



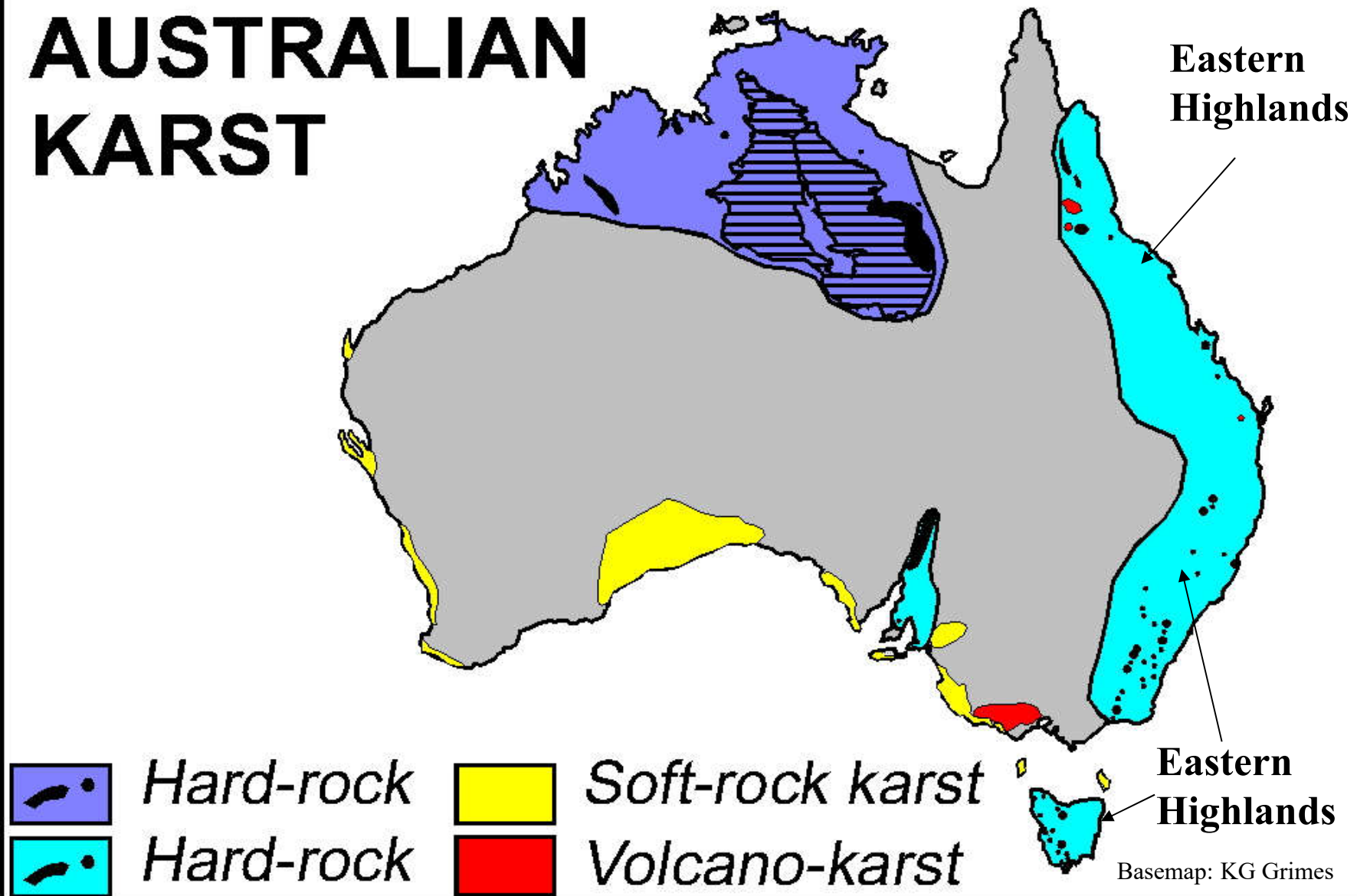
Stygofauna Diversity and Distribution in the Eastern Australian highlands and their potential as subterranean Ramsar sites

Mia E. Thurgate¹ and Andy Spate²

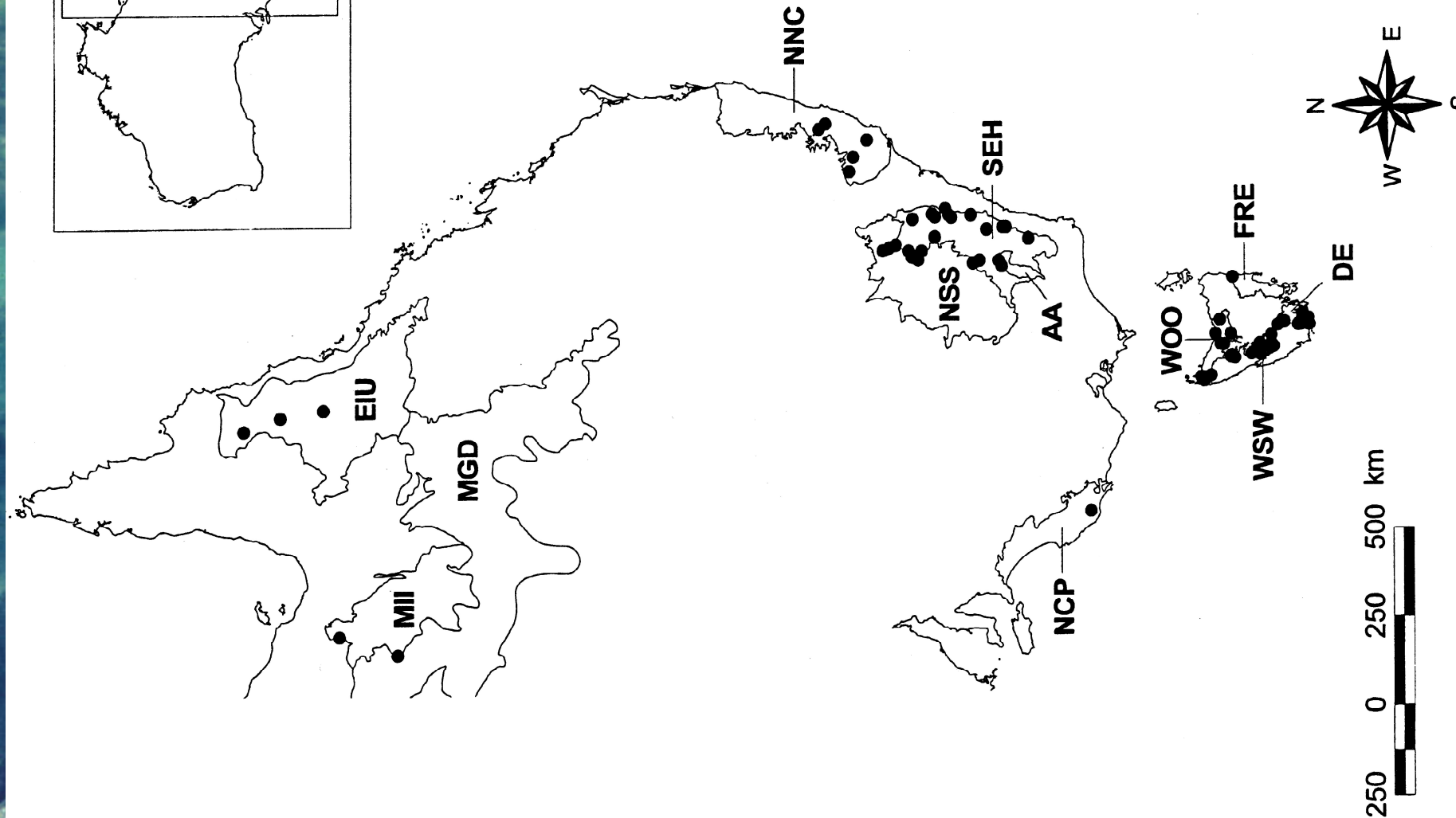
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Heritage Division, Department of the Environment
& Heritage, GPO Box 787, Canberra, ACT, 2601

²Optimal Karst Management, 2/10 Victoria Street,
Hall, ACT, 2618

AUSTRALIAN KARST



Distribution of stygofauna sites in Eastern Australia (after Thurgate et al 2001).



QUEENSLAND

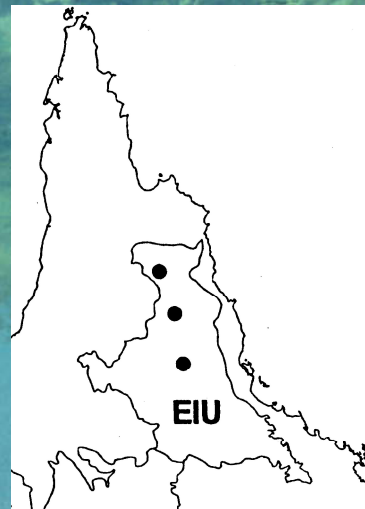
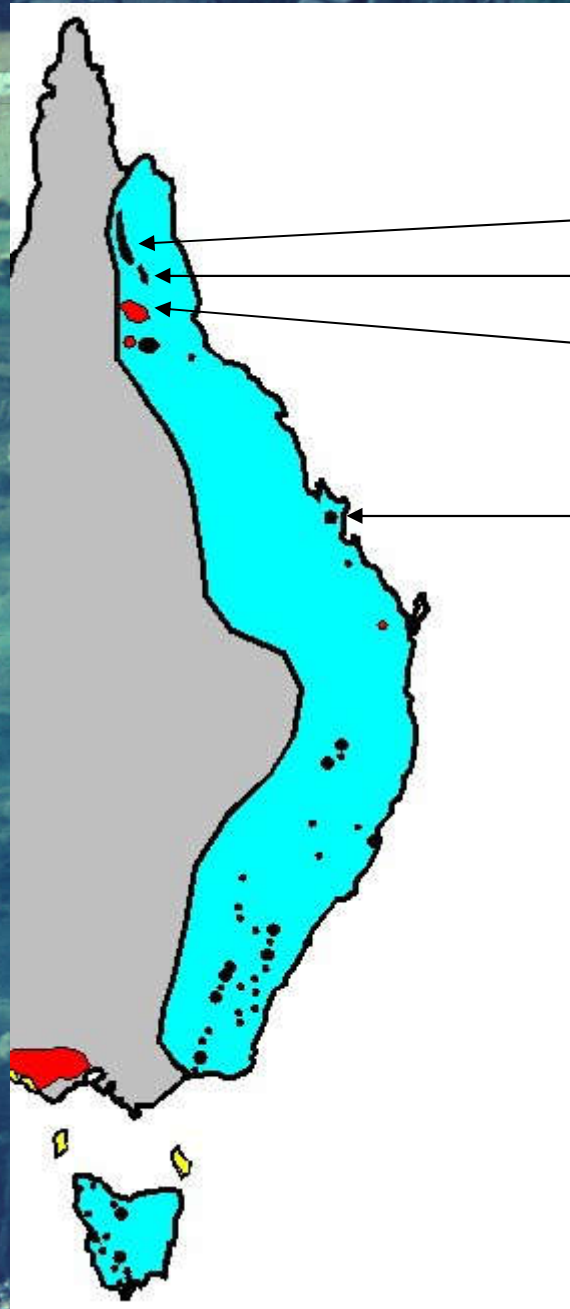
Mitchell-Palmer

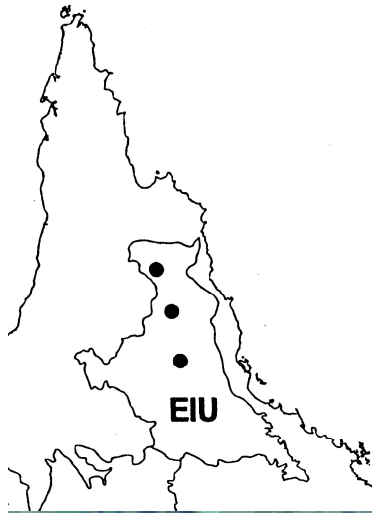
Chillagoe

Undara Lava Tubes

Mount Etna

Plenty of
potential...





QUEENSLAND

- Einasleigh Uplands (EIU)



Mitchell-Palmer

Chillagoe

Undara Lava Tubes

- Mount Etna region



NEW SOUTH WALES

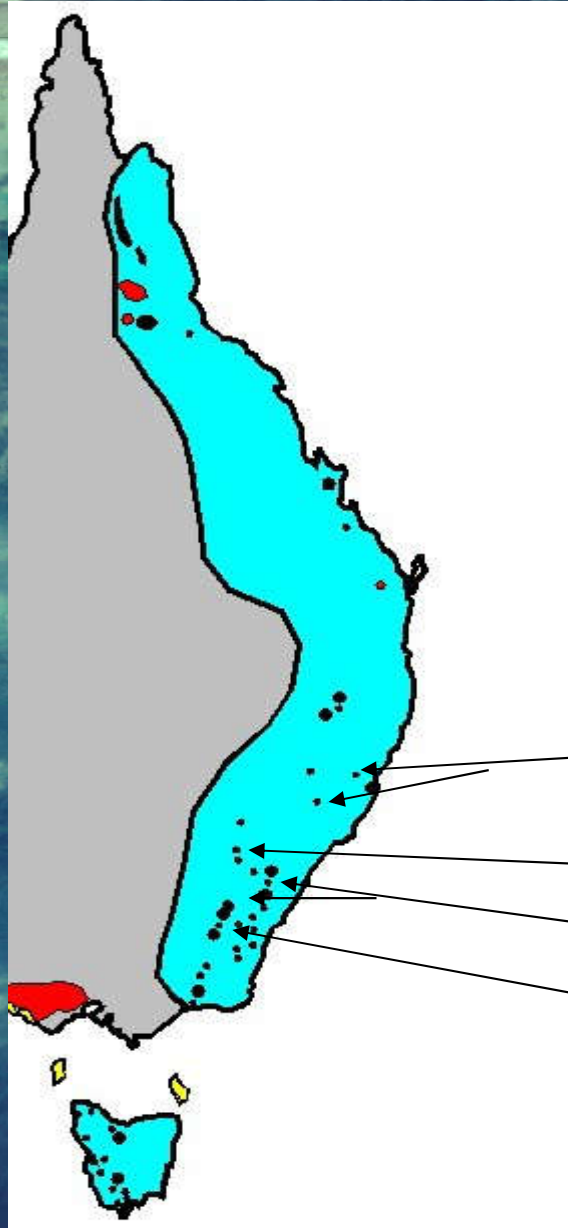
**From Rags to
Riches...**

North Coast + Upper Hunter

Wellington region

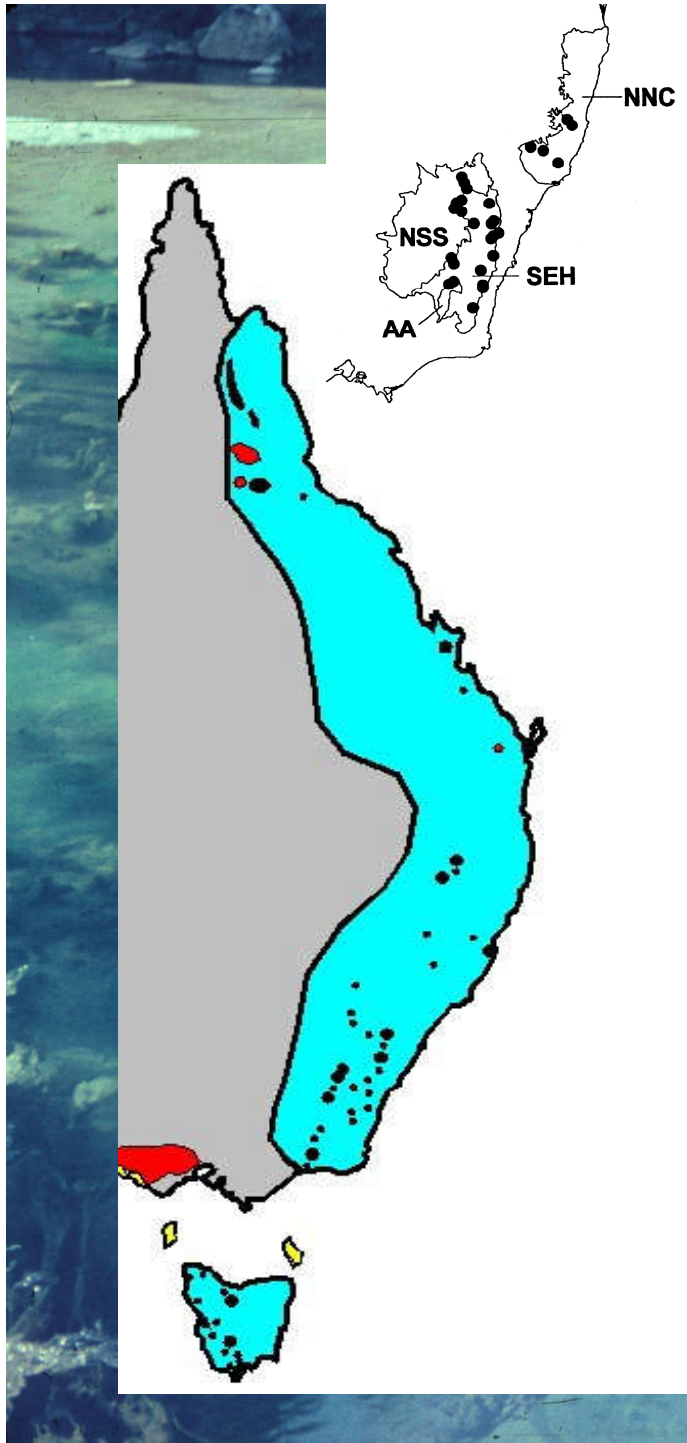
Jenolan – Wombeyan – Wee Jasper region

Coolleman Plains -Yarrangobilly



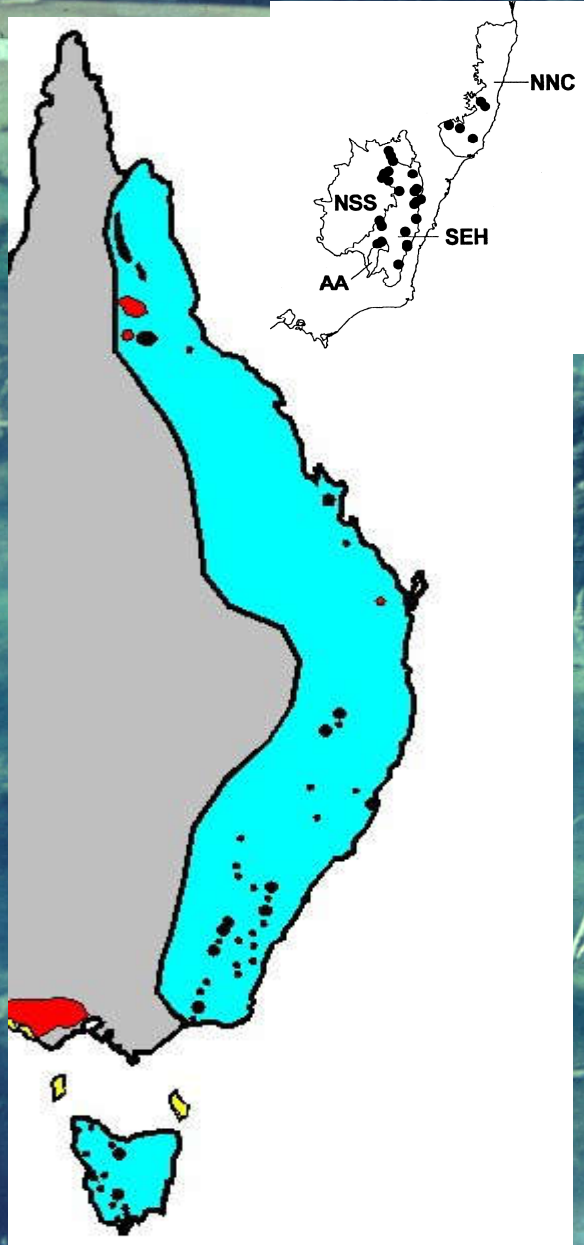
NEW SOUTH WALES - 1

- North Coast (NCC)
Stockyard Creek,
Willi Willi, Yessabah
& Upper Hunter areas



NEW SOUTH WALES - 2

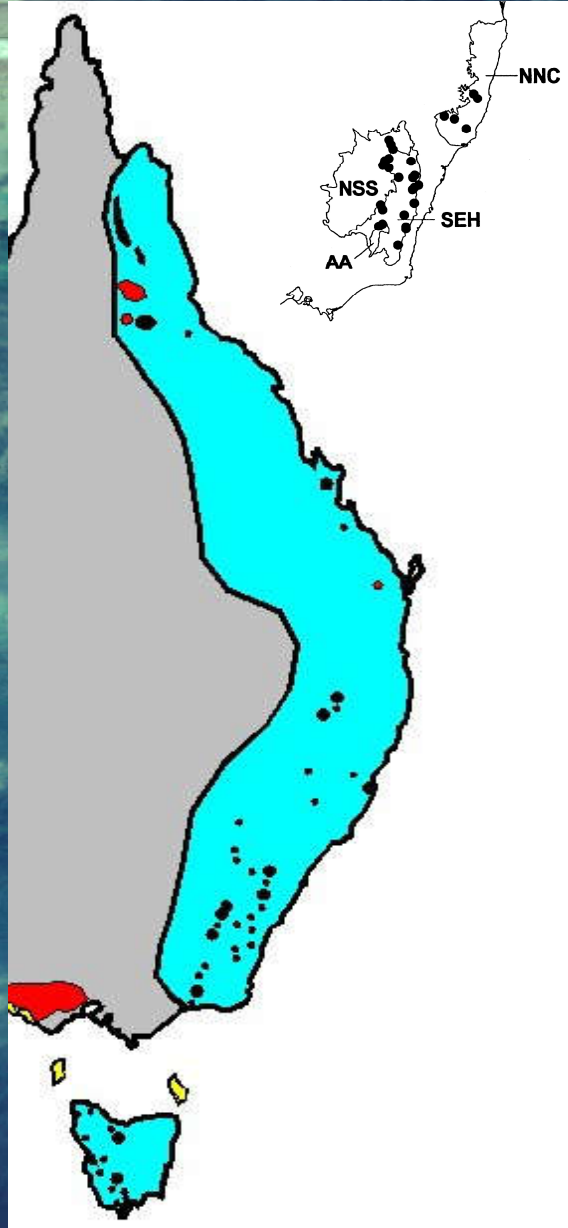
- South Western Slopes (NSS):
Wellington, Bakers Swamp, Bowan Park & Canomodine.



NEW SOUTH WALES - 3

- South Eastern Highlands (SHE):

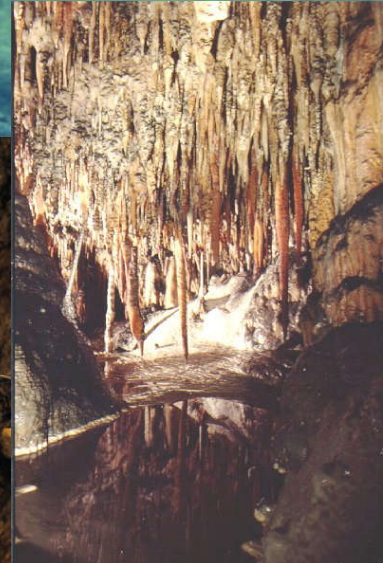
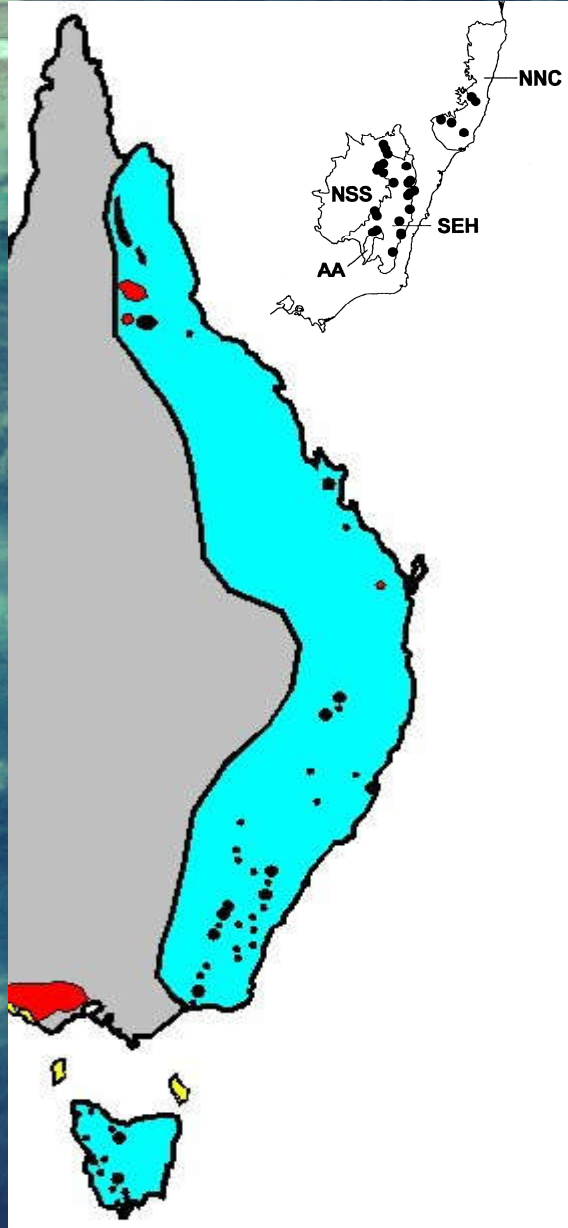
Wombeyan, Wee Jasper, Jenolan & Colong



Syncarid crustacean, Jenolan, New South Wales

NEW SOUTH WALES - 4

- Australian Alps (AA):
Coolleman &
Yarrangobilly



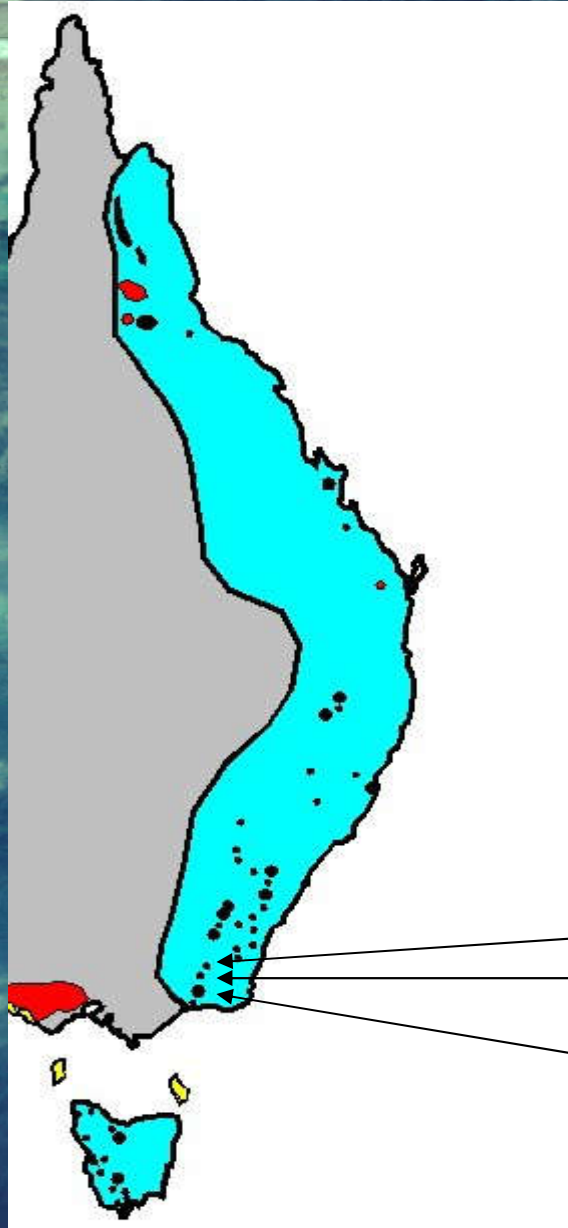
VICTORIA

?...

Indi (NSW)

Limestone Creek

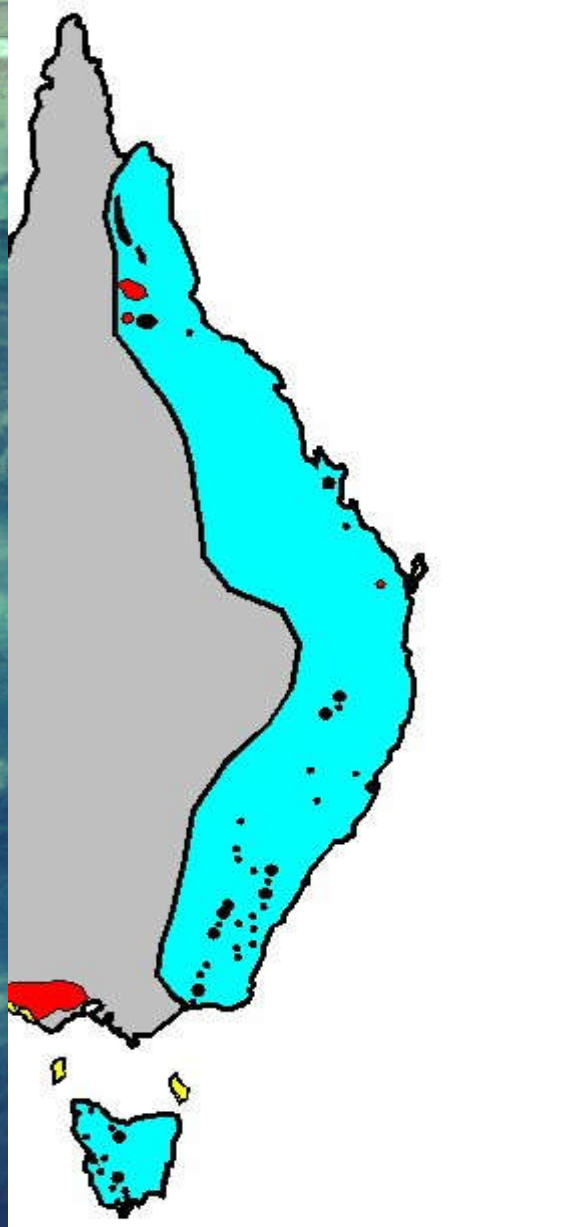
Buchan - Murrindal



VICTORIA

- Little or nothing is known about aquatic cave fauna here... but there are good sites!

Maybe
some of
these? →



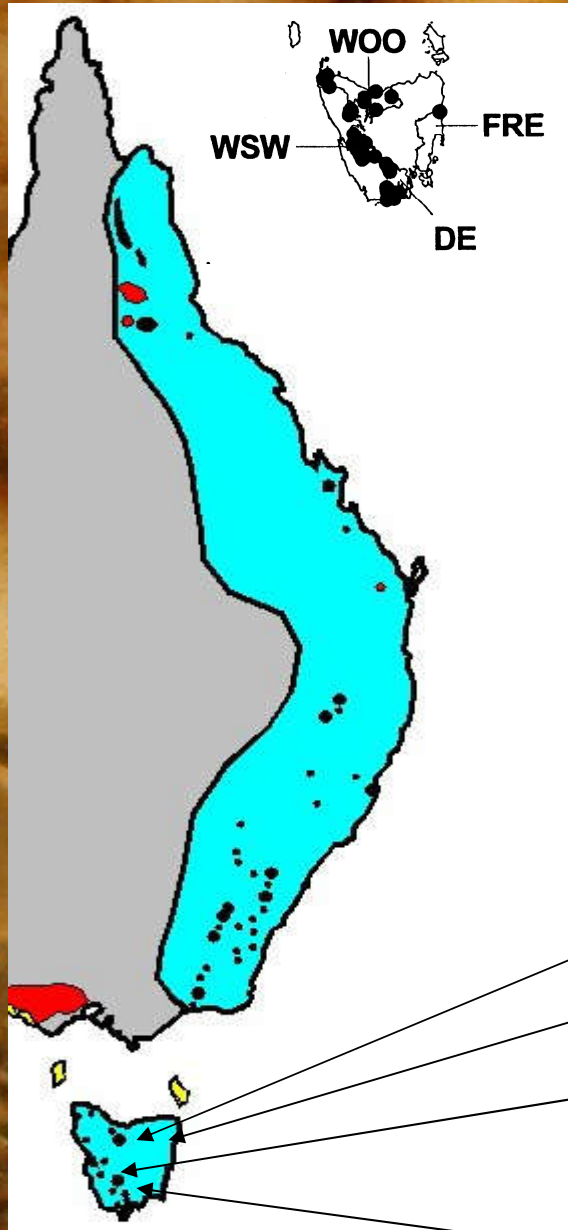
TASMANIA

Plentitude...

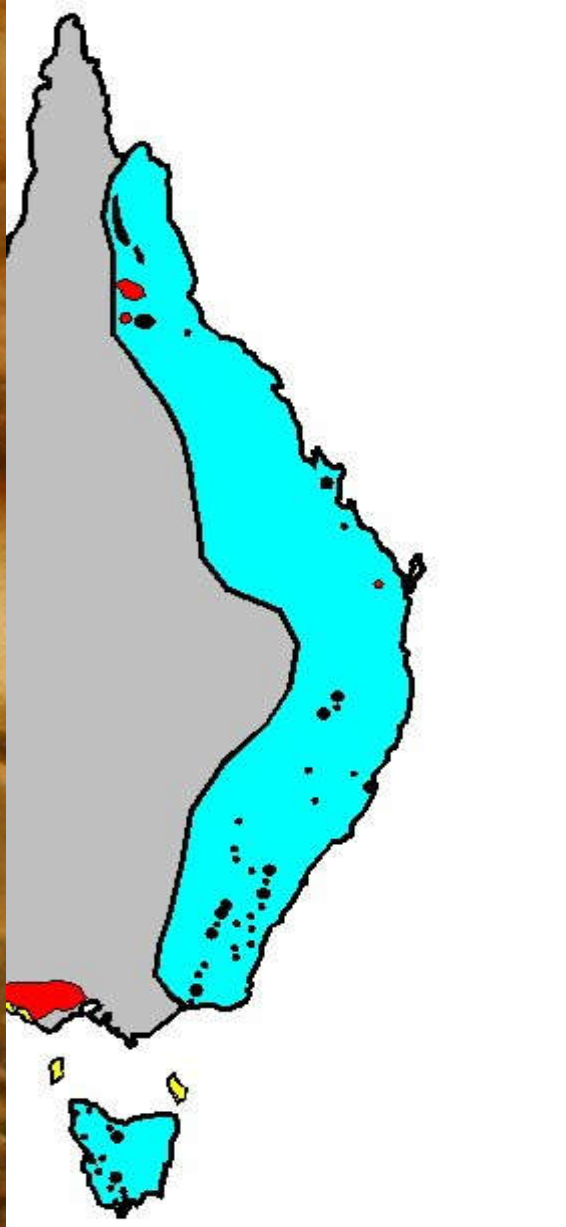
Mole Creek – Gunns Plains –
Loongana - Trowatta
Gray

Franklin – Bubs Hill – Precipitous
Bluff - Andrew

Ida Bay – Junee-Florentine – Hastings
– Craycroft



TASMANIA

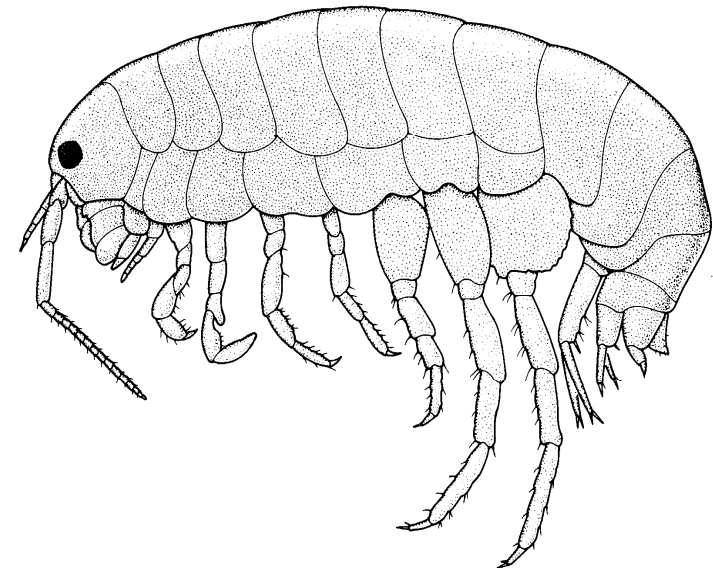
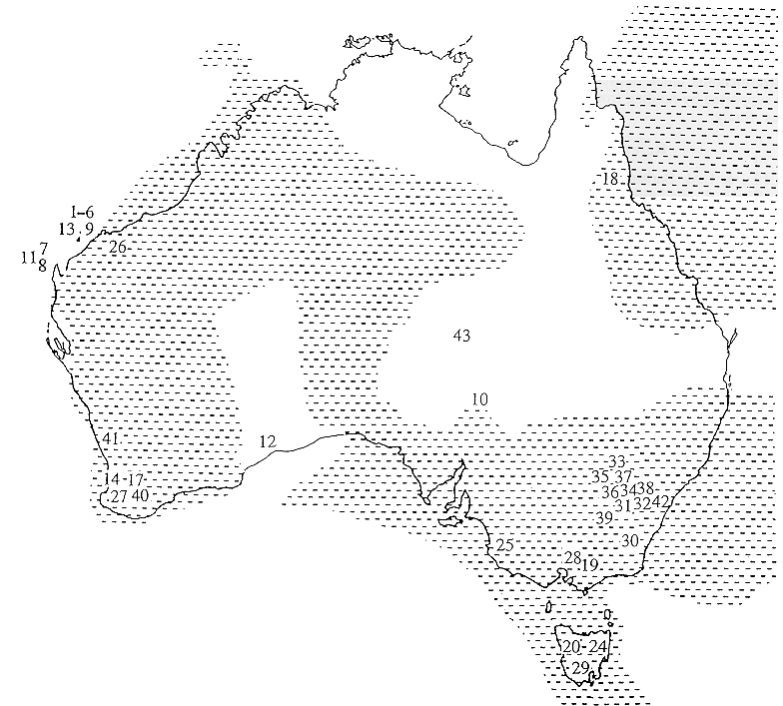


- **Woolnorth (WOO):** Mole Creek, Gunns Plains, Loongana etc
- **West and South West (WSW):** Franklin, Bubs Hill etc
- **D'Entrecasteaux (DE):** Ida Bay, Junee-Florentine, Hastings etc
- **Freycinet (FRE):** Gray



Connections: Distributions in an ancient continent

Distribution of known Australian stygobiont amphipods. Stippled area indicates landmass not inundated during the Cretaceous (119-114 million years ago) marine transgression. From Bradbury and Williams 1997.



Connections: Hyporheic & karst ecosystems





Ramsar Objective 1:

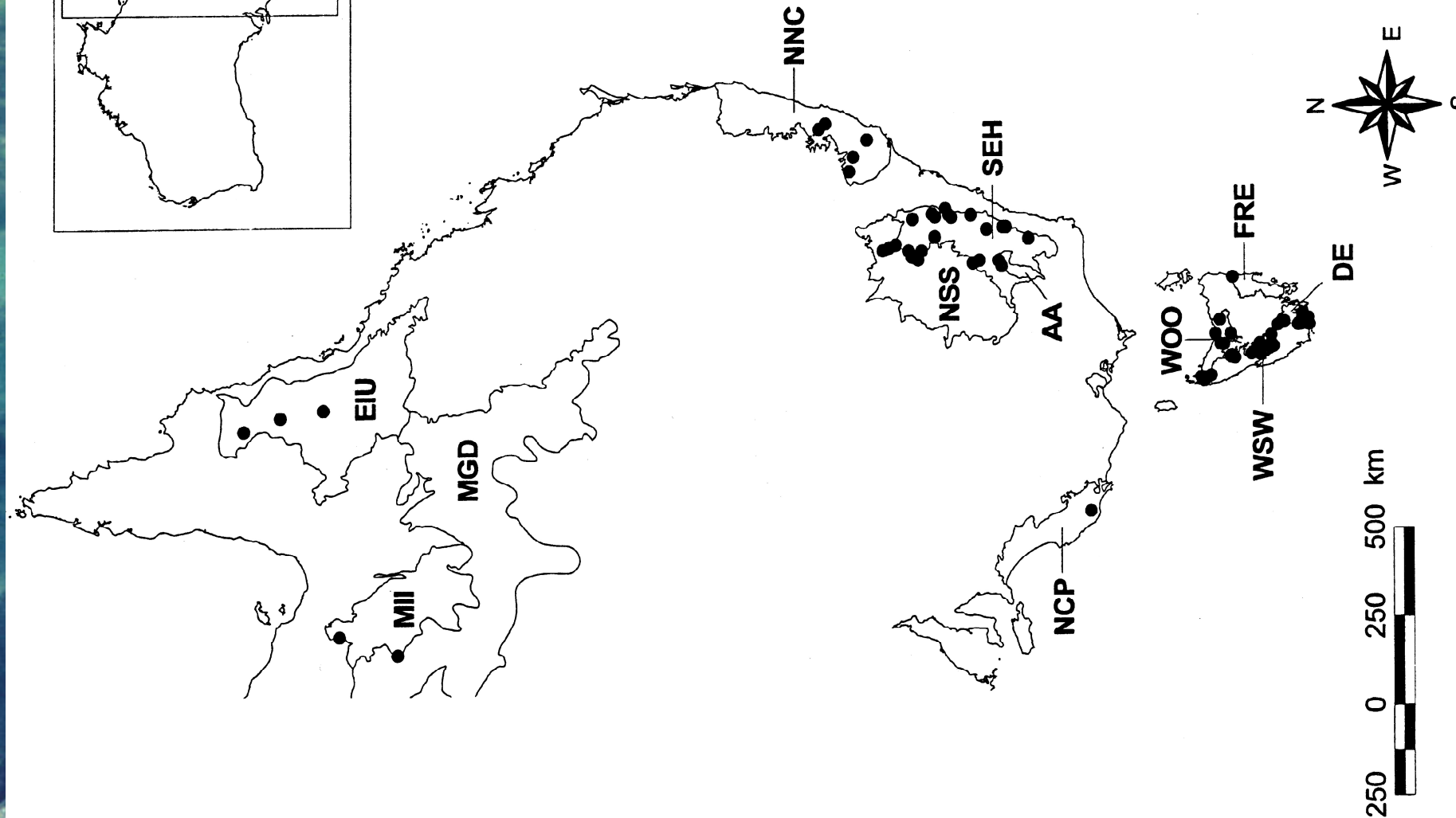
To establish national networks of Ramsar sites in each Contracting Party which fully represent the diversity of wetlands and their key ecological and hydrological functions.

- 1.1) To have included in the Ramsar List at least one suitable...representative... wetland type... present in each biogeographic region.

❖Wow!

- Lets look again at our eastern Australian stygofauna map and the nationally defined biogeographic regions...

Distribution of stygofauna sites in Eastern Australia (after Thurgate et al 2001).



A photograph of a wetland area. In the foreground, there is a body of water with a fallen tree branch extending into it. The water is dark and reflects the surrounding greenery. In the background, there is a grassy bank with some rocks and a small stream or pond. The overall scene is a natural, undisturbed wetland environment.

In light of the Eastern Highlands biogeographic regionalisation, which Australian subterranean wetlands could be considered for Ramsar designation?

Chillagoe & Undara

Macleay Valley and/or Upper Hunter

Wellington

Wombeyan

Wee Jasper

Cooleman

Tasmania – how to choose?

THREATS TO STYGOFAUNA

- Land clearing and sedimentation
- Water abstraction – mining
- Water abstraction – irrigation & sylviculture
- Pollution



A photograph of a cave pool with clear water and rocky, algae-covered floors. The water is a deep blue-green color, and the rocks are covered in green and brown algae. The background shows a rocky cave wall with some green vegetation.

ACKNOWLEDGEMENTS

- Images courtesy of the late Joe Jennings, Arthur Clarke, Ken Grimes, John Bradbury, NSW NPWS, Keir Vaughan-Taylor, Peter Serov, Mia Thurgate & Andy Spate.
- This presentation is based on Thurgate et al 2001 *Stygofauna diversity and distribution in Eastern Australian cave and karst areas*.

THE END!

