



# The Challenges of Managing Parks during Climate Change

Presented By Mark Collins  
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# Overview

If there is one thing we can all agree on, it is climate change is here! It is already causing irreversible damage to the planet.

## Temperature

- Australian av temps have increased 0.9°C since 1950.
- The frequency of hot days & nights has increased.
- The frequency of cold days & nights has declined.

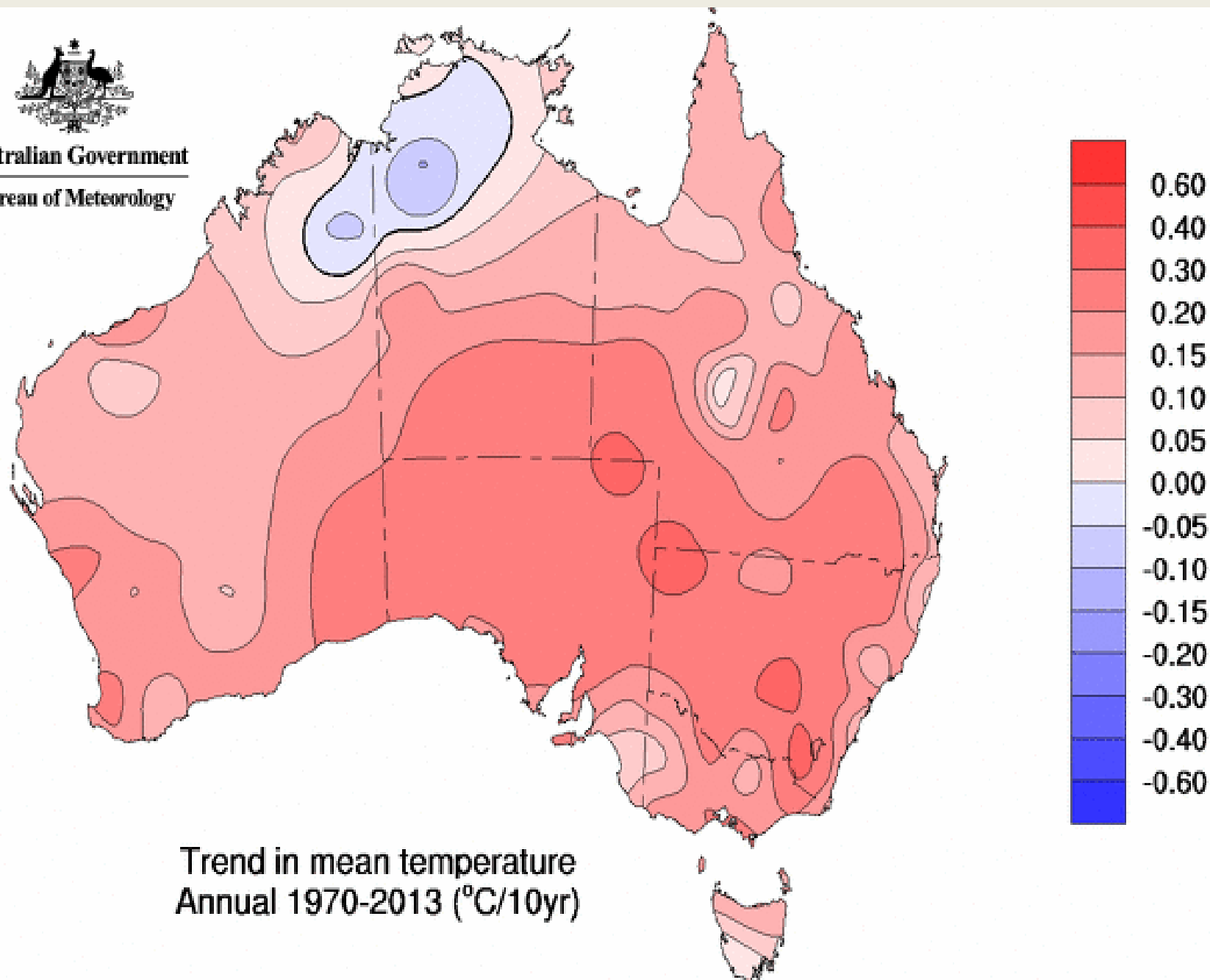
## Rainfall

- Have we really become wetter?
- From 1950 to 2005
  - extreme daily rainfall intensity & frequency has increased in north-western & central Australia & over the western tablelands of NSW,
  - but decreased in the south-east & south-west & along the central east coast.





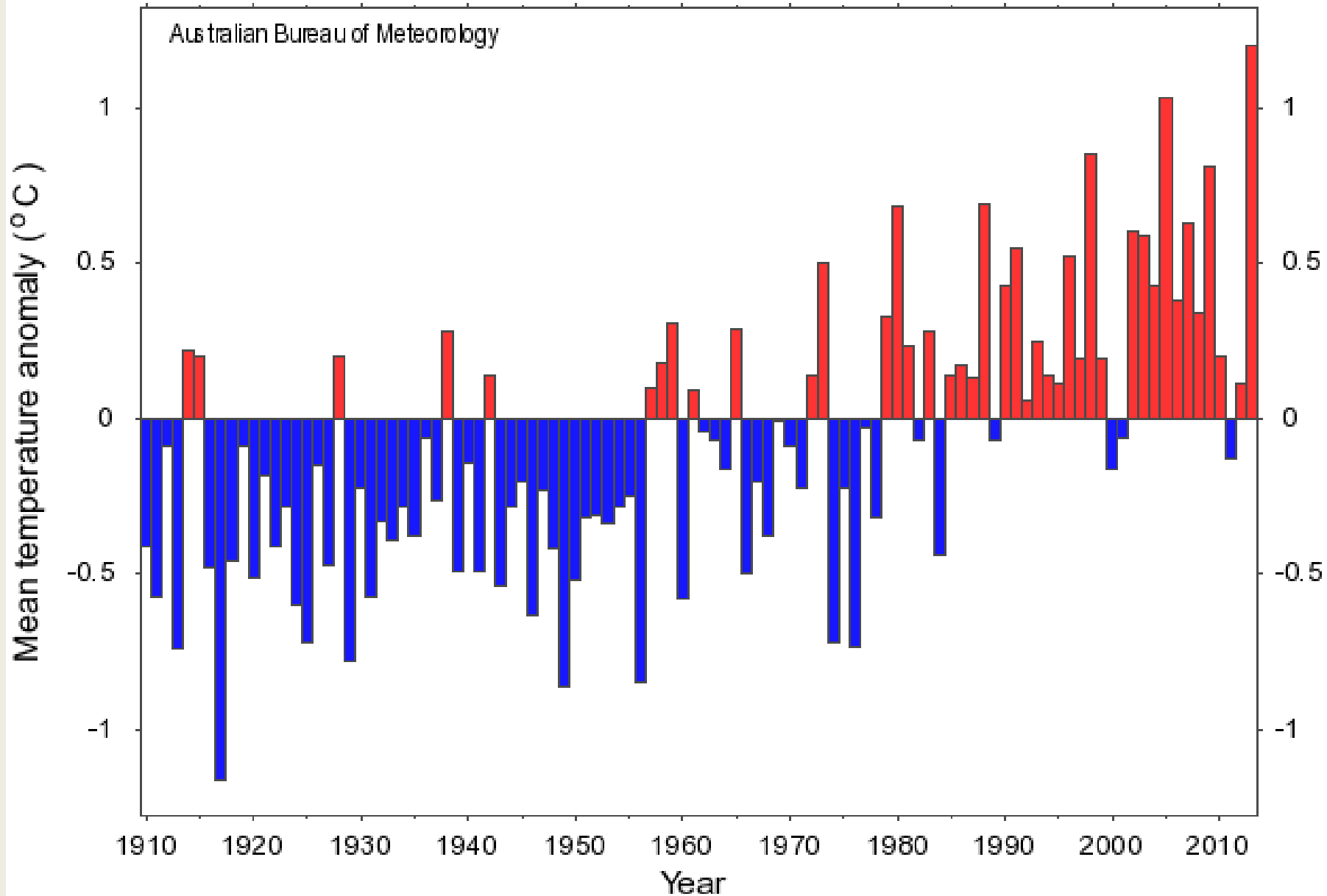
Australian Government  
Bureau of Meteorology



Trend in mean temperature  
Annual 1970-2013 (°C/10yr)

# Annual mean temperature anomaly - Australia (1910-2013)

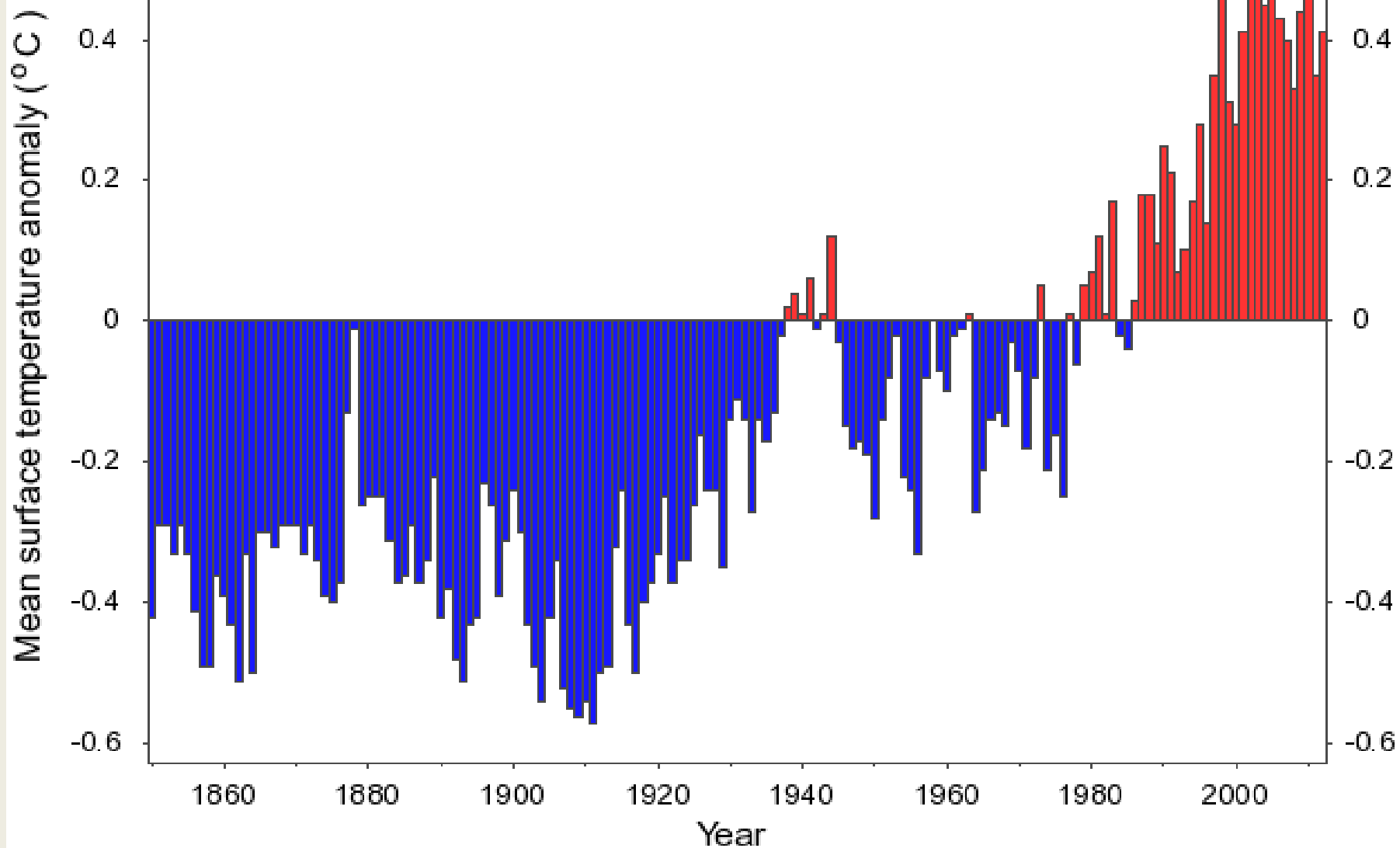
Australian Bureau of Meteorology



Based on a 30-year climatology (1961-90)

# Annual mean temperature anomaly - Global (1850-2012)

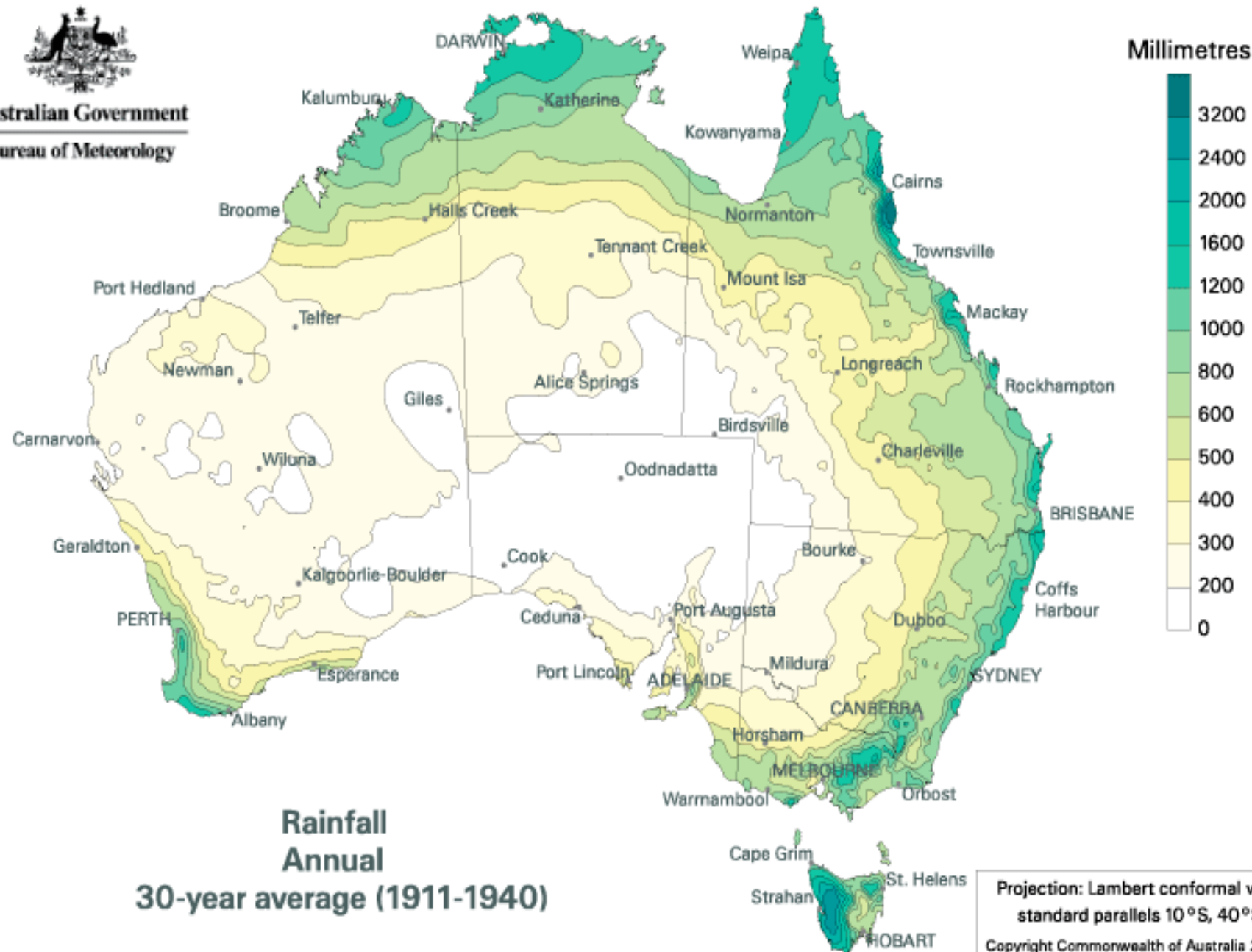
Australian Bureau of Meteorology



Based on a 30-year climatology (1961-90)



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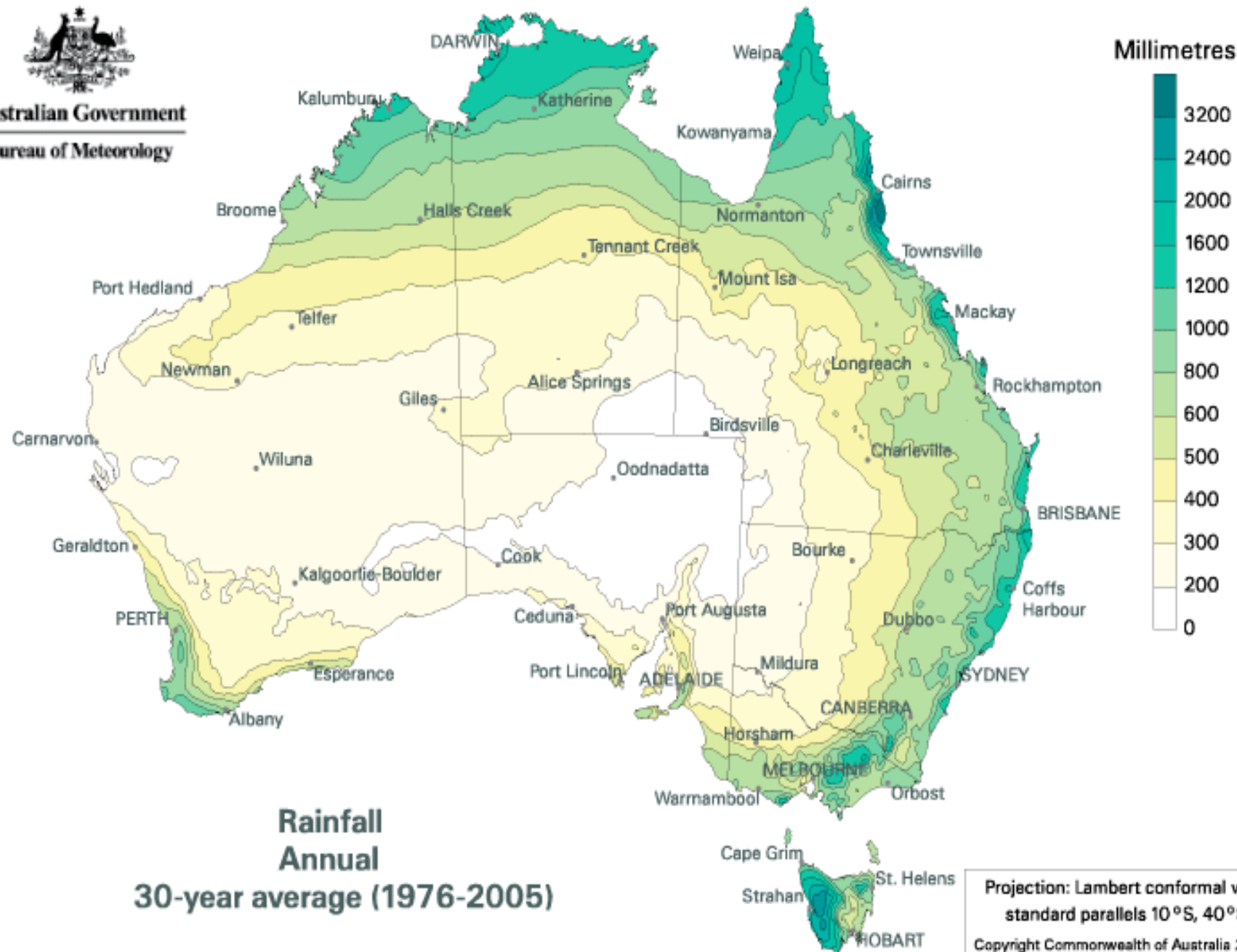


**Rainfall  
Annual  
30-year average (1911-1940)**

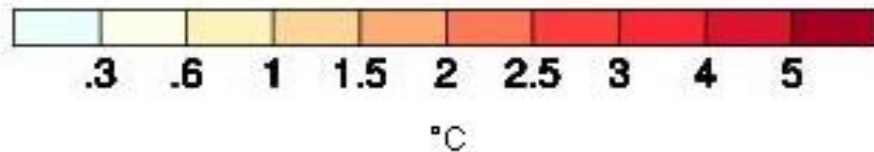
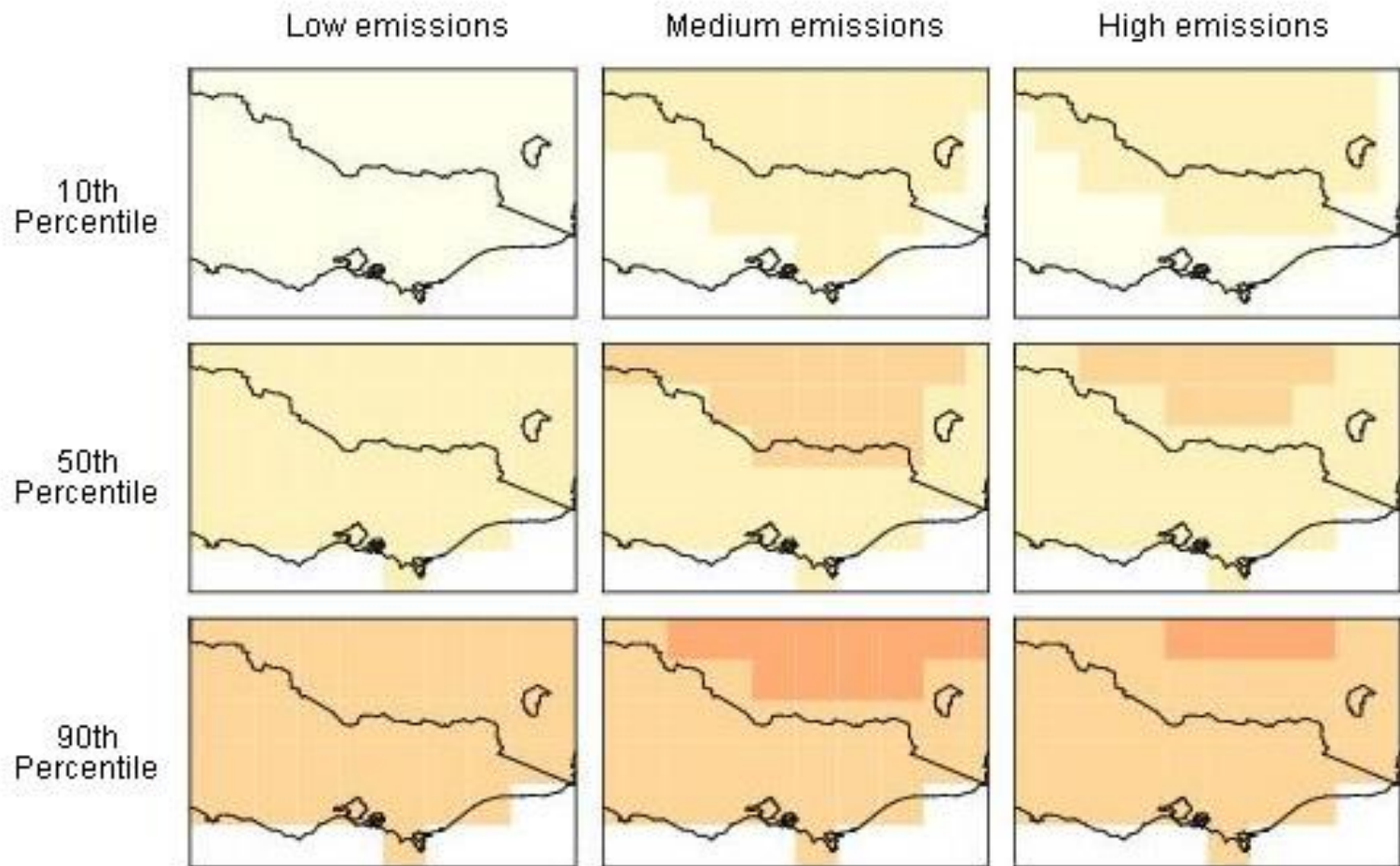
Projection: Lambert conformal with  
standard parallels 10°S, 40°S  
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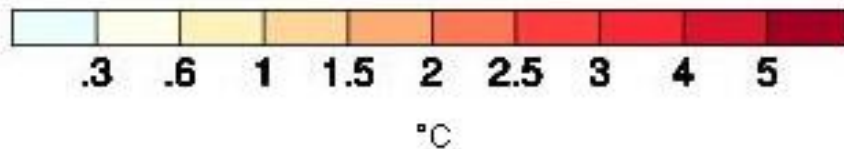
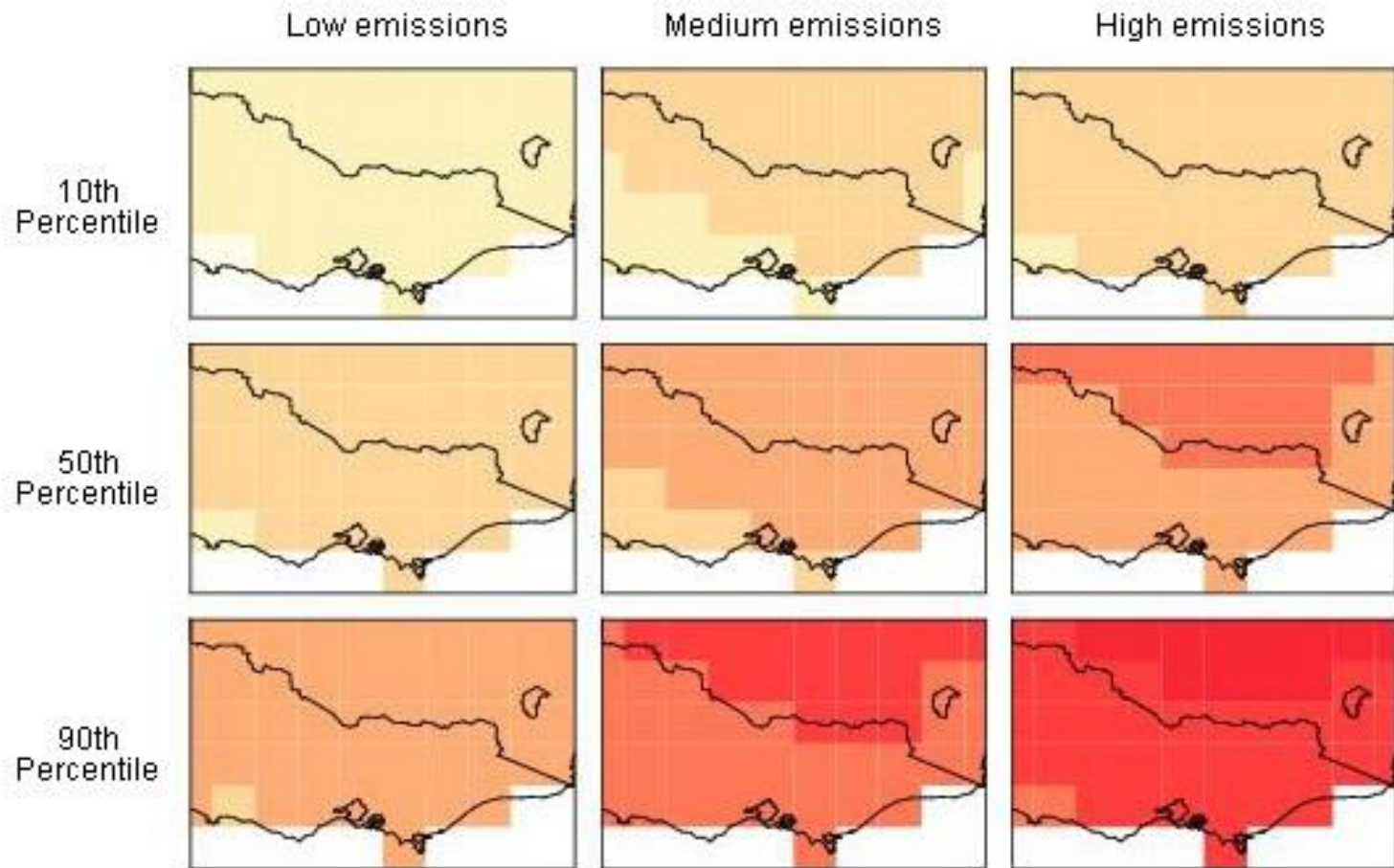


# Predictions of Temperature change 2030





# Predictions of Temperature change 2050



# So What?

- What does this mean for the Parks Manager?
- How will it effect the day to day operations?
- Will it mean a change in the way we maintain Parks into the future?
  
- 1/4/2014 *The Age* reported that Bright's Autumn festival scheduled for 25 April will only have a few trees showing autumnal colour.
- Prof Tim Entwistle (Dir of the Victorian Royal Botanic Gardens) suggests that summer is 4 months long and the other seasons 2!

# So What?

One thing for sure, we need to constantly change how we do things so our parks survive.

A world wide problem today is the “I have never known it to be so.....wet, dry, hot, warm, windy.....etc.”

The *Herald Sun* 30/01/2014, an article discussed the impact of long hot spells over 40° on the trees in the City of Melbourne and the stress related issues facing the managers.

Grass cutting is becoming a 2 season problem,

With the scarcity of water in summer, how do we keep it alive?

Overlay this with the heightened customer expectations & tightening of resources,

We have a problem that is not going to go away.



# Areas of concern for the Park Manager

- Heavy rains causing Flooding or rapid run off
- Short Sharp periods of rain
- Extended dry periods
- Consecutive hot days
- Prolonged periods of drought
- Dying trees
- New weeds
- Grass Cutting
- How will the garden Grow
- High Fire danger



# Areas of concern for the Park Manager

- Rising cost of labour
- Heat stress of employees
- Rising Cost of energy
- Excessive strain on equipment i.e. boggy/dusty conditions
- Types of equip required
- Customer expectations
- Crowded Beaches



# Thoughts and Ideas

- Park Design
- Species selection, constantly review what you are planting
- Slow the transfer of weeds
- Grass Cutting
- Warmer temps
- Fire, not limited to the country.



# Thoughts and Ideas

- Change the way you engage labour
- Remove heat stress from working hours
- The most efficient machines are needed
- Get equipment right for the terrain or experience the pain!
- Educate schools & the community around parks, their survival & their usage
- Manage foreshores & beaches;



Thank You

Questions



# Last Priority!

- Coffee has soared 70% in 6 months, due to poor supply from areas affected by drought.
- Rain fall patterns and the spread of pest & disease will reduce the areas where coffee can be grown!

