

**A global analysis of biodiversity & ecosystem service protection now, under Aichi 17% and under “Half for Nature”, using Co\$ting Nature**

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10mins total

# Methods

- WDPA August 2014 release
- Co\$tingNature, RS data-based analytical tool\*
- Run continentally at 1km resolution, 2010. Not >60 deg. N
- Sites of production of ecosystem services realised (by beneficiaries) for water, carbon, hazard mitigation, NB tourism
- Geographical total richness and endemism based on IUCN redlist (mammals, amphibians, reptiles, birds)
- All protection values calculated as % of (national, continental, global) total
- Some local issues with global datasets but impact minimised in continental scale analyses

(Full details at [www.policysupport.org/costingnature](http://www.policysupport.org/costingnature))

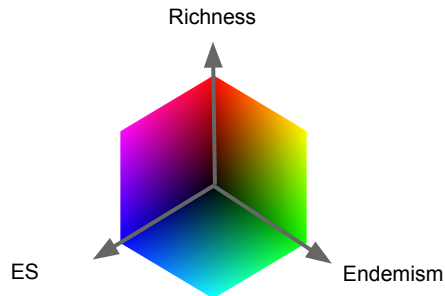
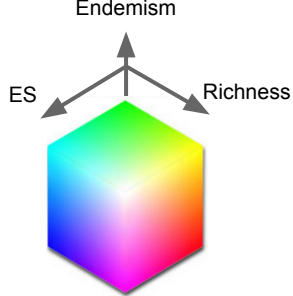
**The 2014 protected area estate and study area,  
15.4% land, 3.4% ocean protected**





# What the 2014 PA estate protects

The co-location of richness and ecosystem service provision by protected area.  
Mulligan *et al.* KCL/UNEP-WCMC, using Co\$ting Nature



## On a global scale:

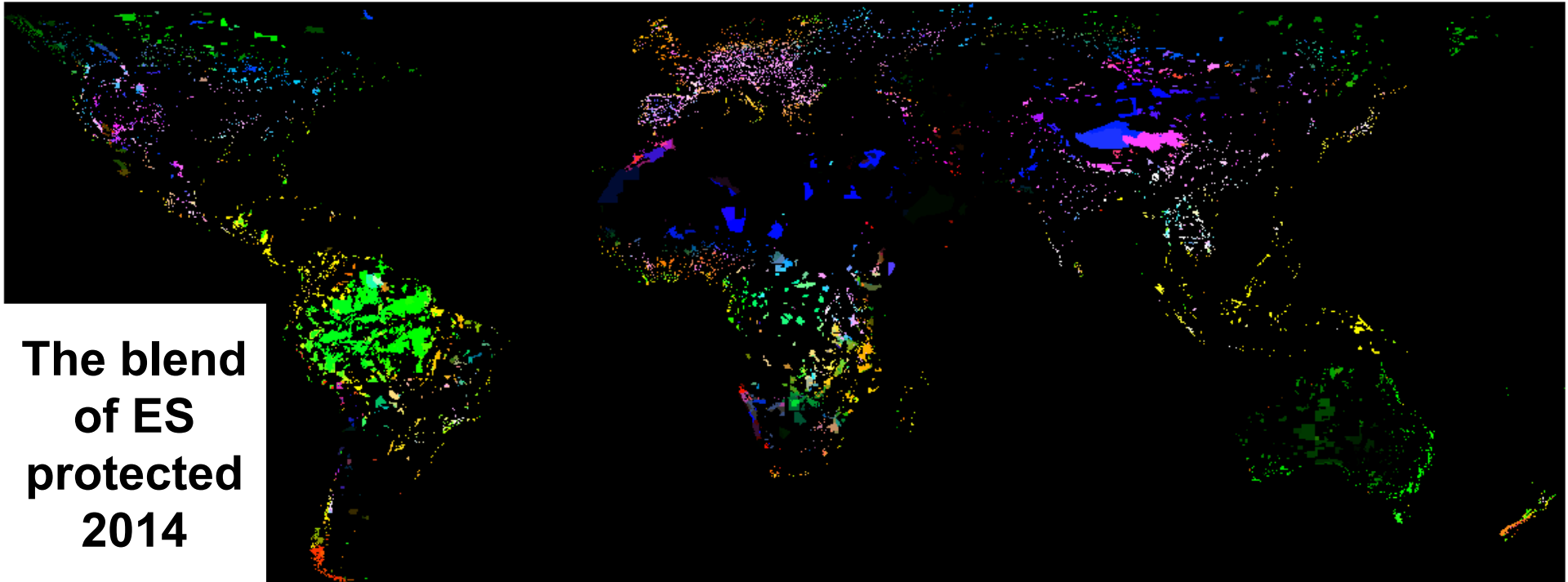
**Green** = endemism highest (eg **Andes**)

**Blue** = ES highest with some richness (**Europe, NAM**)

**Red** = richness highest (**central Aus, central Asia**)

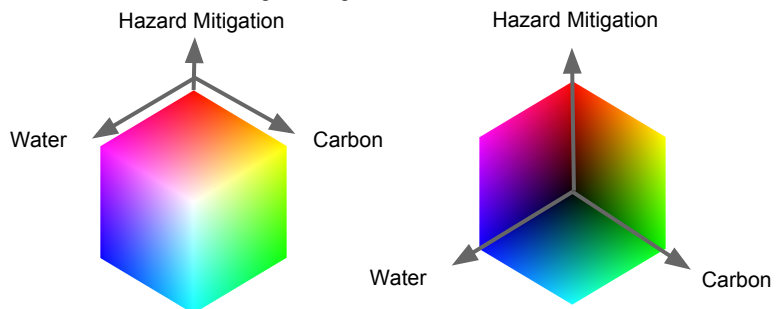
**Yellow** = richness and endemism highest (eg **eastern Arc**)

**White** = All high (**Amazon, SE Asia**)



# The blend of ES protected 2014

The blend of ecosystem services provided by protected areas. Mulligan *et al.* KCL/UNEP-WCMC, using Co\$ting Nature



## On a global scale:

- Green**=carbon highest (**Amazon**)
- Blue** = water highest (**deserts**, C and HM=0)
- Red** = hazard mit. highest (**coasts, mountains**)
- Yellow** = hazard mit & carbon highest (**SE Asia**)
- Pink** = water and carbon highest (**S Europe**)
- Orange** = HM highest, water and carbon medium (**N Europe**)
- White** = water, carbon, hazard mitigation all high (**Mekong**)

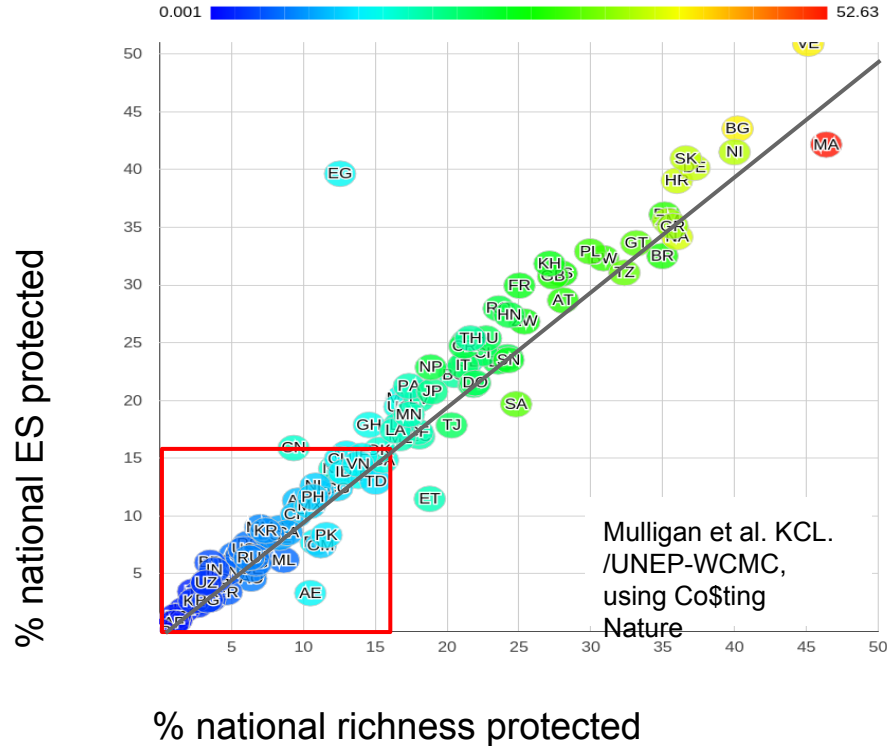
# What we have secured to date, continentally

- Around 16% of area currently secures 15% richness, 18% endemism, 21% tree cover, 21% carbon stock but only 15% realised water and 15% HM services
- Some services captured better than others

Continent	Area protected (%)	% vertebrate species richness protected	% vertebrate endemism protected	% tree cover protected	% water provisioning services protected	% carbon stock protected	% hazard mitigation protected
GLOBAL	16.1	15.2	17.8	20.8	15.0	21.0	14.7
South America	23.3	29.6	30.1	39.0	15.1	43.6	11.3
Africa	21.80	16.03	18.47	15.52	6.05	15.82	13.20
Europe	12.41	13.28	13.59	20.59	13.76	19.72	16.93
Central America	13.90	13.68	18.37	20.75	7.63	20.72	14.13
North America	7.10	7.36	8.78	9.48	8.58	10.05	6.26
Asia	14.67	10.48	13.11	10.90	19.15	13.60	11.20
Australia	16.11	14.32	17.87	29.43	33.33	22.36	32.2

**Table 1** Proportion of area, biodiversity and ecosystem services protected by continent for the current protected area system (%; red=below 17%, green= above 17%)

# What we have secured to date, nationally



- Some countries protecting more than 17% land, richness and ES
- Protected richness and ES increase near linearly with protected land for most countries
- Richness less successfully captured than total ES for many countries

Marker colour: Area protected (%)



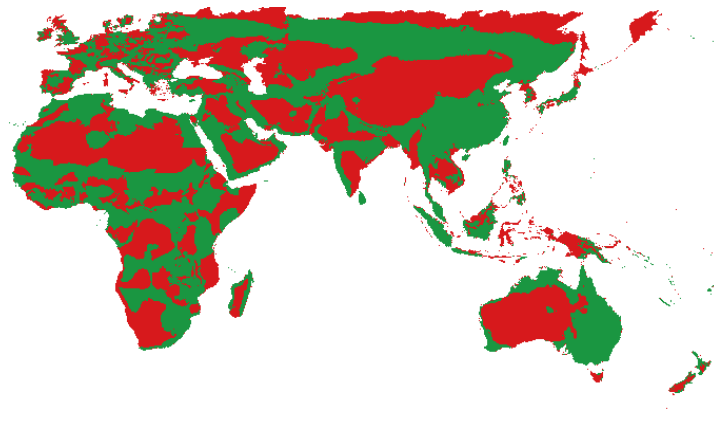
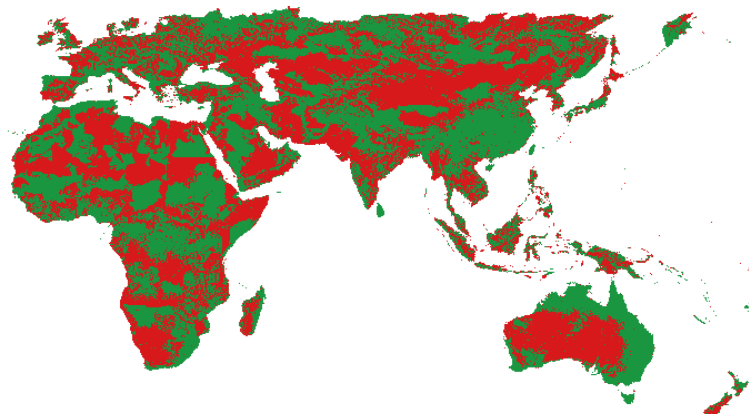
# What 17% would buy us

- Based on WDPA 2014 targeting secures 16% richness, 19% endemism, 22% tree cover, 22% carbon stock but only 16% realised water and 15% HM services ***i.e. not much more than we have now***
- 16-22% is not much given
- <20% of the biodiversity and ES upon which we depend likely captured at 17% target, except for some services on some continents

Continent	Area protected (%)	% vertebrate richness protected	% vertebrate endemism protected	% tree cover protected	% water provisioning services protected	% carbon stock protected	% hazard mitigation protected
GLOBAL	17	15.98	18.7	21.93	15.81	22.1	15.47
South America	17	21.59	21.93	28.39	11.05	31.79	8.33
Africa	17	12.58	14.45	12.07	4.76	12.41	10.37
Europe	17	18.19	18.7	28.22	18.87	27.03	23.12
Central America	17	16.66	22.44	25.33	9.35	25.33	17.34
North America	17	17.68	21.08	22.61	20.57	23.97	14.96
Asia	17	12.07	15.13	12.58	22.27	15.81	12.92
Australia	17	15.13	18.87	31.11	35.19	23.63	34

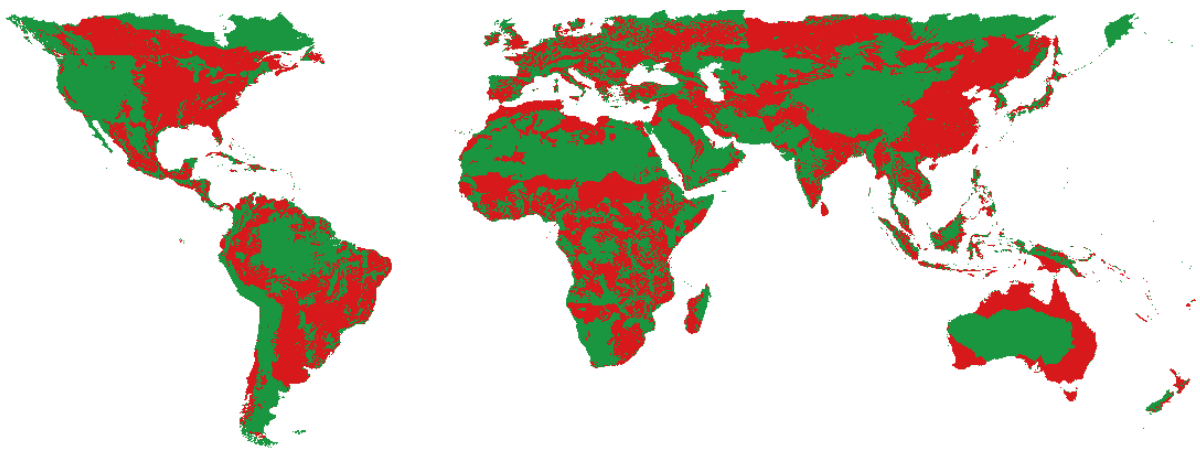
Table 1 Proportion of area, biodiversity and ecosystem services protected by continent for the Aichi 17% based on current PA targeting of variables (%), red=below 17%, green= above 17%)

# What 50% would buy us: conservation scenarios

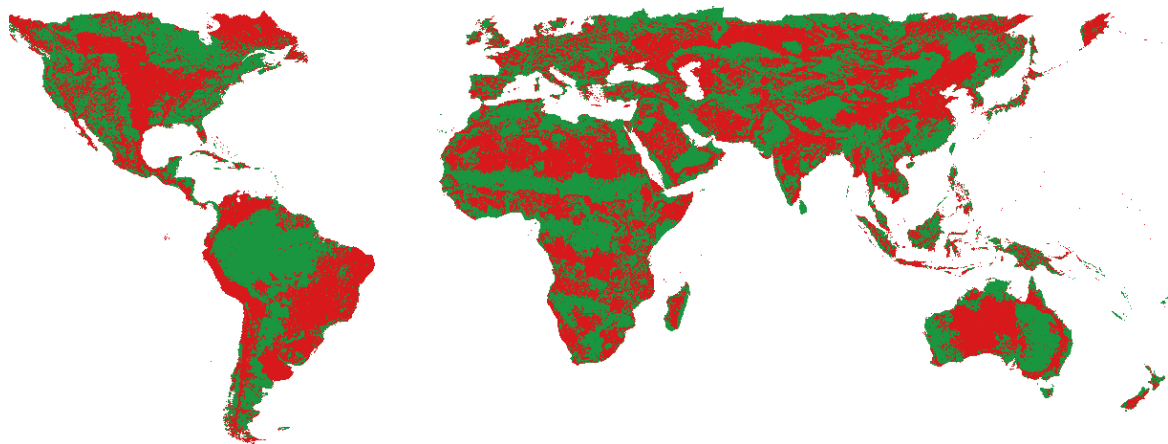


Highest 50% for total realised services, by country [ES]

Highest 50% for vertebrate species richness, by country [Rich]



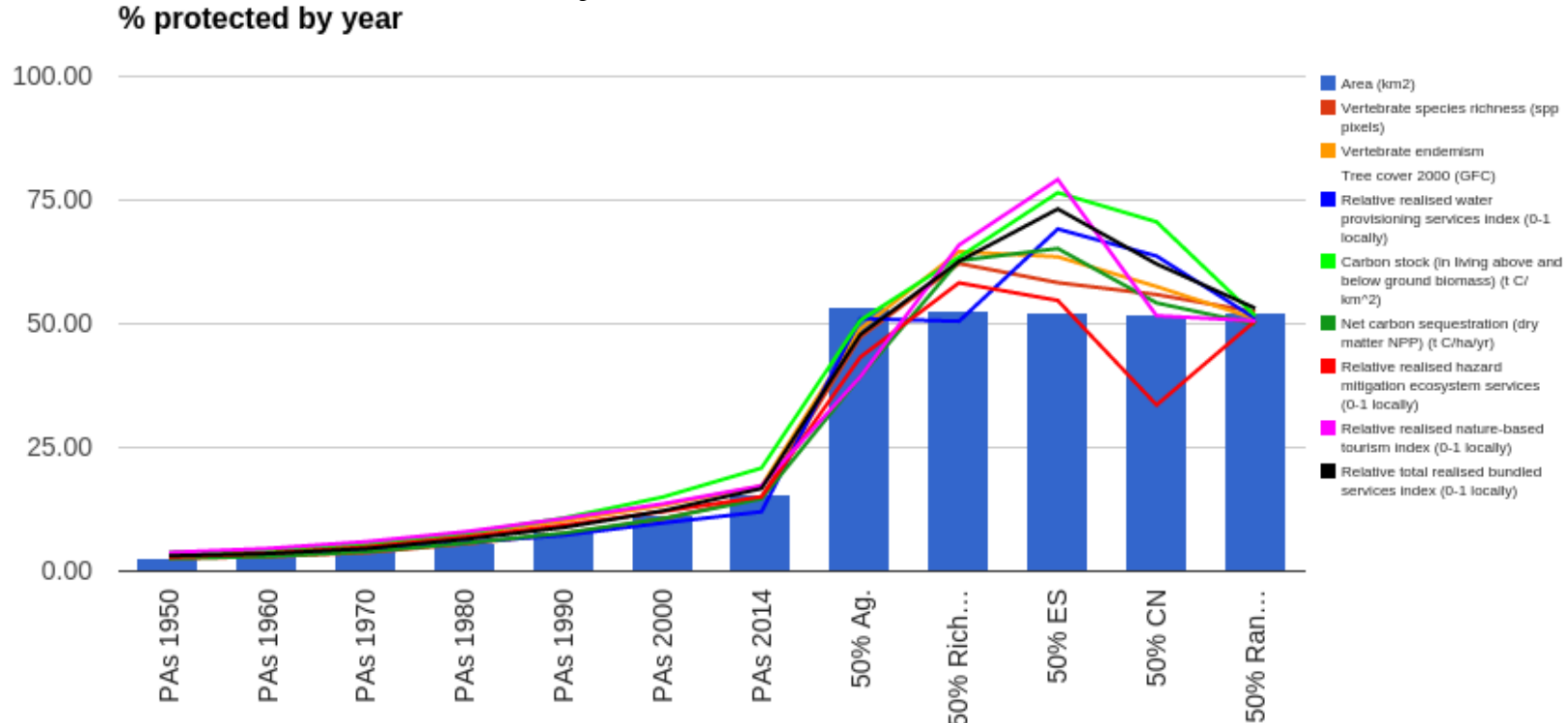
**Lowest 50% for agricultural suitability, by country [Ag.]**



**Highest 50% for conservation priority, by country [CN]**

# Nature needs half to protect our ecosystem services

- Because even 50% protection will not secure all the (realised) ecosystem services we currently use, never mind those (potential) services that we currently do not use but will do so in the future.



# Key messages

- We **currently protect less than 16%** of biodiversity and ecosystem services globally, with regional variations
- By targeting 17% of land, we will protect **<17% of many of the ecosystem services we currently rely on**
- **Some of the ecosystem services we depend upon are not concentrated - they are all around us**
- If we follow “Half for Nature” then we protect 50-60% of richness, 50-65% of endemism and 50-70% of currently realised ecosystem services. **We need nature to have at least half.**
- How much is protected depends on the **location strategy** for new PAs. We will also have to **carefully manage ES outside of PAs** as even half-for-nature would not protect **all the ES we use**
- **Run open-access Co\$ting Nature for your own PA/country**