

**VETIVER GRASS FOR SALINE LAND
REHABILITATION UNDER TROPICAL
AND MEDITERRRANEAN CLIMATE**

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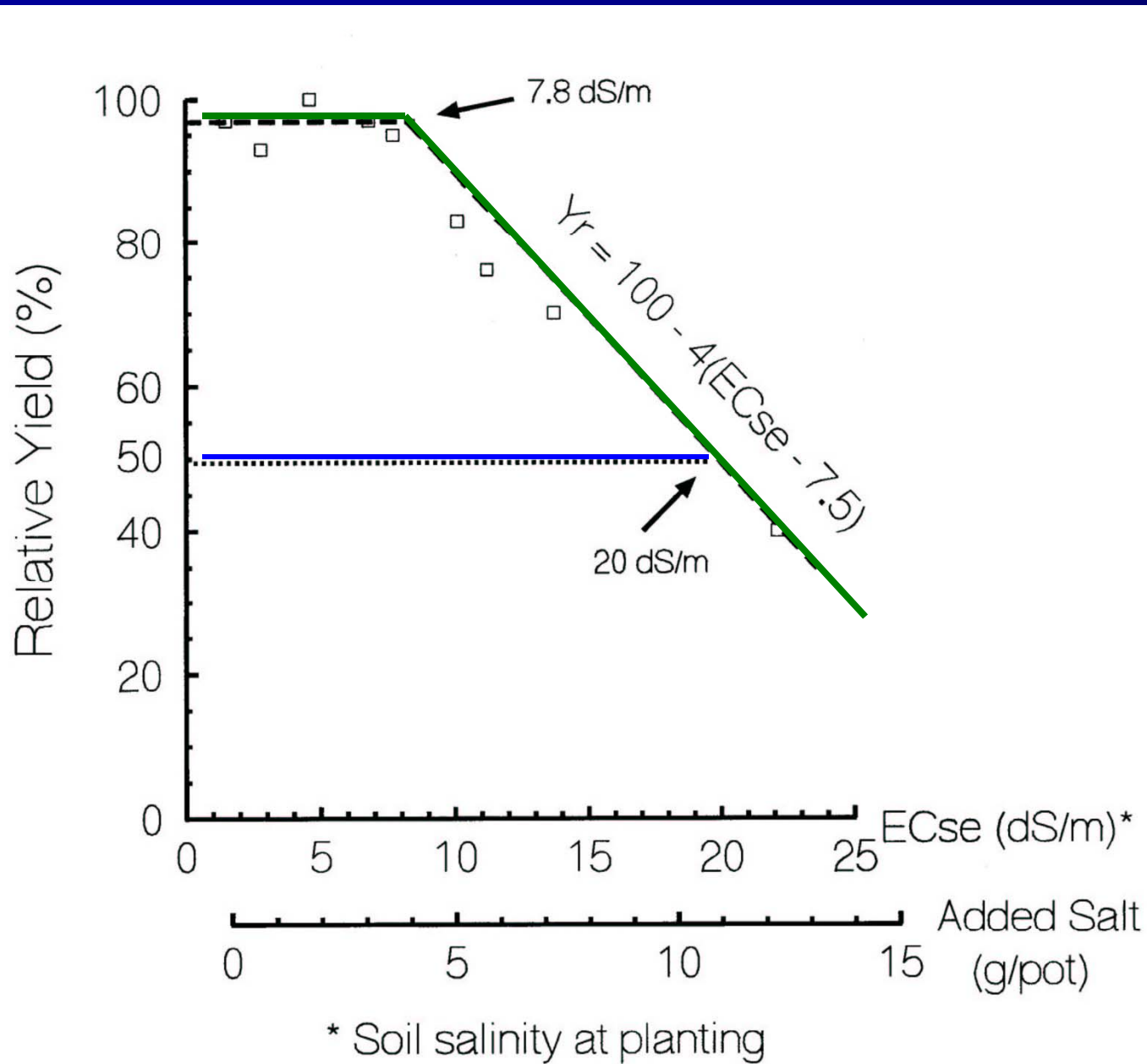
Kalgoorlie, W.A.

EXTRAORDINARY PHYSIOLOGICAL CHARACTERISTICS

Tolerant to:

- **High salinity and High sodicity**

Saline threshold of vetiver grass is at $EC_{se} = 8 \text{ dSm}^{-1}$



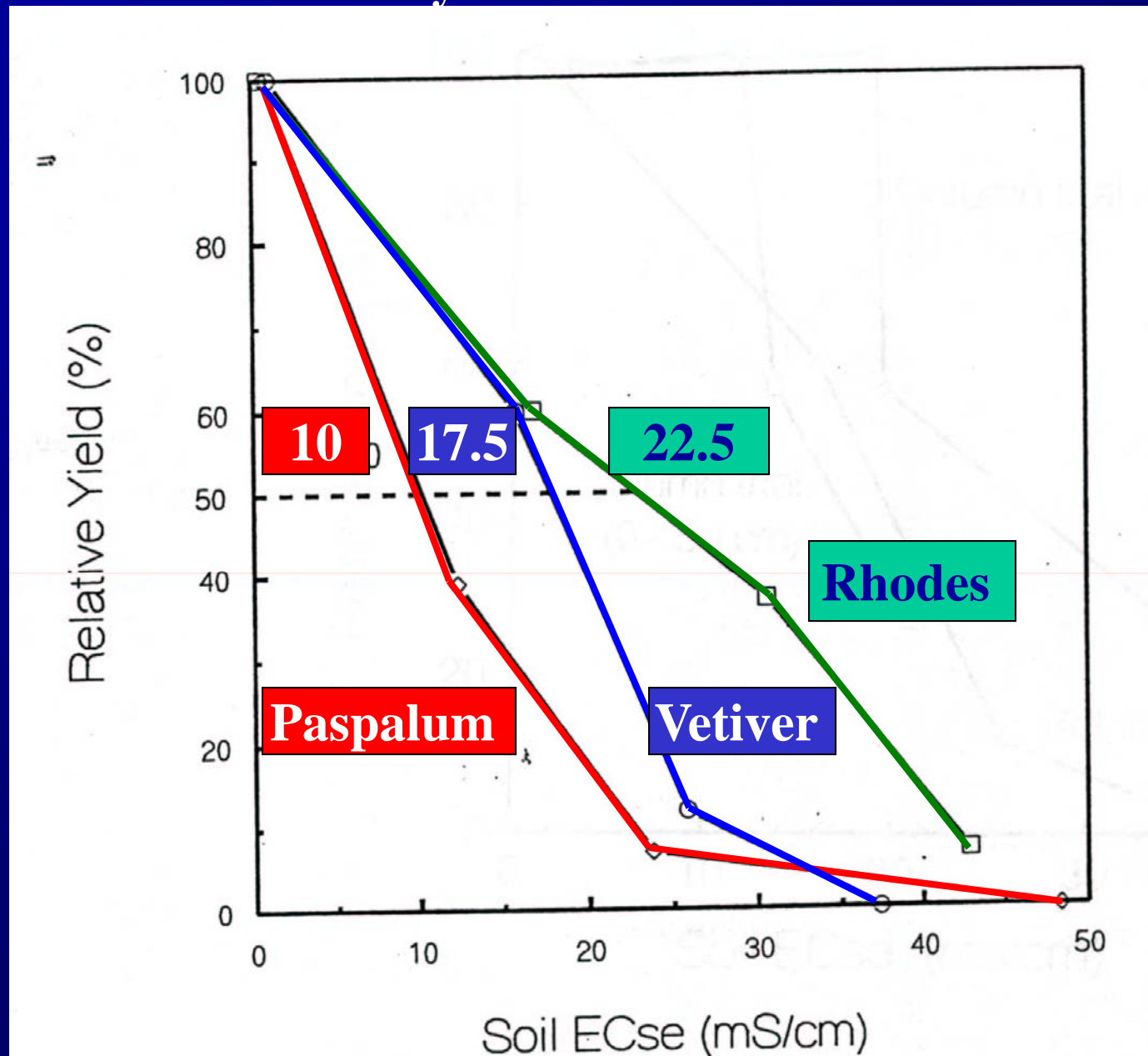
**Vetiver can survive at soil salinity level of $EC_{se} = 47.5 \text{ dSm}^{-1}$
under dryland salinity conditions**



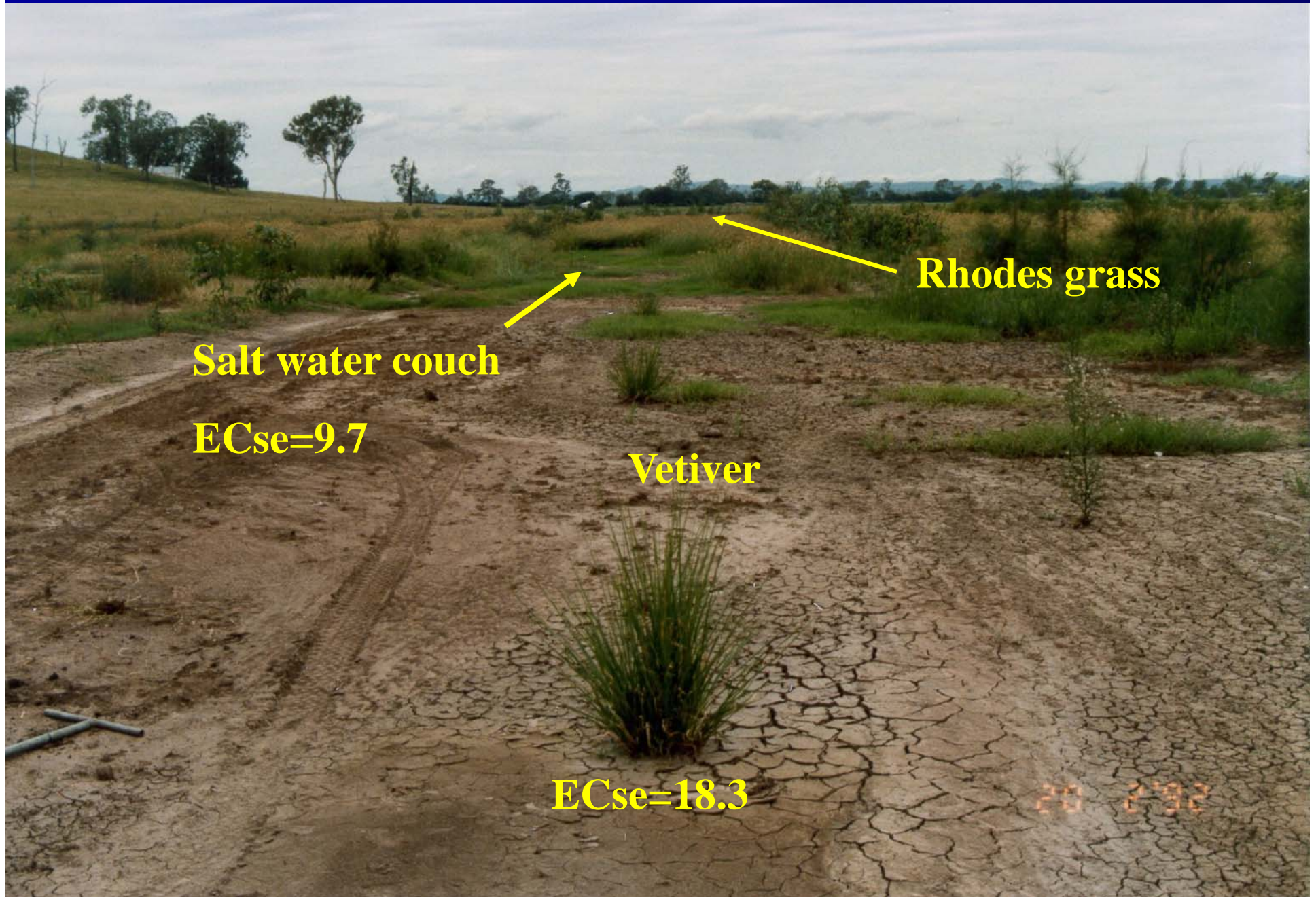
Salt tolerance level of Vetiver grass as compared with some crop and pasture species grown in Australia.

Species	Soil EC_{se} (dSm⁻¹)	
	Saline Threshold	50% Yield Reduction
Bermuda Grass (<i>Cynodon dactylon</i>)	6.9	14.7
Rhodes Grass (C.V. Pioneer) (<i>Chloris guyana</i>)	7.0	22.5
Tall Wheat Grass (<i>Thynopyron elongatum</i>)	7.5	19.4
Cotton (<i>Gossypium hirsutum</i>)	7.7	17.3
Barley (<i>Hordeum vulgare</i>)	8.0	18.0
Vetiver grass (<i>Vetiveria zizanioides</i>)	8.0	20.0

Comparative salinity tolerance levels of 3 grasses at 50% yield reduction



Vetiver can tolerate almost twice as much salt as salt water couch



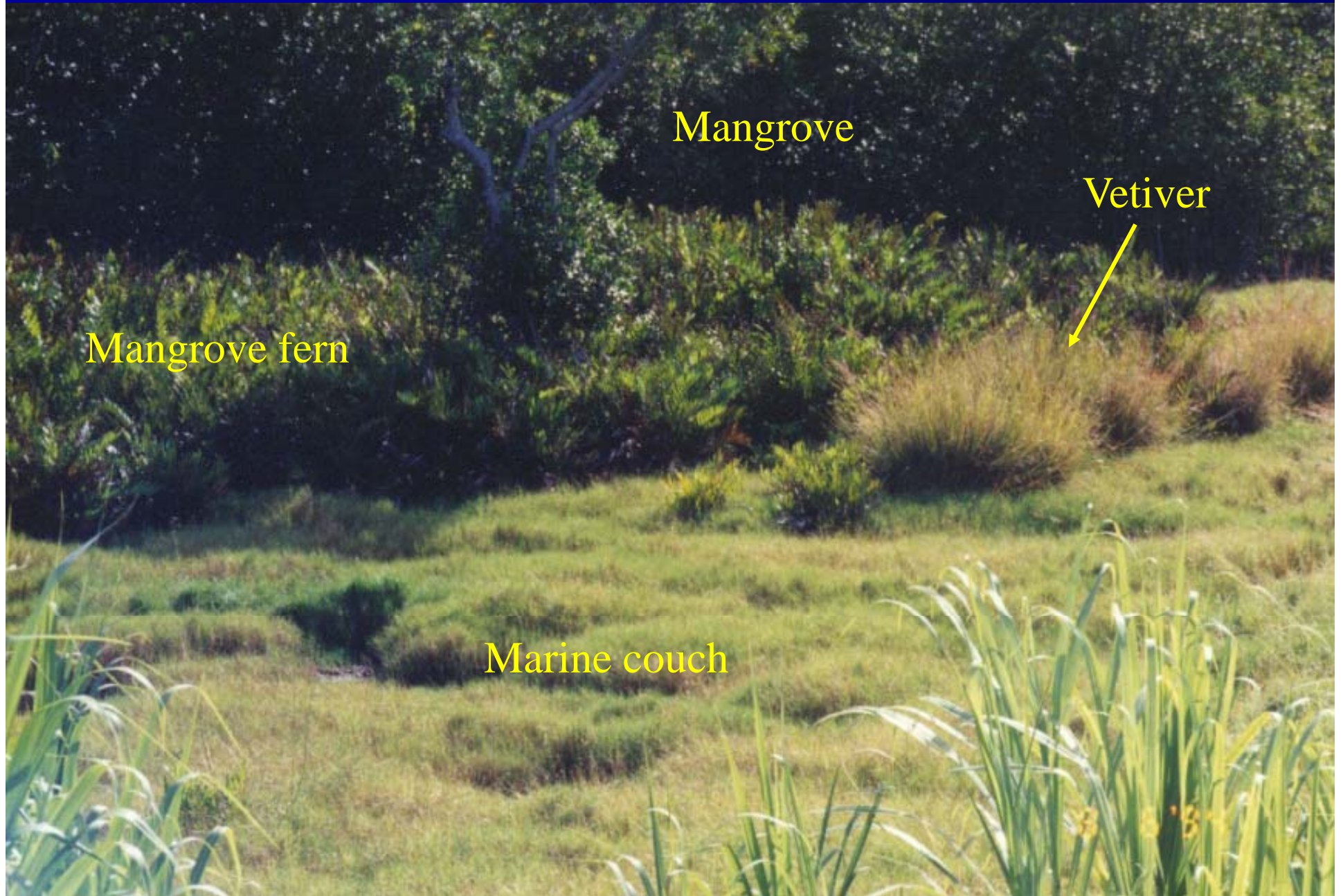
Coomera riverbank stabilisation (brackish), Queensland



18 months later mangrove seedlings growing between vetiver rows



In Fiji vetiver growing next to a mangrove tidal flat



Mangrove

Vetiver

Mangrove fern

Marine couch

SALINE LAND REHABILITATION IN KALGOOLIE

WESTERN AUSTRALIA

Highly saline Gribble Creek flat in Kalgoorlie





**Initial drip irrigation is
needed for
establishment. Soil
EC_{se} = 10 - 46 dSm⁻¹
and pH = 7.1 - 7.7**

Vetiver still thrived 4 weeks after planting, but unfortunately the trial was stopped due to vandalism



SALINE SEEPAGE CONTROL

VICTORIA

Vetiver used to control saline seepage at this orchard at Swan Hill, Victoria



Salt patches

CONCLUSION

- **Monto Vetiver grass has demonstrated its ability to establish and thrive under highly saline conditions in general. But it has been shown to be particularly effective in area where the saline water table is high.**
- **On grazing lands in WA, SA, Victoria and southern NSW, due to its fast growth in warmer months, vetiver can be used as a ‘green pick’ during the summer where it has been planted in hedgerows for soil and water conservation on high points in the landscape or in area set out for ‘drought feed’**
- **On cropping lands Vetiver hedges can also be used for soil and water conservation, and sediment control particularly where gully and stream bank erosion is a problem.**
- **On sloping land it can be used to reduce saline seepage and as a pioneer species to stabilise erodible sites first and then rehabilitate with native or plantation species later.**
- **Due to their seediness, albeit very low, the use of vetiver cultivars from Kununurra is not recommended outside the Kimberley region.**