

Mangrove Conservation: A Source of Sustainability and Sustenance in Australia

Dr Janine Pierce & Roy Palmer



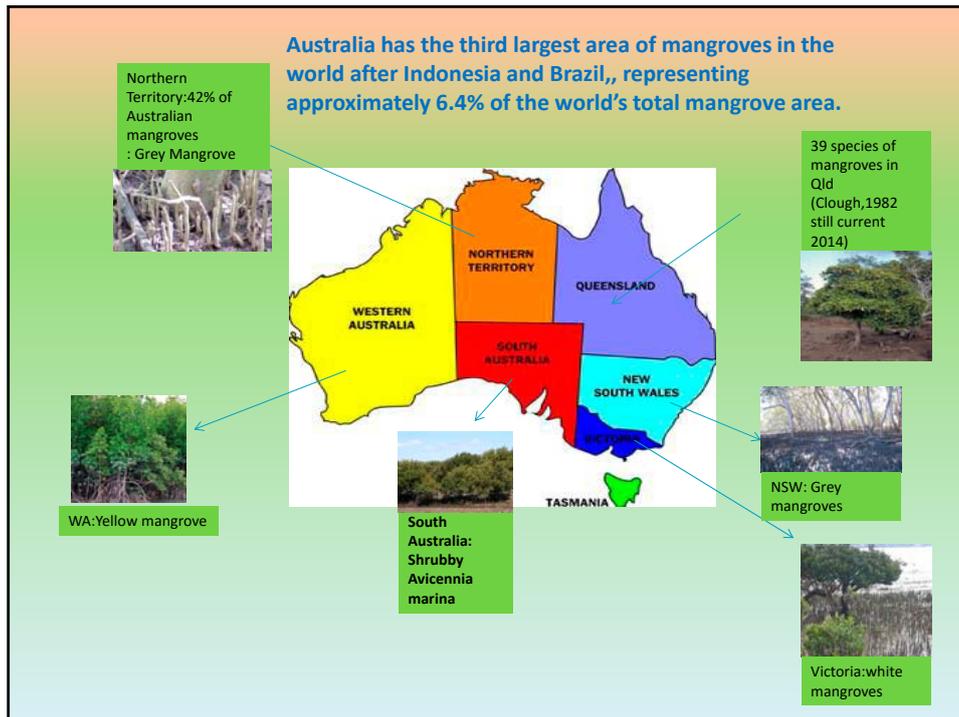

FishAdapt Conference August 2016-Mangroves stream

Mangroves in Australia

- Australia (island continent) surrounded by around 11,000 km of mangrove lined coast, nearly 18% of the coastline. Varied types from forests of accessible parklands in South Australia (*Avicennia marina*) to nearly impenetrable high rooted (*Rhizophora species*) on northern coast




Avicennia marina *Rhizophora species*



Mangrove loss and Preservation

Approximately **17%** of **Australia's** mangroves have been **destroyed** since European settlement, with mangroves near developing centres being removed and destroyed for land reclamation

Many see mangroves as wasteland: do not understand impact on ecosystem

Mangrove loss and Preservation

- Approximately **17% of Australia's mangroves have been destroyed since European settlement**, with mangroves near developing centres being removed and destroyed for land reclamation
- *Many see mangroves as wasteland: do not understand impact on ecosystem*
- **However: Clearing of mangroves prohibited in some States, all mangroves are protected plants,**
- *No species of mangroves are currently considered at threat unless: **Climate change***

What lives in Australian Mangroves?

Around 70 species of fish in mangrove creeks & rivers

24 species of polychaete worms

Insects

230 species of birds

100 species of molluscs (75% are gastropods)



Black-necked Stork hunting in intertidal wetland with mangrove at Urunga Heads, NSW (Wetlands bird habitat n.d.)

Sea snakes

70 species of Crustaceans (65% crabs, rest being prawns & shrimps)

Monitor lizards

Mangroves: A place for threatened species in Australia

- Mangroves provide an **ecosystem** in which threatened species live.
- Threatened species including: the *estuarine crocodile*, *rusty monitor*, *False water rat*, *Beach stone curlew*, *Illidge's ant-blue butterfly*, *ant plant*, *mangrove orchid*



Nearly 10,000 hectares of mangroves have died across an area of coastline reaching from Queensland to the Northern Territory.



"It's a world-first in terms of the scale of mangrove that have died," (Dr Norm Duke, mangrove expert, 2016). **Climate change is an increasing threat** (Ellison, 2015; Gilman et al, 2008) Health of mangroves has a significant impact on the commercial and amateur fishing industry in Australia. Therefore: we need to **watch, see, document, share** and **see** what is happening, and **do what we can together to conserve mangroves!**

Mangroves: Homes for threatened species

- Until around 200 years ago Aboriginal and Torres Strait Islander communities of coastal areas managed all of Australia's mangroves sustainably: mangroves a centre for *culture, food, fish, healing, timber*)



mangroveswatch.org.au

Today in Northern Territory **Aboriginal communities own & manage 85% of coastal land**

- *Three levels of government: local, state, federal)*
- Community organisations



Who cares for Australian mangroves?

- Universities
- Governments
- Australian Institute of Marine Science
- Commonwealth Scientific & Industrial Research Organization
- National Heritage Trust
- National Resource Management groups
- **COMMUNITY MEMBERS**



PGLC mangrove coast field trip - a port gawler aj n.d

Who cares for Australian Mangroves?

- Researchers from the University of Queensland are involving local community in research. The ***Mangrove Watch*** project trains local people from sailing enthusiasts to farmers to ***video*** the shoreline and estuarine mangroves from boats. Back in the lab, the ***videos are analysed*** by researchers and volunteer students to establish a baseline of mangrove health.



Mangrove Watch (Australia)



- ***MangroveWatch*** has a close partnership between ***community volunteers and scientists*** from the James Cook University's Mangrove Hub.
- ***Goal:*** *To develop a network of like minded groups that compile public documents describing important issues affecting local estuaries and mangroves, and their overall health.*
- ***What they do:*** Systematically recording basic data as video and still imagery for assessments of estuarine habitat health.

Community members in Australia are also encouraged to contribute to mangrove science and conservation

The credit for the new discoveries rests with a single citizen scientist: Mr Kudo. He used a local species guide, the 'Australia's Mangroves' book, and later, the World Mangrove ID app, proving that such primary sources do their job.

Citizen scientist discovers rare mangrove species



Hidetoshi Kudo

Communication and Information :Queensland example in *engaging community*



Website
Facebook
Workshops
Regular newsletters
Meetings
Field trips
Action groups

Awareness raising in community members: citizen scientists: *About 50 Haines Orange Mangrove Trees have been found at Trinity Inlet, near Cairns.*

The discovery, by Japan-born local Hidetoshi Kudo, has instantly increased their numbers by 20 per cent. Only 200 were previously known to be left in the world.

Mangrove Boardwalks in Australia



More than **30 boardwalks** spread through Queensland, New South Wales, South Australia, Northern Territory, Victoria
 Boardwalks **carefully located and constructed** allows visitors and conservation researchers to observe and appreciate this environment without trampling or impacting negatively on the mangrove ecosystem

Mangrove Boardwalks: Good for Community and Monitoring Mangroves

- Accessible area to **monitor coastal changes** to mangrove diversity, biomass & health of ecosystem
- **Controlled access** by boardwalk means minimal damage to mangrove habitat
- **Educational viewing** point & places for educational signage, bird watching
- Family & tourist **outings**
- Place in nature for **reflection**



Mangrove Walks



NSW: Cullendulla Creek Nature Reserve is home to mangrove estuary (grey and river mangroves), forest red gums, littoral rainforest, and sea grass beds. The reserve is also a fish nursery. Many birds: white ibises, curlews, two species of spoonbill and several of duck. Migratory birds come from as far away as Russia, taking refuge in the warm weather.



Daintree Rainforest Walk:
Queensland



South Australia: Entrance and
information centre to St Kilda
mangrove walk

Australia & all Countries: What is needed?

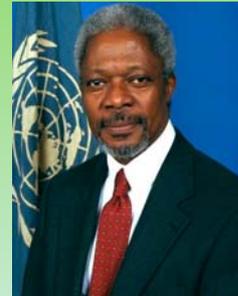
- **Partnerships** for knowledge & skill sharing
- **Community engagement** comes first with a sense of community ownership and being able to participate in effort, skills, knowledge sharing
- **Commitment** within the community= the chances of long-term sustainability of mangrove conservation
- **Community-based conservation initiatives**



bucks.org.au

In caring for mangroves or the wider ecosystem of which humans are a part:

"Let us be good stewards of the Earth we inherited. All of us have to share the Earth's fragile ecosystems and precious resources, and each of us has a role to play in preserving them. If we are to go on living together on this earth, we must all be responsible for it."



Kofi Annan (Ghanian Diplomat, 7th UN Secretary-General, 2001 Nobel Peace Prize Winner, 2003 Sakharov Prize for Freedom of Thought, The Elders)

Take Home Messages

- Community have a role to play in mangrove conservation impact of climate change seen quite strongly in mangroves dying in Australia.
- Coastal schools should be provided with specific resources to make them the future custodians (AwF will follow up on this)
- Mangroves in Australia are mostly protected but not much restoration occurring.
- Mangroves provide many things from a sustainable ecosystem, place to learn about nature and place to go to for restoring our sense of spirit and to allay stress.
- Recent research has just proven nature in the form of mangroves is needed for humans' wellbeing
- Boardwalks and their role for safe access into mangroves to observe, measure, knowledge and recreation
- Need to promote, engage, educate and communicate

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