <10ka, showing SL changes	International
Causeway	Elevated platforms aged <10ka, showing SL changes	International
Pearse	Elevated platforms aged <10ka, showing SL changes	International
Serpentine Lake	Elevated platforms aged <10ka, showing SL changes	International
Fairbridge Bluff	Rottnest Limestone holostratotype, sedimentology	International
Herschell Quarry	Stratigraphy, holostratotype coquina paleontology, sea level changes	International
Salmon Point	Tamala Limestone, sedimentology	State
South Point	Tamala Limestone, sedimentology	State

10 cm
GSWA


ROTTNEST

The geo story

- The idea that we are standing on non-descript and uniform ground is wrong. The rocks beneath our feet represents a catalogue of changes that the Earth has experienced.

- The ground we stand on helps to explain why the geology we find around us today is how it is, why we have different landscapes, why plants and animals are not all the same and for the activities of our ancestors and even ourselves.

The rock tells a story

This rock also tells a story

Conclusion

- At Rottnest Island we have geological sites of importance
- These are valuable for:
  1. Scenic attractions
  2. Sites of general interest
  3. Sites of learning for the general public & the specialised (scientific) community
- So, as we go forward with a desire to show off our World, remember the importance of geology

THANK YOU

For your interest and attention.
Any questions or points of view