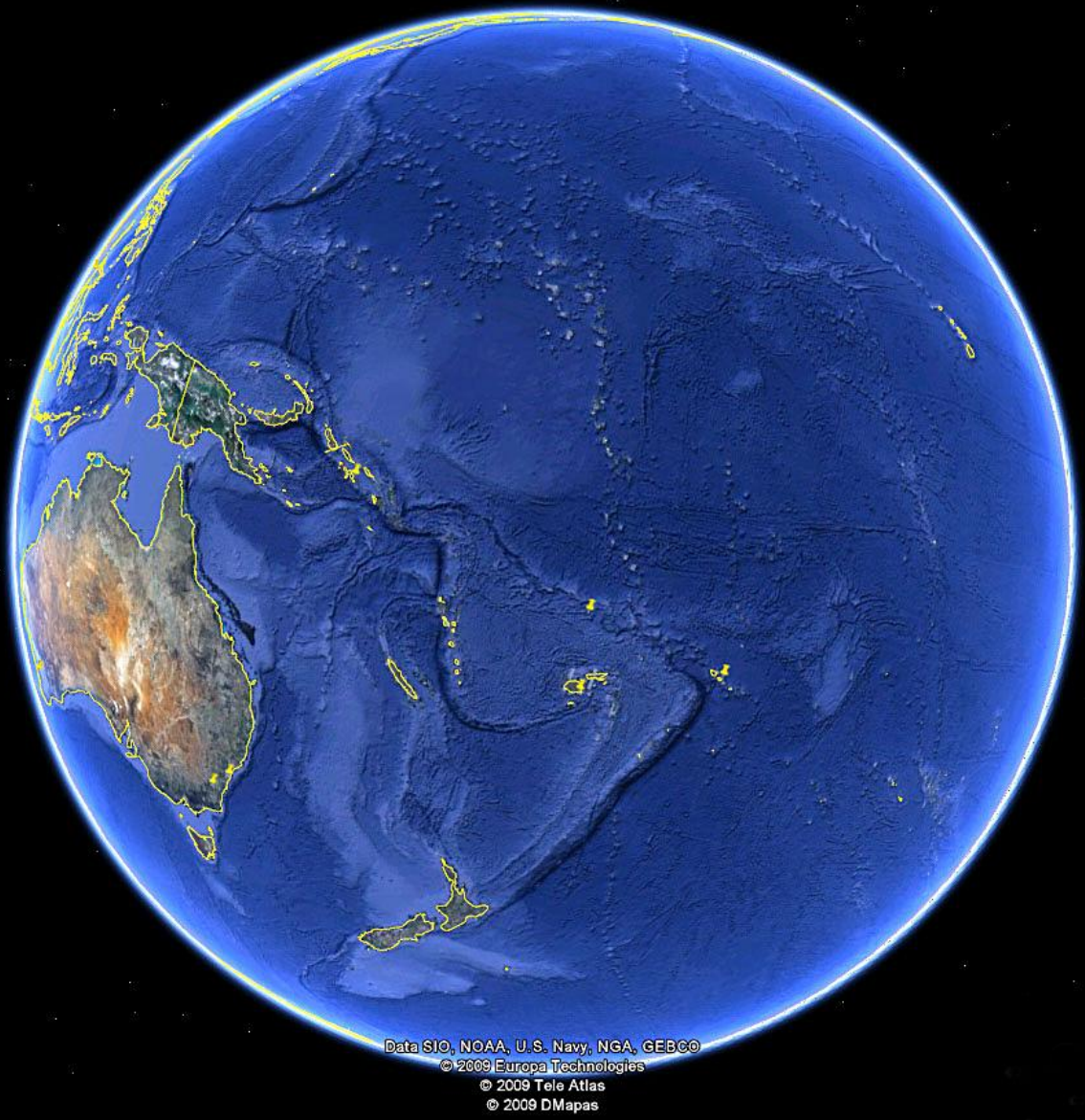

Pacific Regional PoWPA Meeting
9-12 September 2009
Pacific Protected Areas:
Issues, Needs & Opportunities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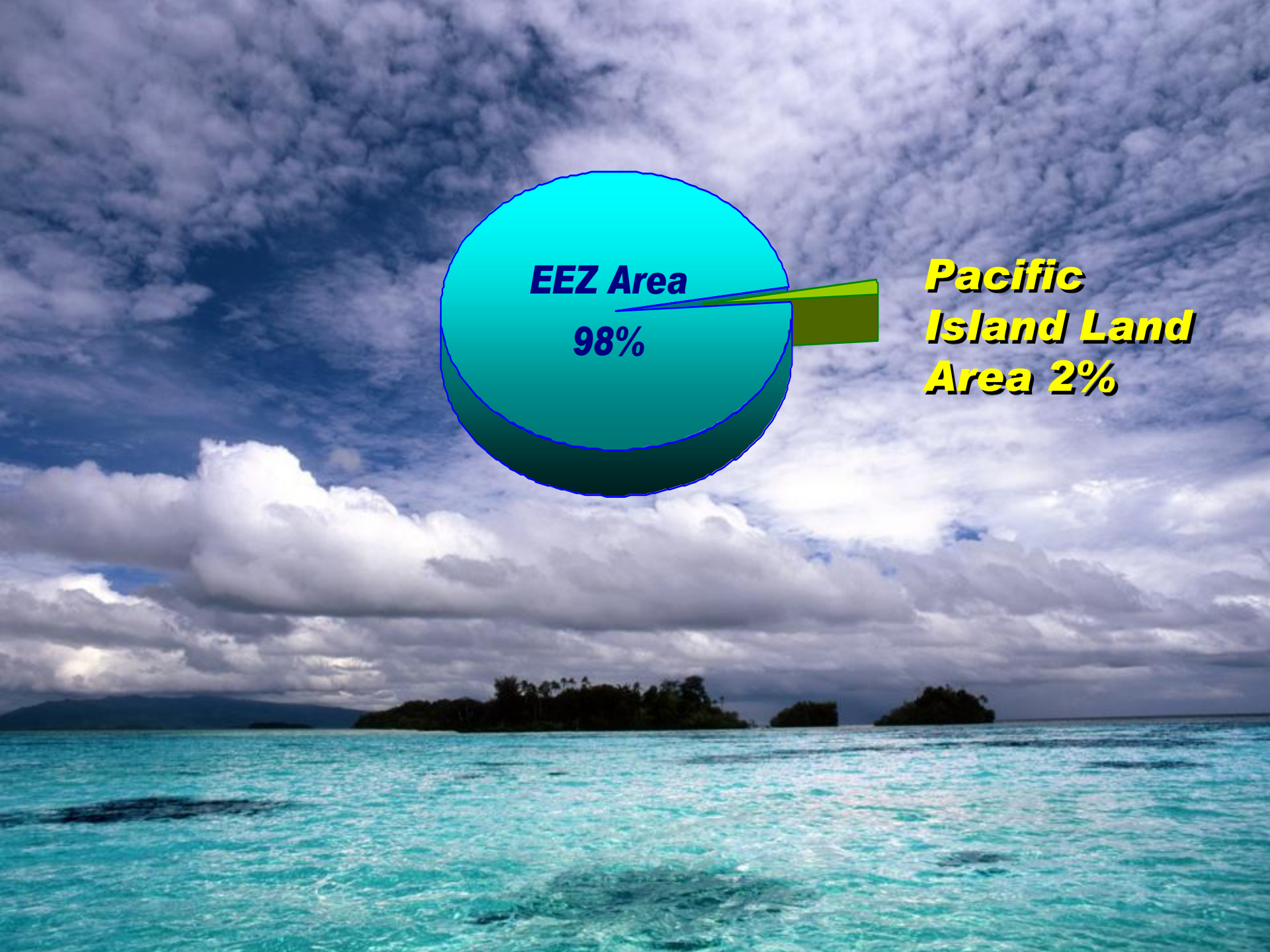
The Pacific Islands Region

Philippine Sea
NORTHERN MARIANA ISLANDS
SAIPAN
GUAM
WAKE ISLAND
International Date Line
Honolulu
HAWAII
JOHNSTON ATOLL
North Pacific Ocean
ENEWETAK
MARSHALL ISLANDS
YAP
PALAU
KWAJALEIN
FEDERATED STATES OF MICRONESIA
CHUUK
POHNPEI
MAJURO
KOSRAE
LINE
KIRITIMATI
KIRIBATI
TARAWA
NAURU
BANABA
PAPUA NEW GUINEA
MANUS
Kavieng
Bismarck Sea
NEW IRELAND
NEW BRITAIN
Rabaul
Wewak
Madang
BOUGAINVILLE
Lae
Solomon Sea
Morobe
SOLOMON ISLANDS
SANTA ISABEL
MALAITA
Honiara
GUADALCANAL
SAN CRISTOBAL
Arafura Sea
Daru
Port Moresby
THURSDAY ISLAND
Samarai
SANTA CRUZ ISLANDS
TUVALU
FUNAFUTI
PHOENIX ISLANDS
ISLANDS
TOKELAU
MARQUESAS ISLANDS
Darwin
ROTUMA
WALLIS AND FUTUNA
SAMOA
Apia
Pago Pago
AMERICAN SAMOA
Coral Sea
ESPIRITU SANTO
VANUATU
MALEKULA
VANUA LEVU
FIJI
EFATE
Port Vila
VITI LEVU
Suva
VAVA'U
KINGDOM OF TONGA
Nuku'alofa
TONGATAPU
COOK ISLANDS
SOCIETY ISLANDS
AITUTAKI
RAROTONGA
NIUE
TUAMOTU ARCHIPELAGO
Papeete
TAHITI
FRENCH POLYNESIA
GAMBIER ISLANDS
Cairns
Townsville
Rockhampton
NEW CALEDONIA AND DEPENDENCIES
Noumea
LOYALTY ISLANDS
AUSTRALIA
Brisbane
South Pacific Ocean
AUSTRAL ISLANDS
RAPA
PITCAIRN
NORFOLK ISLAND
KERMADEC ISLANDS
LORD HOWE ISLAND
Newcastle
Sydney
Canberra
Adelaide
Melbourne
Tasman Sea
Auckland
NORTH ISLAND
NEW ZEALAND
SOUTH ISLAND
NORTH
Modified Cylindrical Projection
Map drawn by MAPgraphics, Brisbane, 1996


EEZ Area
98%
Pacific
Island Land
Area 2%

Island Ecosystem Diversity

Rich Terrestrial Biodiversity

3 Globally Recognized Biodiversity Hotspots covering 165 595 km² land area:

East Melanesia, New Caledonia, Polynesia-Micronesia

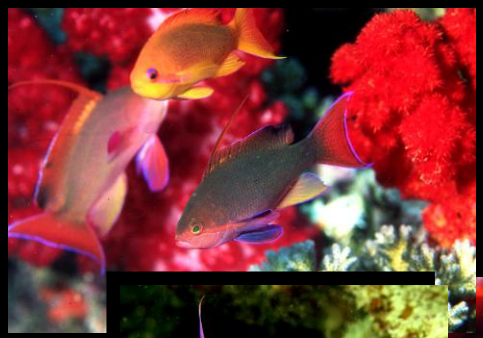
>8,500 endemic plants

Highest Global Marine Diversity

- 5 WWF outstanding coral ecoregions
- 3,000 species found on a single reef
- 50% of all identified seamounts are in the Pacific

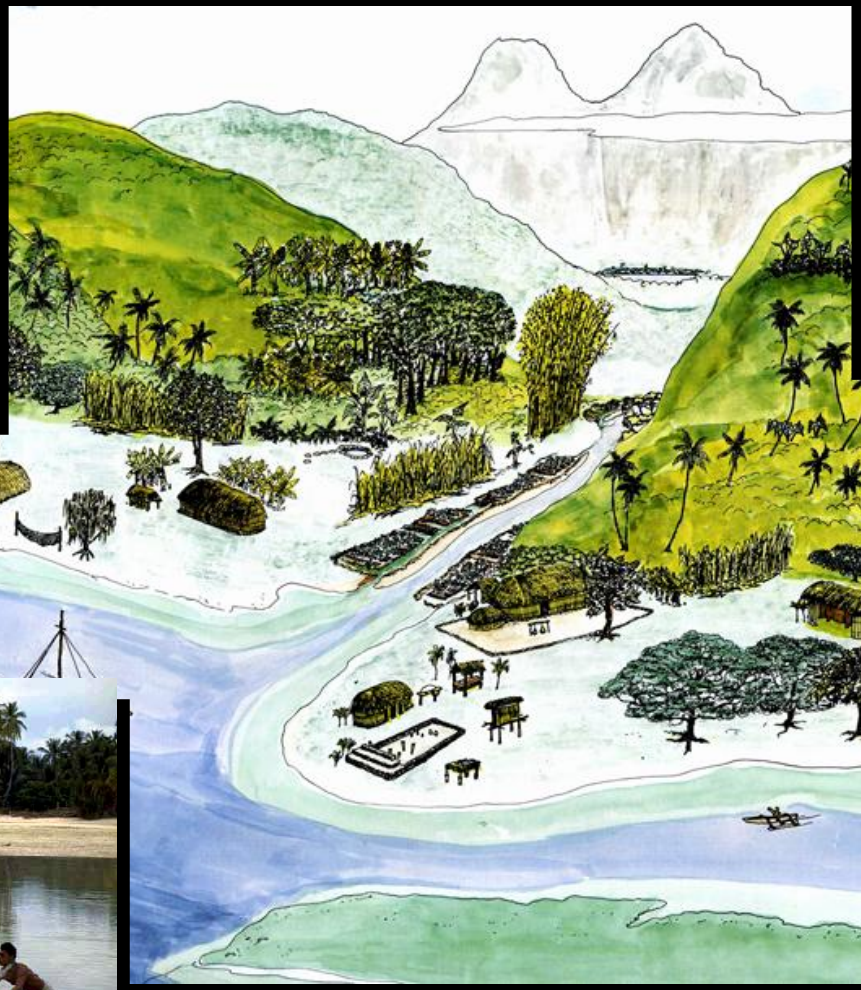


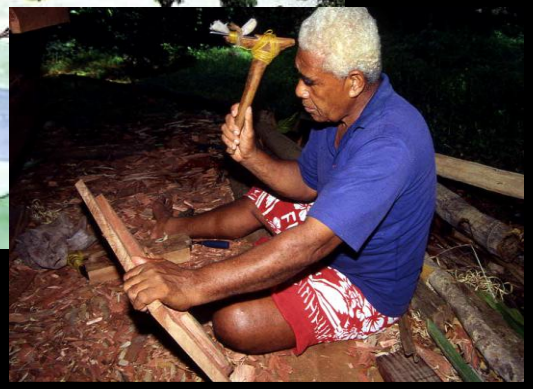







Historic Cultural & Social Interrelationship

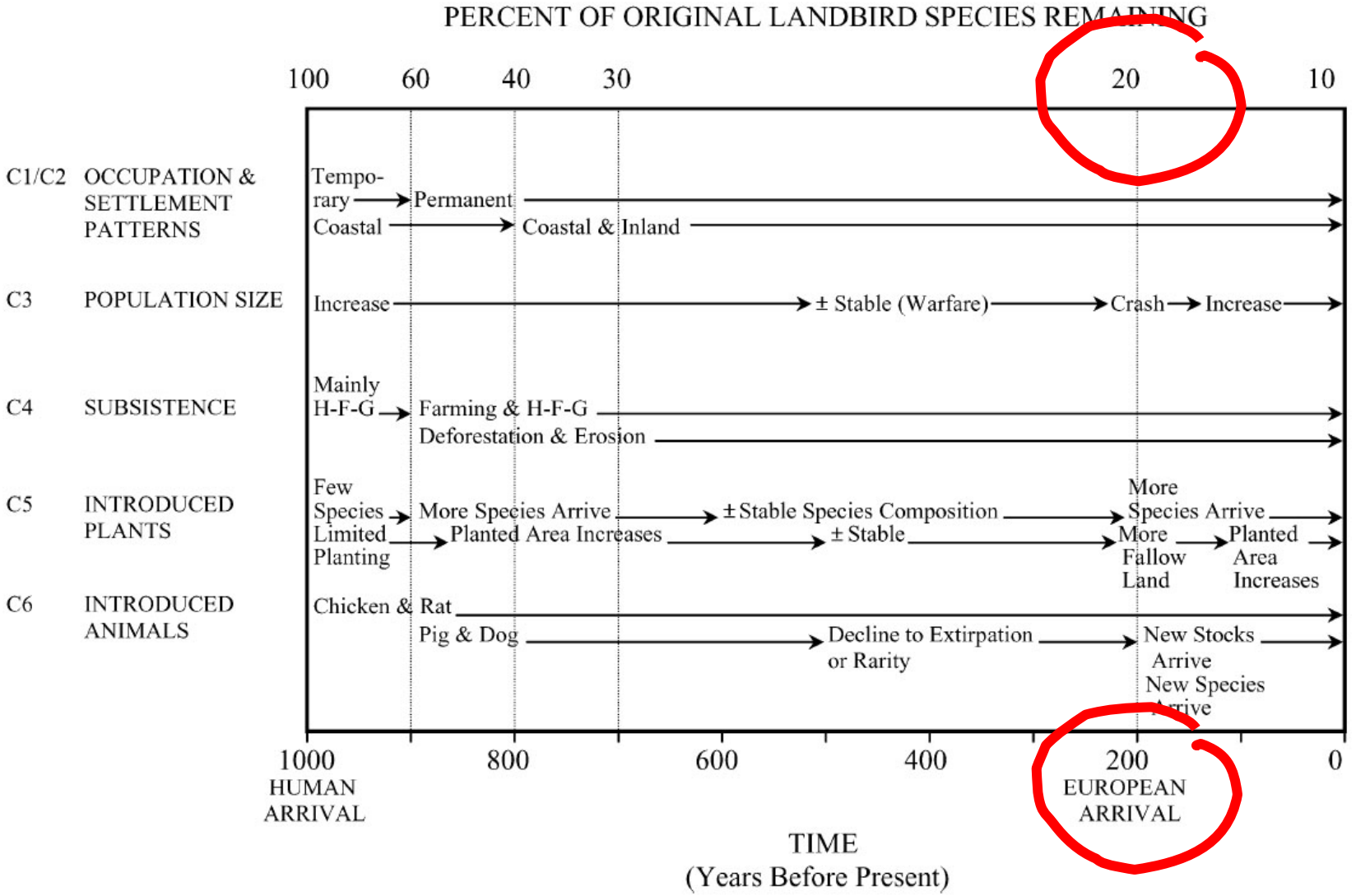




Early Impacts on Biodiversity

1000s of early extinctions and ecosystem transformation

Environmental degradation a key factor in social collapse of some island societies


PERCENT OF ORIGINAL LANDBIRD SPECIES REMAINING
100
60
40
30
20
10
C1/C2 OCCUPATION & SETTLEMENT PATTERNS
Tempo-rary
Permanent
Coastal
Coastal & Inland
C3 POPULATION SIZE
Increase
± Stable (Warfare)
Crash
Increase
C4 SUBSISTENCE
Mainly H-F-G
Farming & H-F-G
Deforestation & Erosion
C5 INTRODUCED PLANTS
Few Species Limited Planting
More Species Arrive
Planted Area Increases
± Stable Species Composition
± Stable
More Species Arrive
More Fallow Land
Planted Area Increases
C6 INTRODUCED ANIMALS
Chicken & Rat
Pig & Dog
Decline to Extirpation or Rarity
New Stocks Arrive
New Species Arrive
1000
HUMAN ARRIVAL
800
600
400
200
EUROPEAN ARRIVAL
0
TIME
(Years Before Present)

The Situation Today?

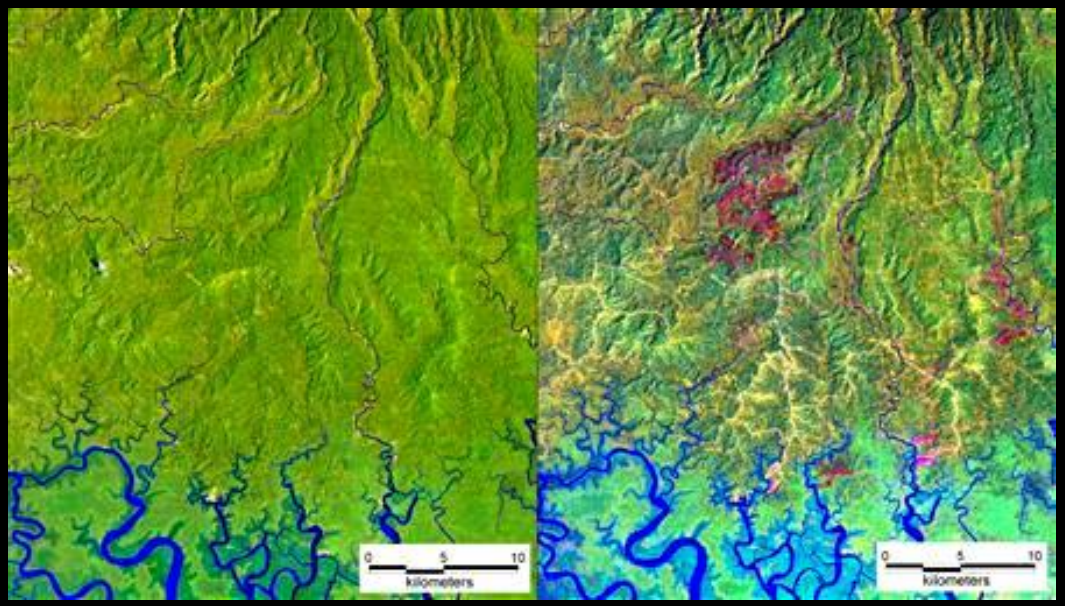
- **Biggest changes to island ecosystems since European colonization and post-independence.**
- **Pacific region has one of the highest rates of species loss in a global context.**
- **More than 800 species with a high probability of extinction.**
- **Native forest cover being lost at up to 4% pa – less than 30% in natural state.**

Biodiversity Interlinkages

BIODIVERSITY

- Freshwater & Watershed Protection
- Land Degradation
- Poverty alleviation
- Forest Management
- Marine & Coastal Resources
- Climate Change
- Energy

Continuing ecological, social and economic impacts of change



Logging & forest conversion

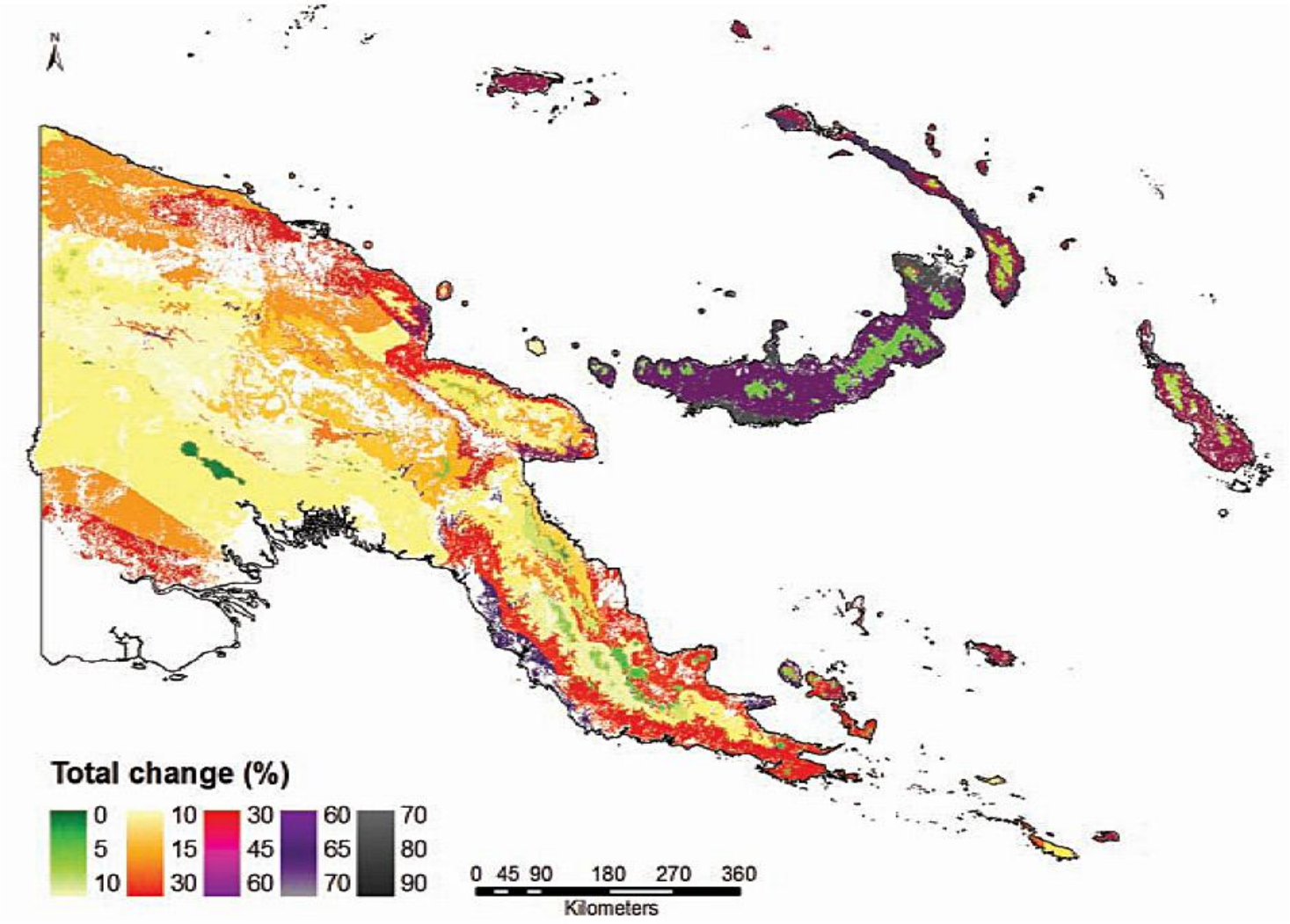
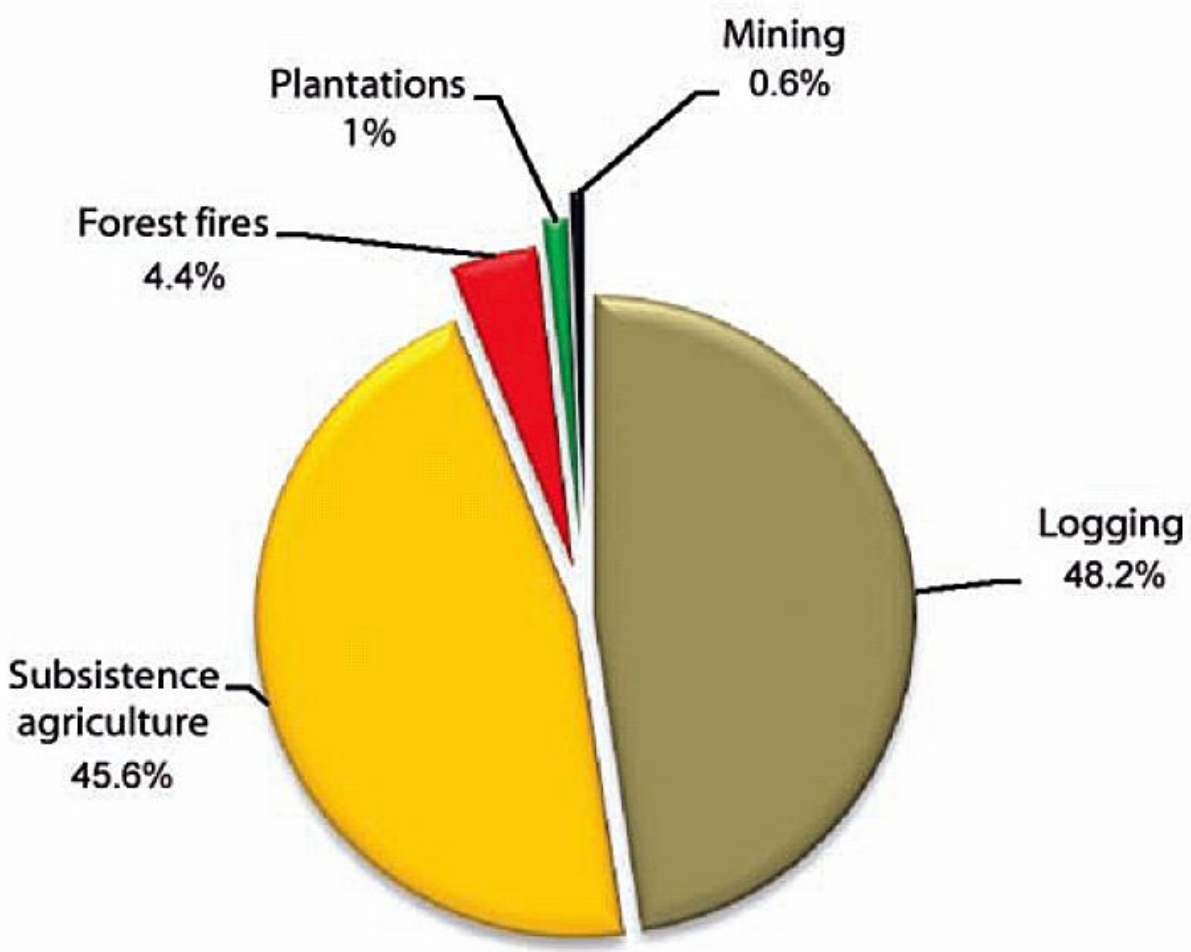


Figure 10: Change in PNG's rainforest cover between 1972 and 2002. Forest change measures the percentage of forest area in 1972 that was deforested or degraded by 2002. These data are displayed in sub-regions of PNG's 1972 rainforest cover and have been differentiated according to biogeographic regions and climatic zones.

Figure 12: The relative importance of the drivers of forest change between 1972-2002.



The State of the Forests of Papua New Guinea

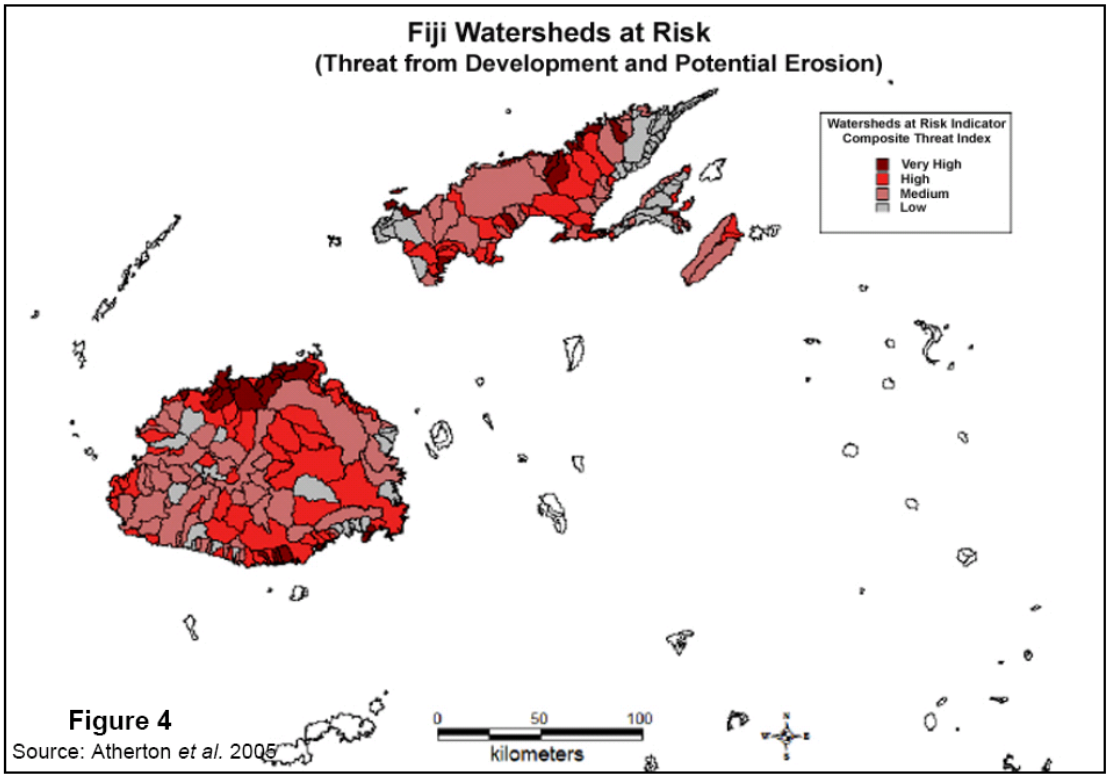


Figure 4
Source: Atherton *et al.* 2005

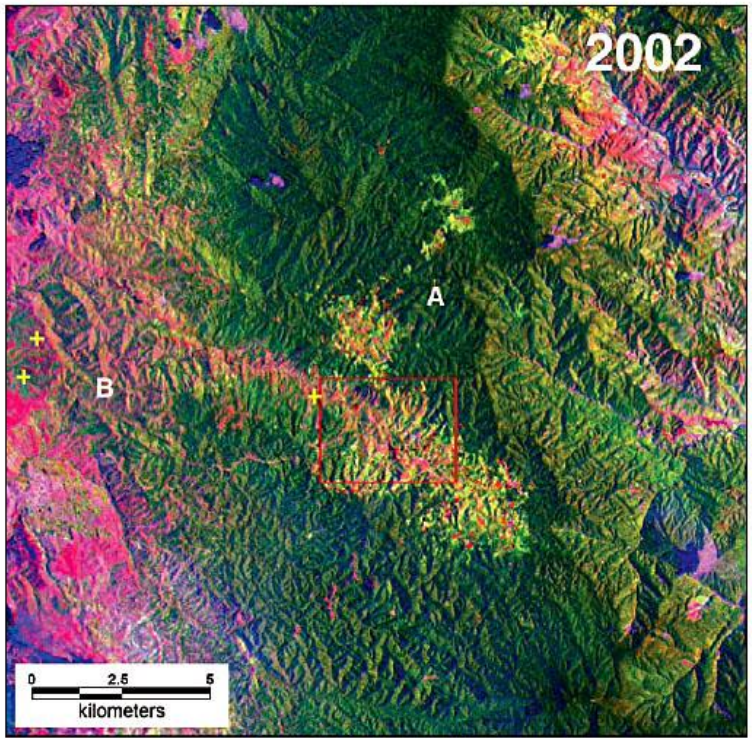
Fiji

Solomon Islands

“Rain forest Ecoregion now listed as one of the 10 most threatened forest ecoregions in the world”
SI NBSAP 2008

Mining

Settlement and population growth



In the 1972 aerial photo, subsistence clearance is restricted to scattered clearings in the valley bottom within the red box. Clouds are present on the left of the image. By 1991, a road has connected the area to Bulolo and the cleared area has expanded several kilometres to the east and north. In 2002 additional clearance can be seen around the margins of previously cleared areas. This is especially visible in the proximity of Location **A**. Gardens in this area could be supplying the markets of Bulolo.

Substantial forest loss and degradation can be seen in the vicinity of Location **B**, where it is likely that fires occurring the 1991-2002 interval entered forested areas and expanded the area of grassland. Hotspots from fires recorded in 2004 are shown with the symbol: +

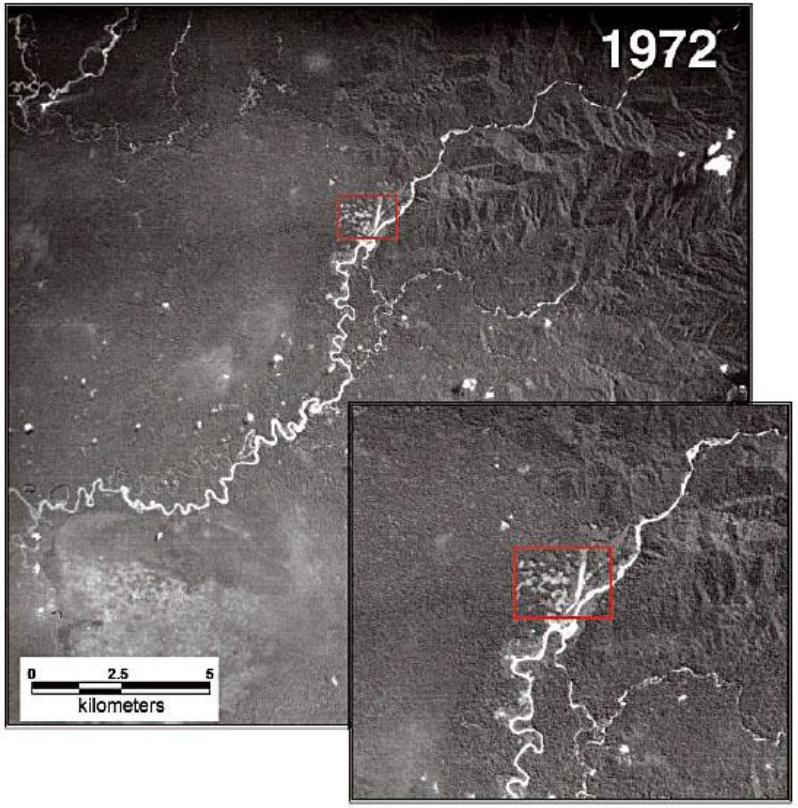


Figure 17: These images are located in the Lakekamu Basin of Gulf Province. The village of Kakoro (146° 31' 56.7"E; 7° 50' 9.8"S) and the Kakoro airstrip (180 m altitude) are visible in the red box in the 1972 (Skaipiksa) and 2002 (Landsat ETM+) images. The inserts show the area around Kakoro at a finer resolution. Substantial areas of forest clearance are visible to the west and south of the red box – in the order of 1-1.5 km expansion. A similar pattern showing expansion of subsistence agricultural activity is apparent in most areas of Papua New Guinea.

Kiritimati Island

So What…..?

- Intrinsic values – ecological and cultural heritage
- Biodiversity remains critical to the livelihoods of Pacific island communities
- Ecosystem services - critical to local national sustainable development

Protecting National and Community Water Resources

Protecting National and Regional Fisheries

Tuna fisheries 11% Regional GDP

Protecting Coastal Zones and National and Community Fisheries

Pacific mangroves:
US$200,000-$900,00 per hectare

“PAs are a cultural response to perceived threats to nature. Because society is constantly changing, so too are social perspectives on PAs and the values that they are established to conserve”

(J. McNeeley, IUCN Chief Scientist)

Development of PAs

- In the Pacific traditional cultural values, methods and systems – tabu, raui
- Colonial European perspectives (e.g. 9 Fiji forest and nature reserves established 1914-68)
- ‘Modern’ development of multi-purpose PAs, sustainable development focus, community conservation vs government, etc

19th- early 20th C
'preservation'
European models

Late 20th C – 21st C
multiple purpose PAs
and systems

?

Historic,
traditional
resource
management
areas, sacred
sites, etc

PA Definitions

- **Over 1,000 terms to describe PAs**
- **CBD definition:**

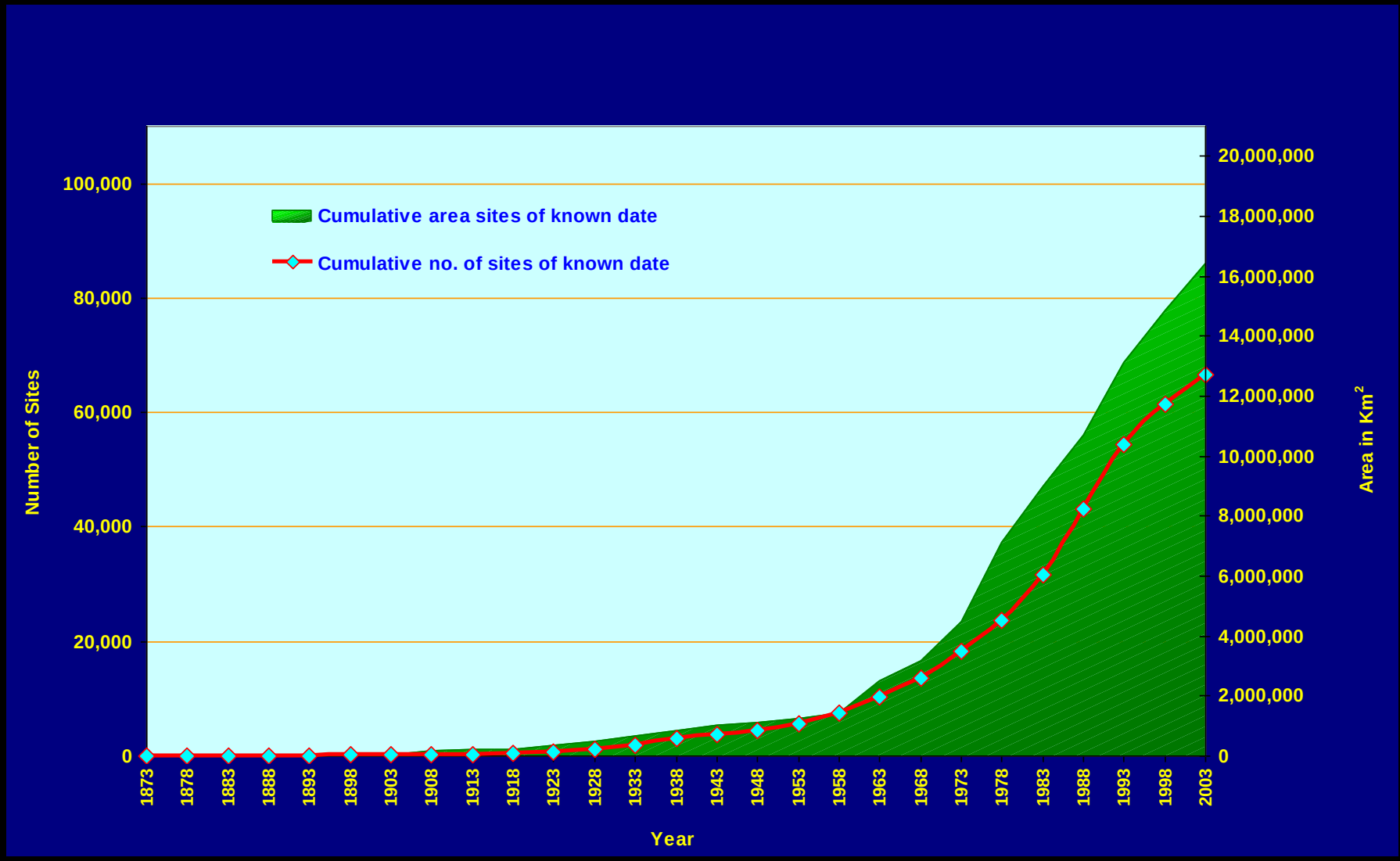
  "...a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives"

PA Definitions

- **New IUCN definition 2008:**

  "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, *to achieve the long term conservation of nature and associated ecosystem services and cultural values*"

Growth of PAs Globally



What About the Pacific?

- PA coverage is woefully inadequate to address the biodiversity crisis that continues in the Pacific

  E.g. Fiji and PNG <3% coverage of land area, Solomon Islands <1%

- Marine conservation has improved, e.g. through establishment of LMMAs (with proviso on biodiversity conservation values) and major MPAs – e.g. PIPA in Kiribati; 7.5% PA coverage in Palau, mainly marine

- Micronesia Challenge and Fiji commitments should be applauded

What About the Pacific?

- Even small individual PAs may be conserving species and ecosystems (e.g. Yadua Taba Crested Iguana Sanctuary, Fiji)
- But, overall, most existing PAs are not achieving national and regional biodiversity conservation objectives
- We need to know where the gaps are - and what can be done to fill them
- We need to manage them effectively to maintain their objectives

Planning & Design Issues Affecting Progress in Achieving Conservation Outcomes

- Knowledge of biodiversity values (ecosystems, species) and ecosystem services, especially re development viability
- Effectiveness of coverage: how much and what biodiversity is currently protected – identifying the gaps and identifying management weaknesses
- Need to design an effective PA system plan

Key Governance Issues Affecting Progress in Achieving Conservation Outcomes

- Mainstreaming PAs into national development planning – political will, recognition of ecosystem service values
- Challenges re national policy implementation in the context of traditional resource ownership systems and participation of local people
- Management capacity, infrastructure and resources
- Political/legislative support, regulations & enforcement
- Clear focus of responsibility in PA management within Government systems

Climate Change

- **Climate change predicted to have varying impacts on:**
  - **Species and ecosystems**
  - **Ecosystem services: water supply, fires, invasive species, food security**

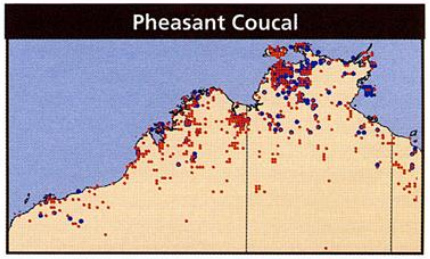
Millennium Ecosystem Assessment

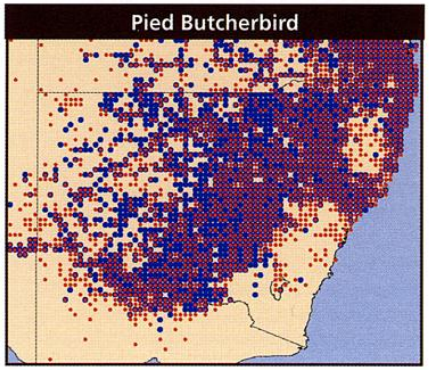
- Changes in species distribution and population sizes
- Changes in the timing of reproduction or migration events
- Increase in the frequency of pest and disease outbreaks
- By 2100 climate change and its impacts may be the main direct driver of biodiversity loss and changes in ecosystem services

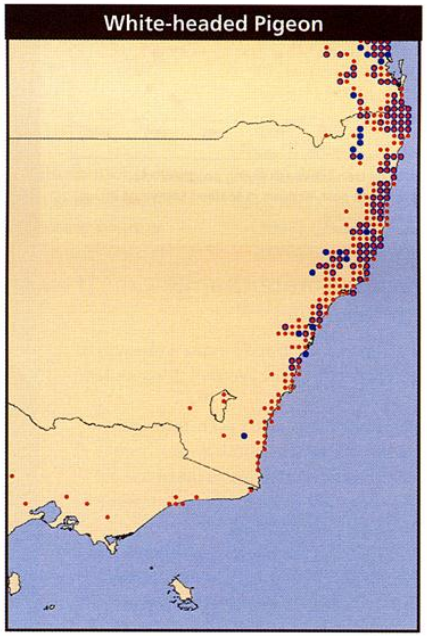
Birds Australia Species-CC Monitoring

Latitude ↓

Altitude ↑

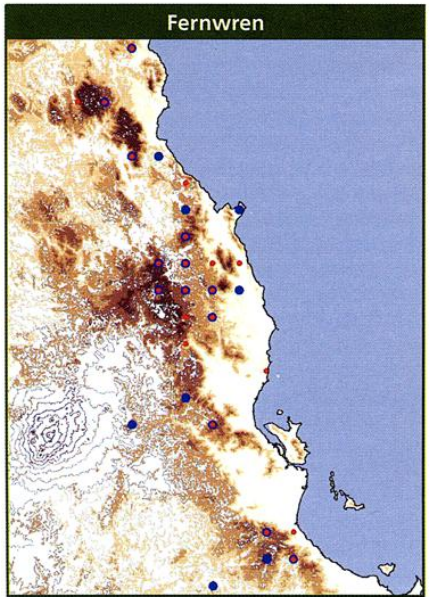


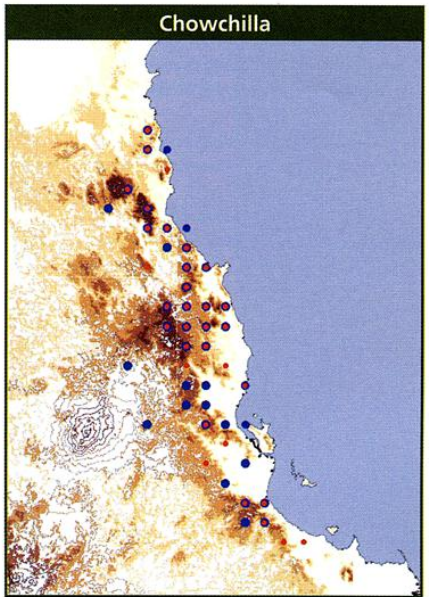


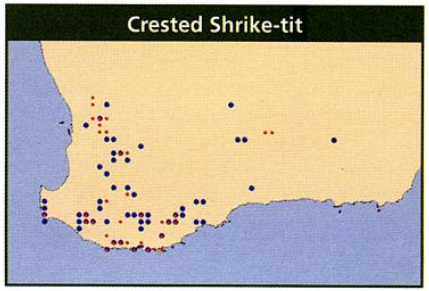


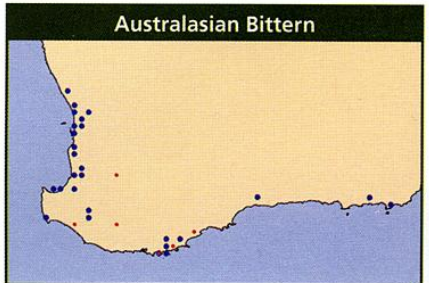
Left: Figure 9. Examples of northern species which extended their ranges southwards between two Atlas periods-records for 10-minute grid cells 1977-1981 (blue dots) and 1998-2007 (red dots): Pheasant Coucal, White-headed Pigeon and Pied Butcherbird. All have expanded southwards up to 2-3 degrees of latitude or 200-300 km; a rate of roughly 100-150 km per decade. Although other interpretations are possible, these extensions are consistent with those expected under climate change.

Below: Figure 10. Examples of temperate and high altitude species that have contracted in range between the two Atlas periods (see caption Figure 9). In north-east Queensland, the Fernwren, a highland bird which occurs above about 600 m, seems to have contracted upland (darker brown areas); the Chowchilla shows a similar pattern, especially in the more southern parts of its range where the mountains tend to be lower. In south-west Western Australia, the Crested Shrike-tit appears to have retreated somewhat from the more easterly part of its range, east of Esperance, and the range of the Australasian Bittern has retracted coastwards. [Note that the method of plotting by grids might falsely suggest some occurrence off the mainland, which is not the case.]

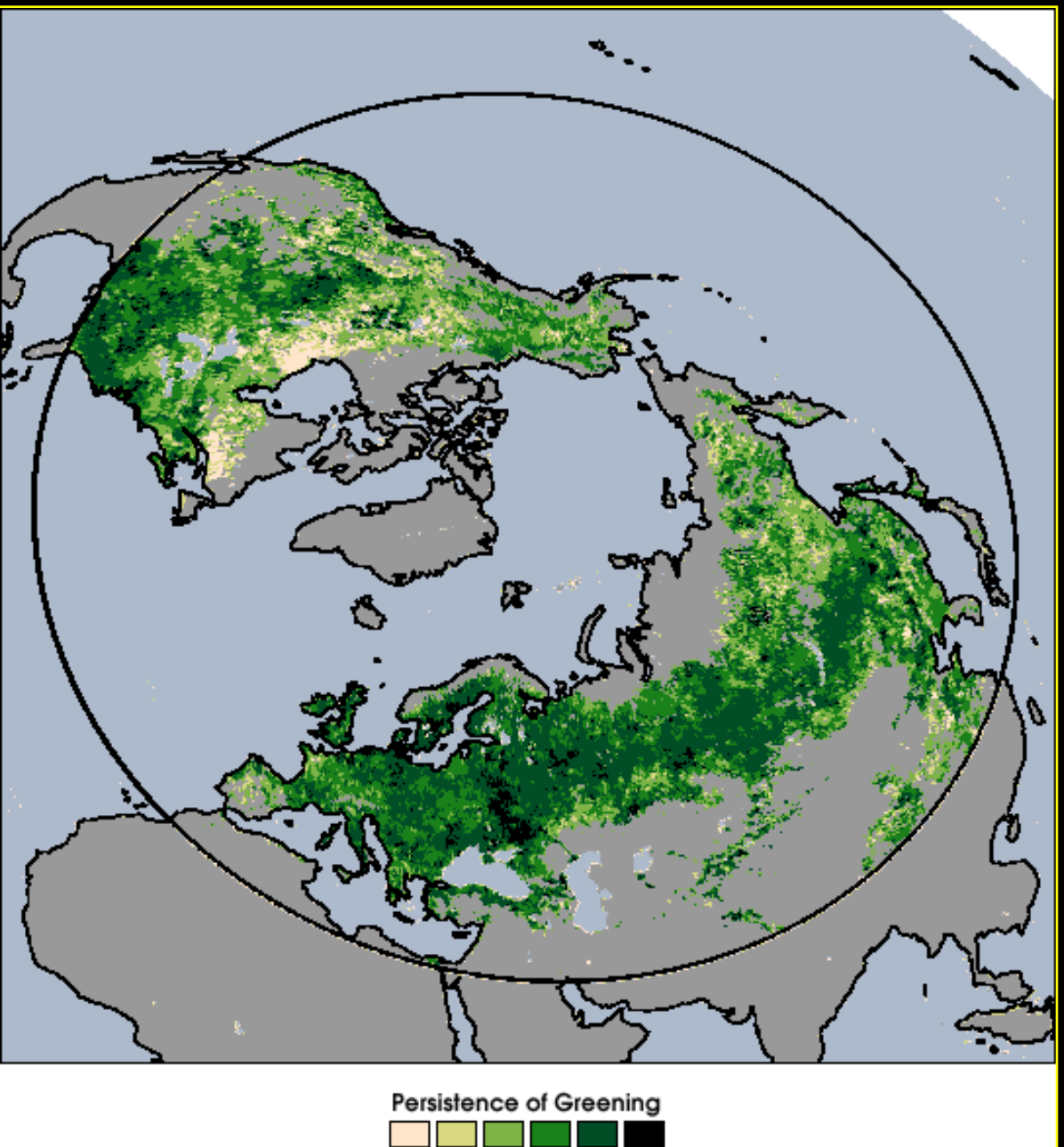








Northern Greening



NASA satellite data suggests that for more than two decades there has been a gradual greening of the northern latitudes of Earth.

Parts of the Northern Hemisphere have become much greener and the growing season has

- **Climate change makes the case for improving and extending PA networks - a comprehensive and adaptive system is essential to cope with the impacts of climate change, especially the predicted shifts in species and habitats**

- **Role of PAs needs to be enhanced by the establishment of ecological networks, both site-based and species-based**

Protected Areas can help Mitigate Climate Change Impacts

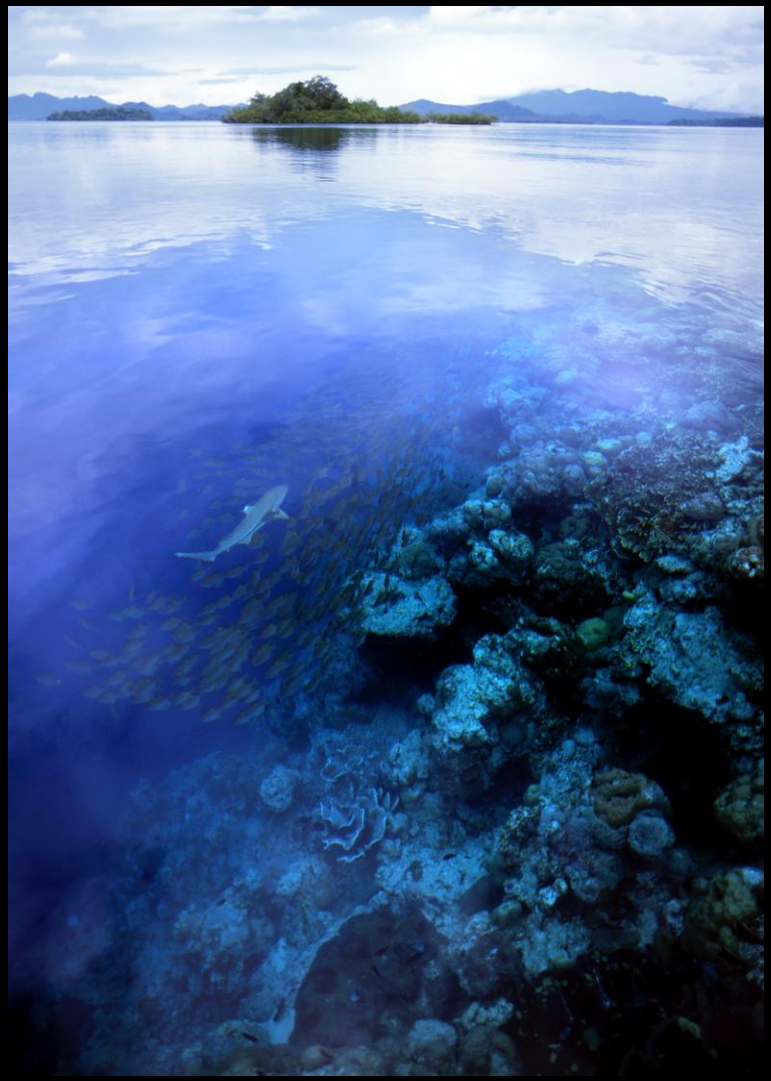
- Protection of water catchments
- Carbon sequestration through conservation large forest ecosystems and amelioration of changes in regional rainfall patterns
- Protection of upland forests and other vegetation to reduce the impact of storms on soil and slope stability
- Protection of mangroves and other coastal ecosystems: fisheries, shoreline stability, etc

PA Needs in the Pacific

1. Effective gap analyses that not only target key species and ecosystems for conservation but include their connections to the landscape, take into account climate change adaptation and resilience factors
2. Building PA systems that are integral to wider national and local development – needs effective national development planning
3. Integrating and mainstreaming ecosystem-based management approaches into local and national development, including engagement with communities

PA Needs in the Pacific

4. Avoid using PAs as umbrellas for development regimes that do not focus on species and ecosystem conservation as core objectives - consider complementary resource management systems
5. Ensure that PAs are effectively managed and resourced
6. Recruit and train planning and management staff – provide incentives to retain them
7. Consider innovative approaches to PA management – e.g., engage local communities as paid conservations corps
8. Establish effective PA monitoring systems to ensure that PA values are retained



Thank you!