

ECOGEOGRAFI DAN KEANEKA RAGAMAN HAYATI DI SULAWESI

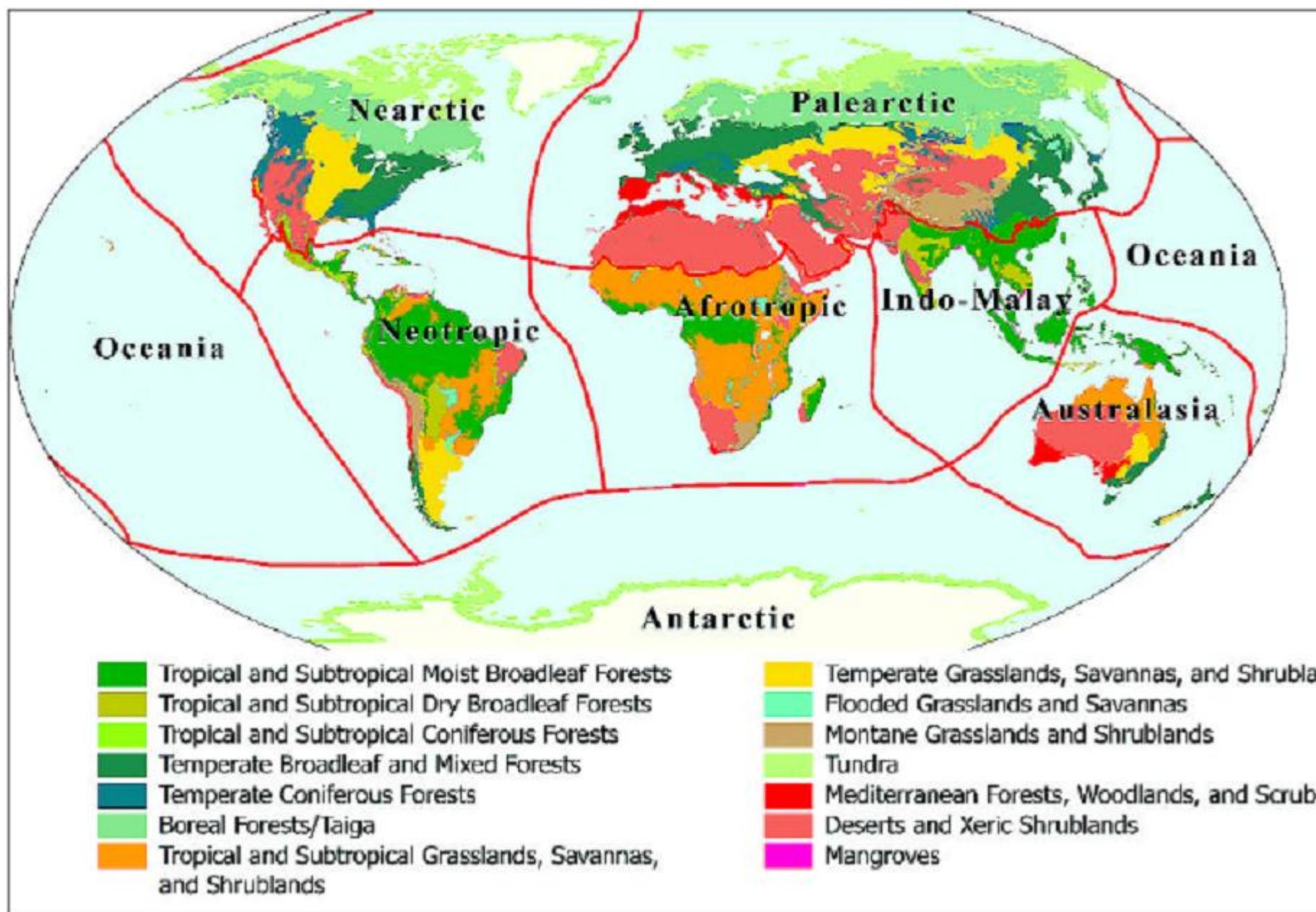
Johny S. Tasirin

Ketua Program Ilmu Kehutanan UNSRAT

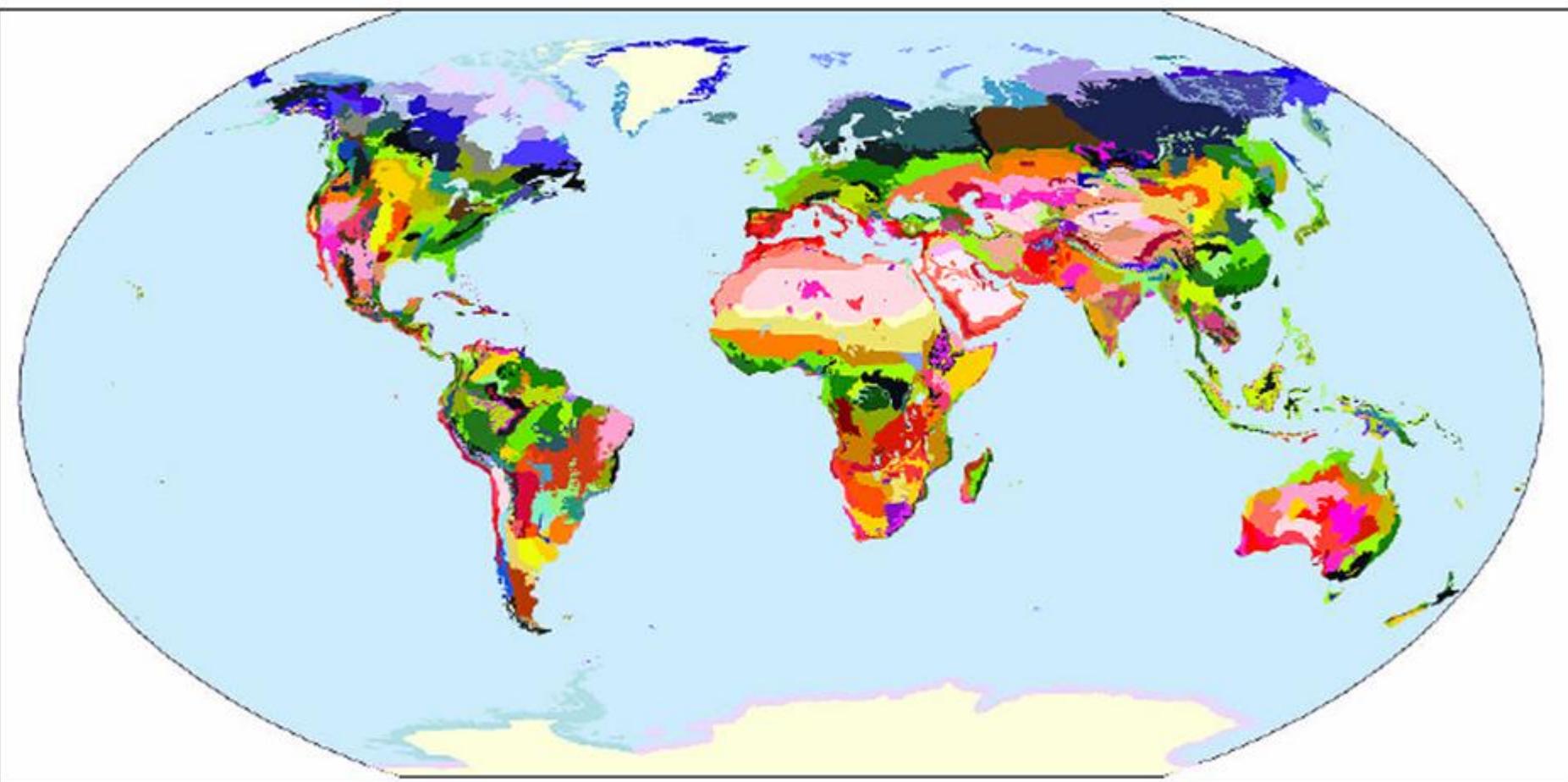
Chairman of the Center for Biodiversity and Biosecurity (Pacific Institute)

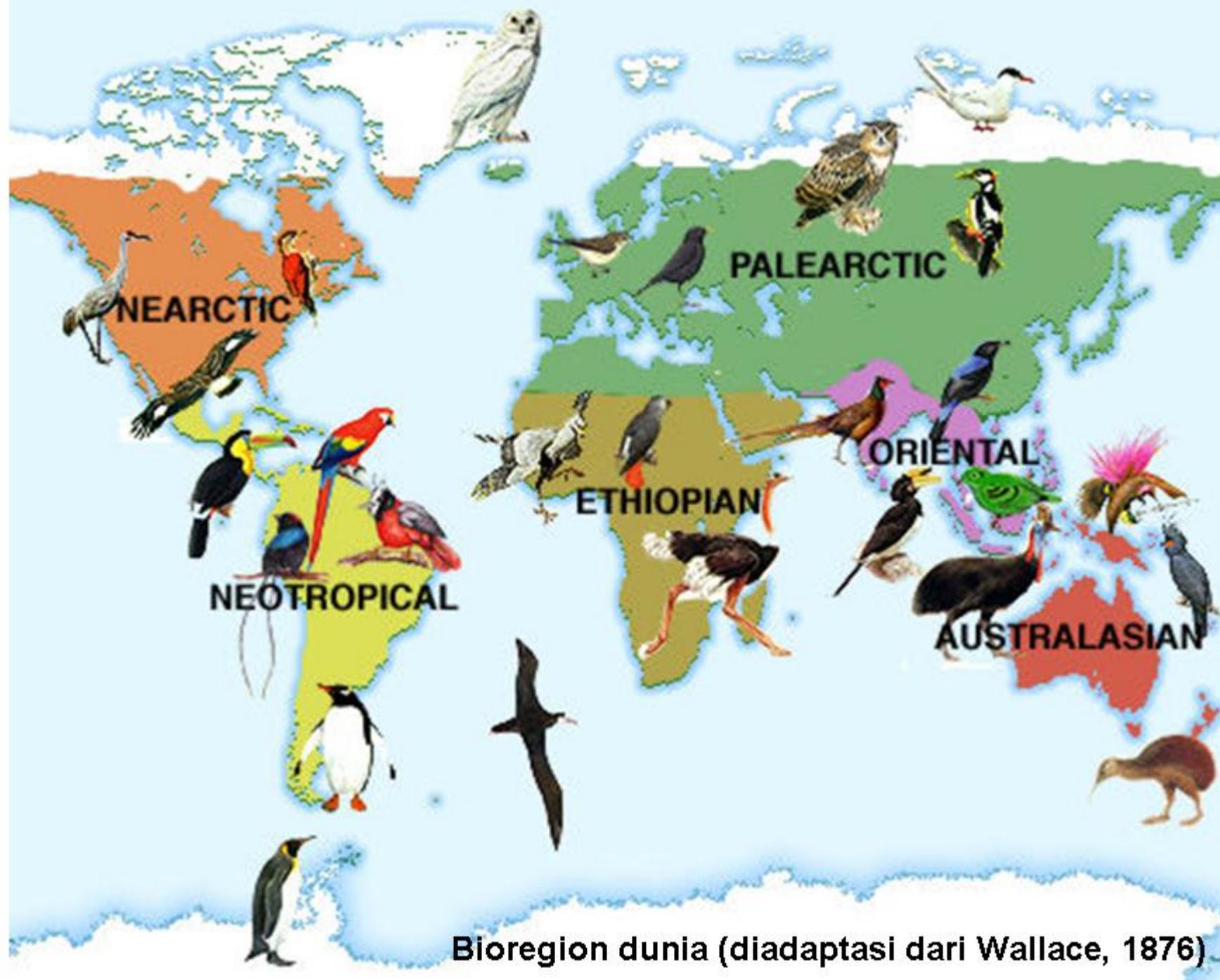
Bioekoregion dan spesiasi

Terrestrial ecoregion of the world (Olson dkk, 2001)



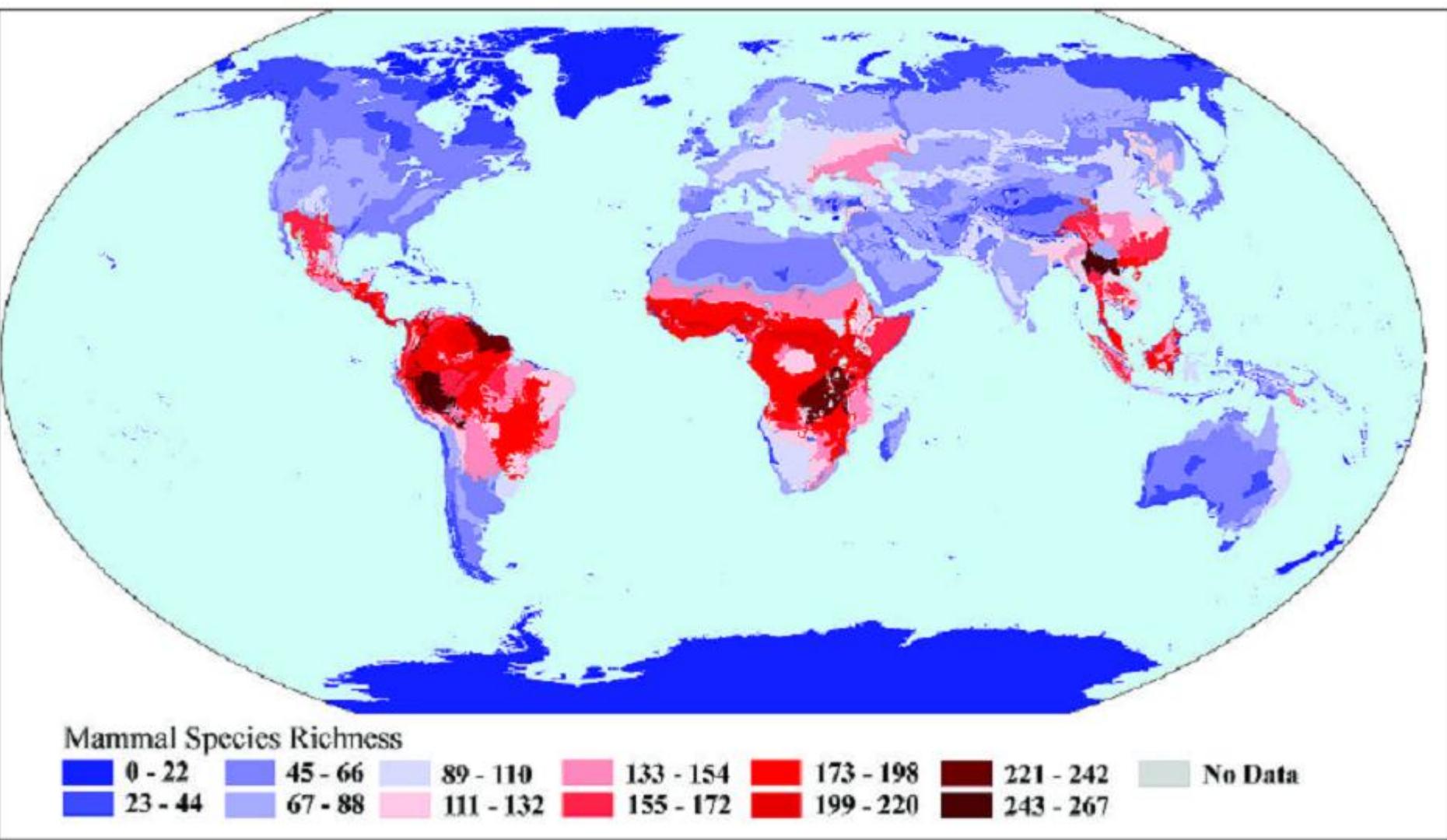
867 unit ekoregion terrestrial (Olson dkk, 2001).
Sebelumnya dikenal ada 193 unit



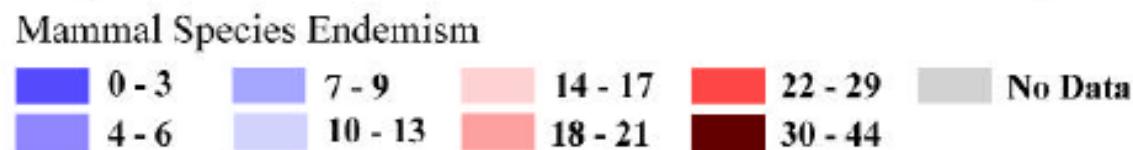
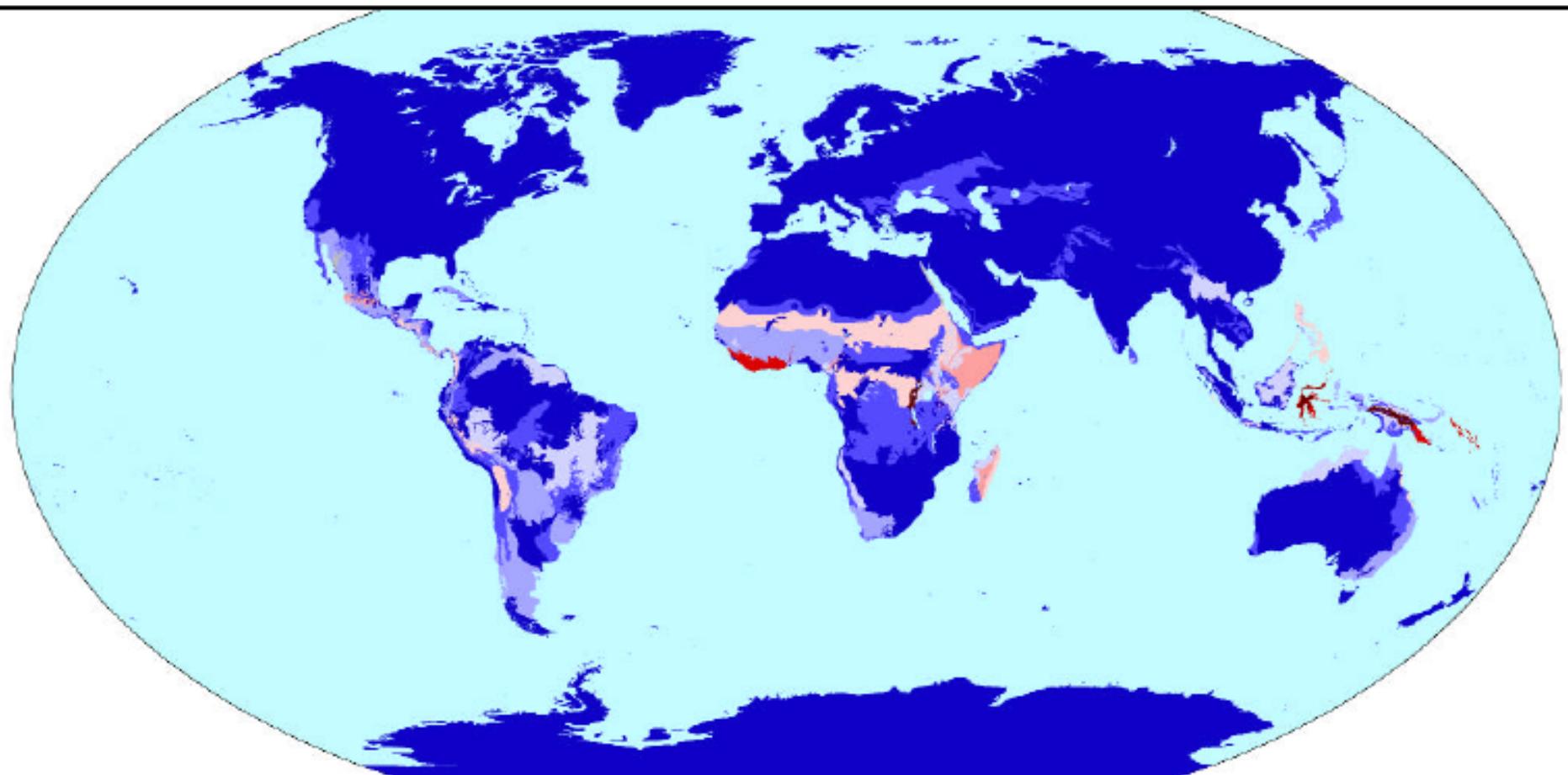


Kekayaan jenis mamalia dunia berdasarkan ekoregion (Olson dkk, 2001).

Warna kalem (biru) menandakan kekayaan jenis yang rendah.



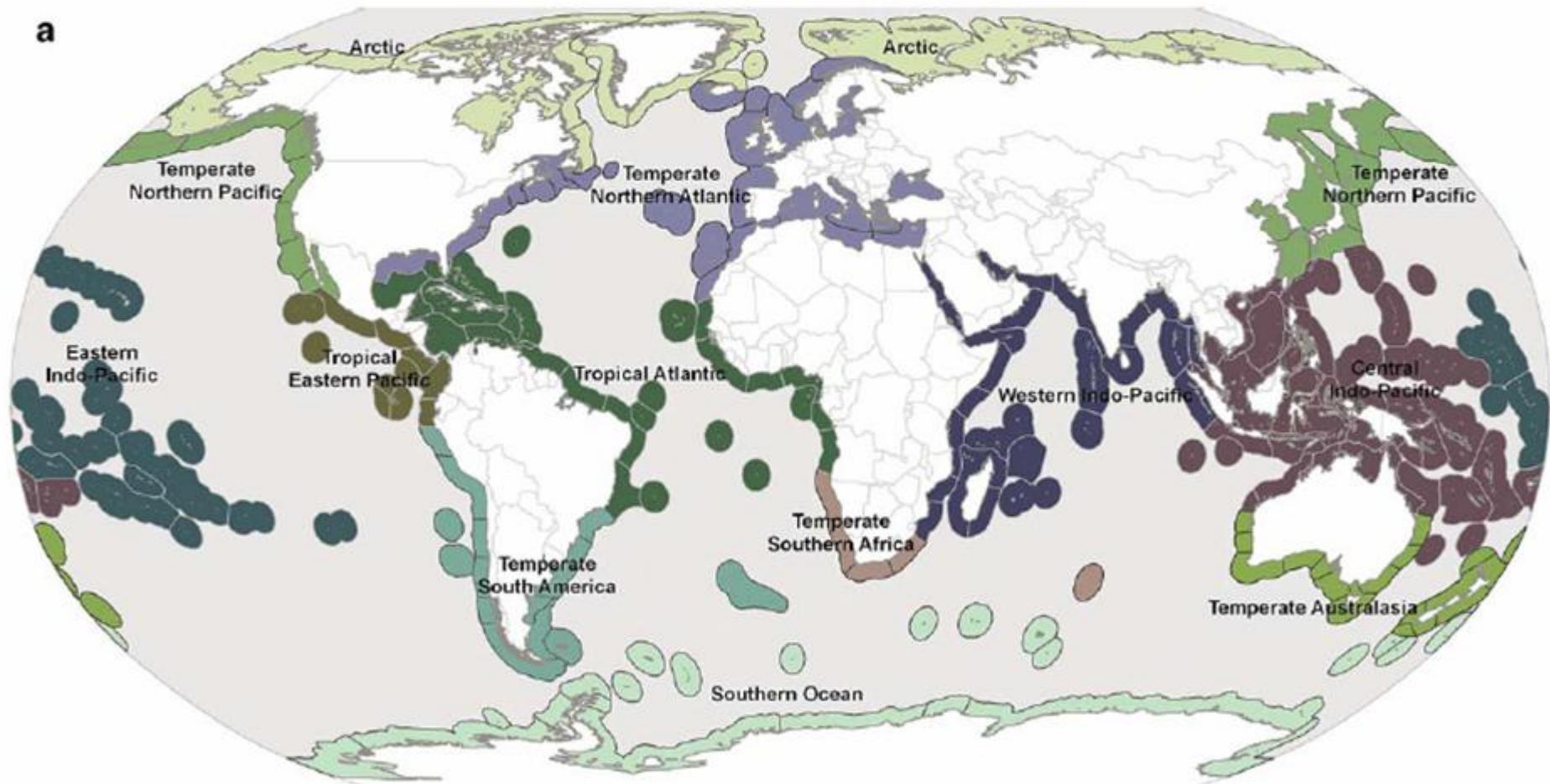
Tingkat keendemikan jenis mamalia dunia (Olson, 2001).
Warna kalem (biru) menandakan keendemikan rendah.



Bioekoregion Kelautan

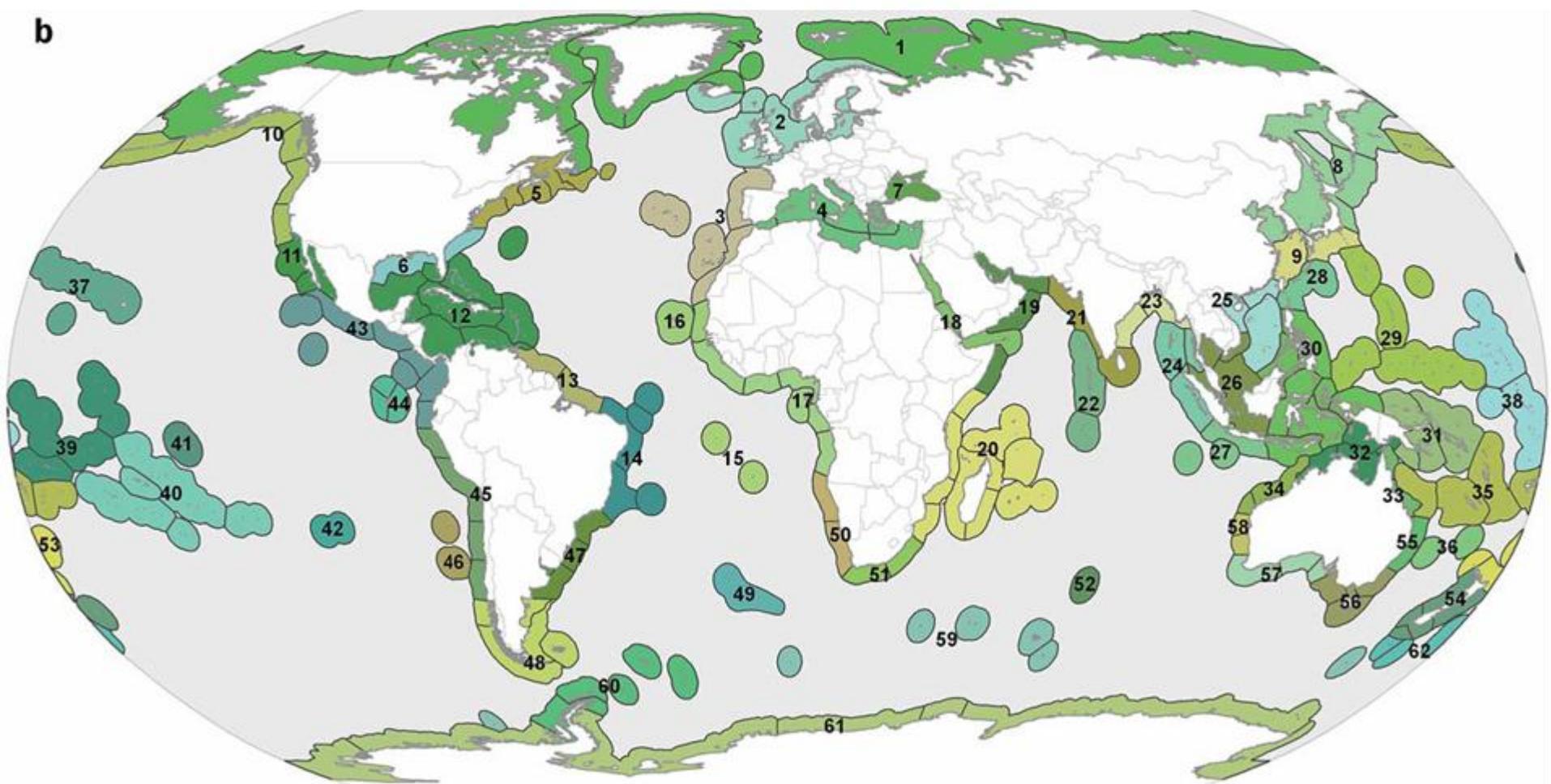
Batas-batas 13 ekoregion kelautan dunia (Spalding dkk, 2007)

a

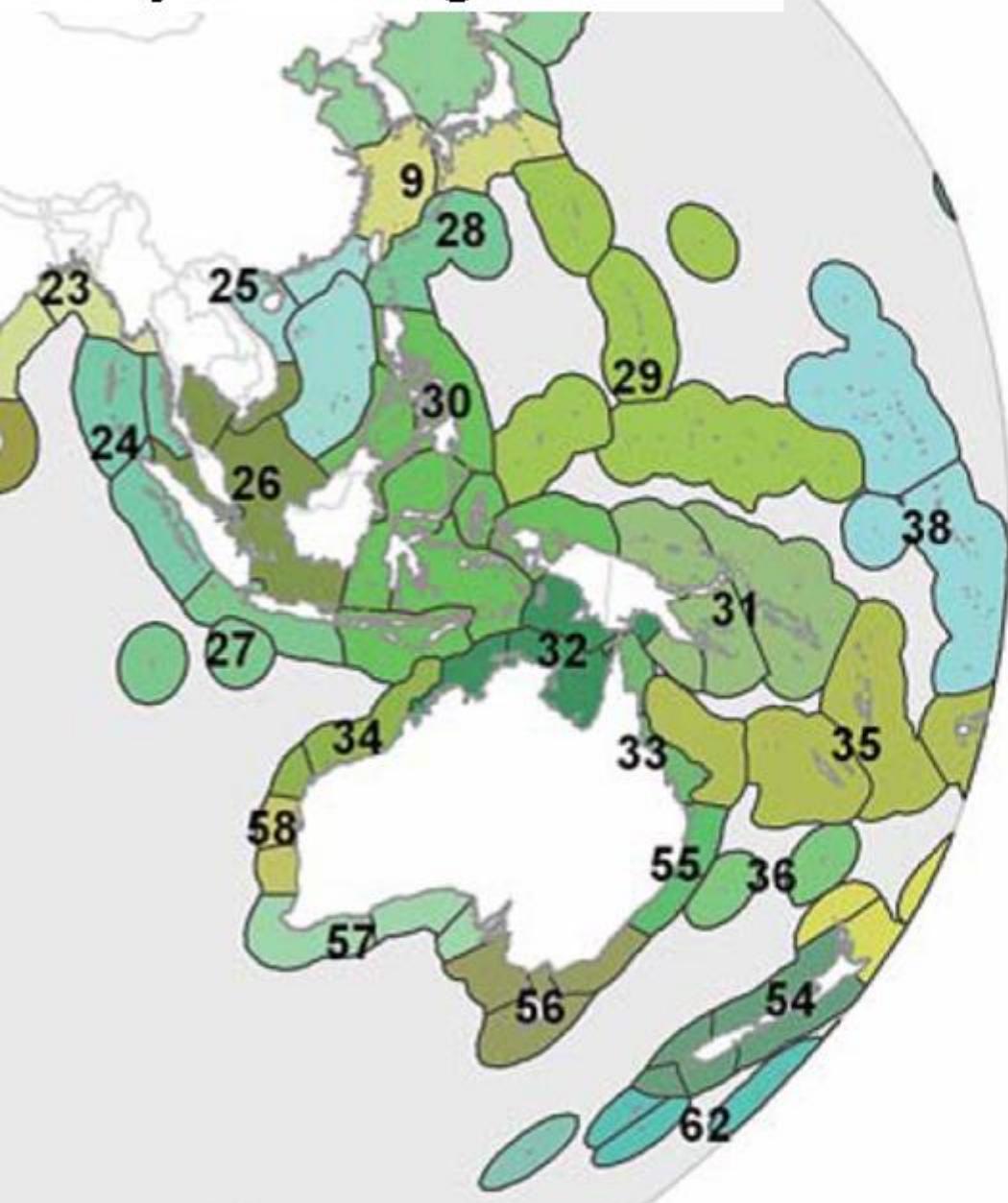


Propinsi bioekologi kelautan di dunia berdasarkan ekoregion (Spalding dkk, 2007)

b



Posisi Sulawesi di Wilayah Ekoregion Dunia



Central Indo-Pacific

- 25. South China Sea
- 26. Sunda Shelf
- 27. Java Transitional
- 28. South Kuroshio
- 29. Tropical Northwestern Pacific
- 30. Western Coral Triangle
- 31. Eastern Coral Triangle
- 32. Sahul Shelf
- 33. Northeast Australian Shelf
- 34. Northwest Australian Shelf
- 35. Tropical Southwestern Pacific
- 36. Lord Howe and Norfolk Islands

30. Western Coral Triangle

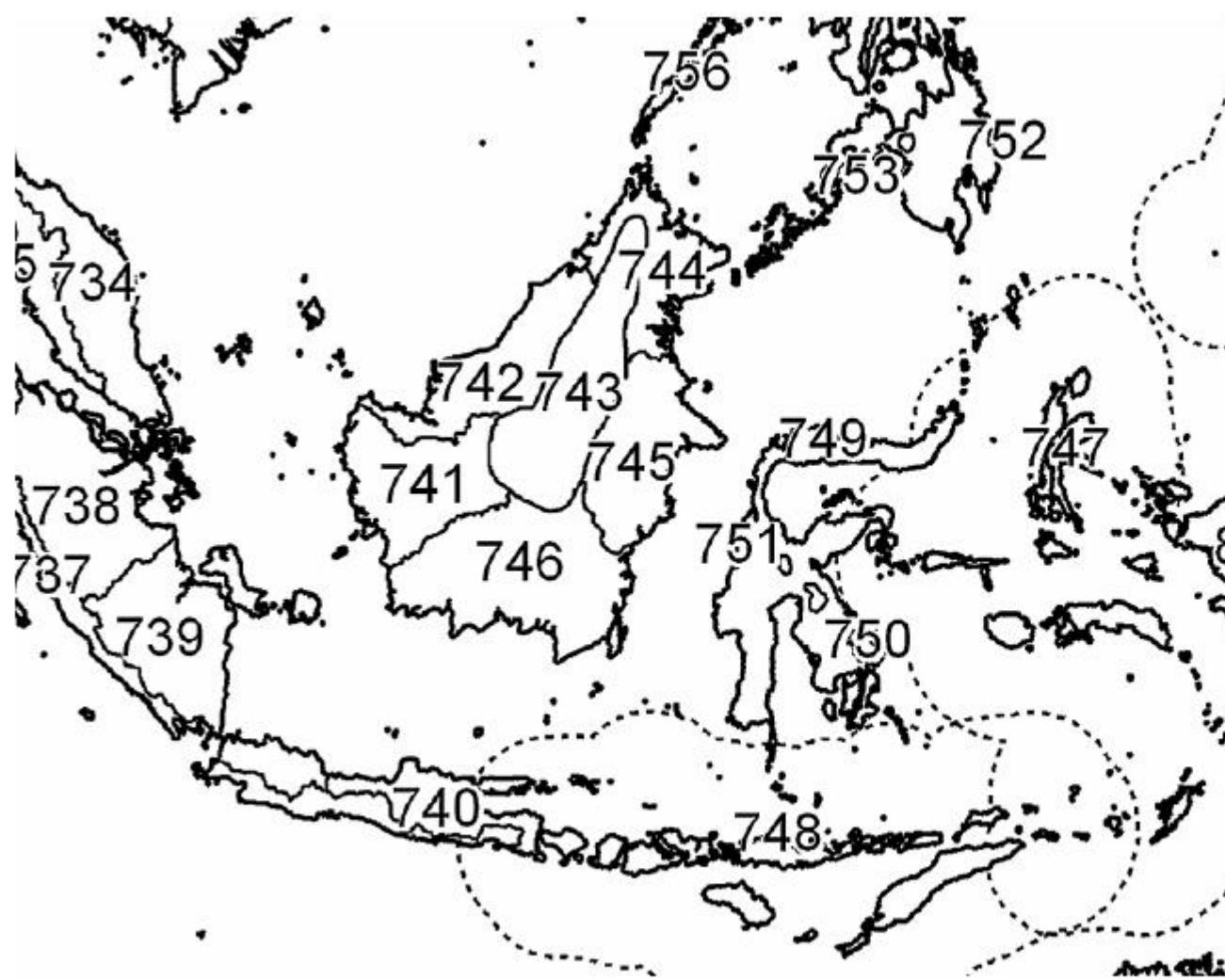
- 126. Palawan/North Borneo
- 127. Eastern Philippines
- 128. Sulawesi Sea/Makassar Strait
- 129. Halmahera
- 130. Papua
- 131. Banda Sea
- 132. Lesser Sunda
- 133. Northeast Sulawesi

Bioekoregion air tawar

426 ekoregion air tawar dunia (Abell dkk, 2008)



Posisi Sulawesi dalam ekoregion air tawar dunia

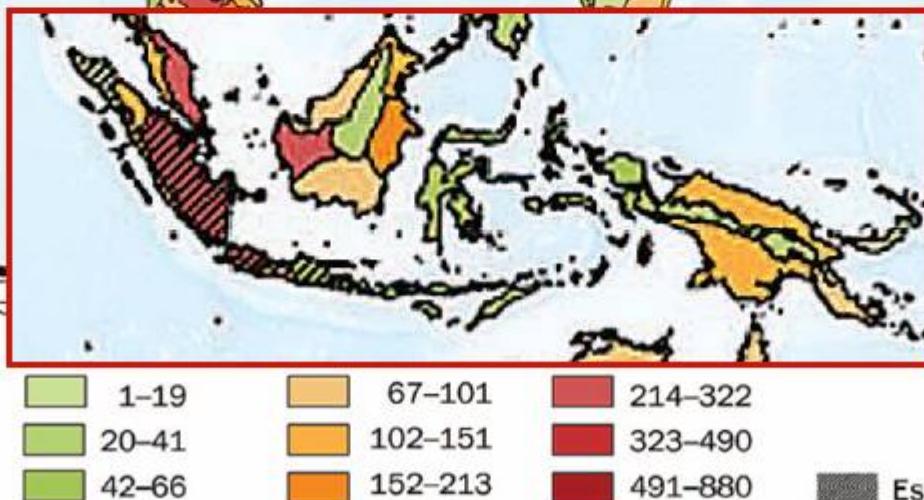


Ekoregion Asia Selatan

- 747. Maluku
- 748. Nusa Tenggara
- 749. Sulawesi
- 750. Danau malili
- 751. Danau Poso

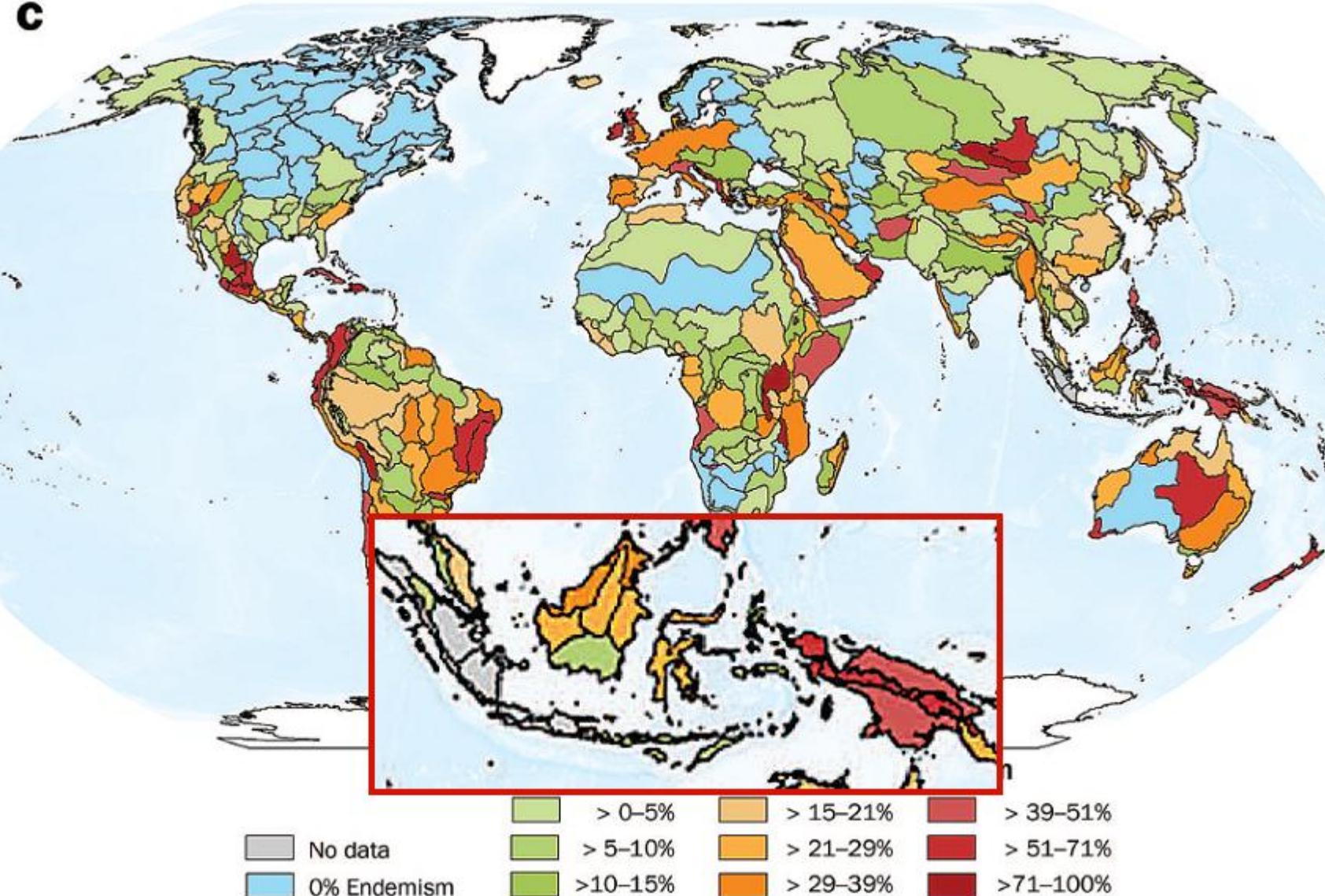
Jumlah jenis ikan air tawar pada setiap bioregion (Abell, 2008)

a

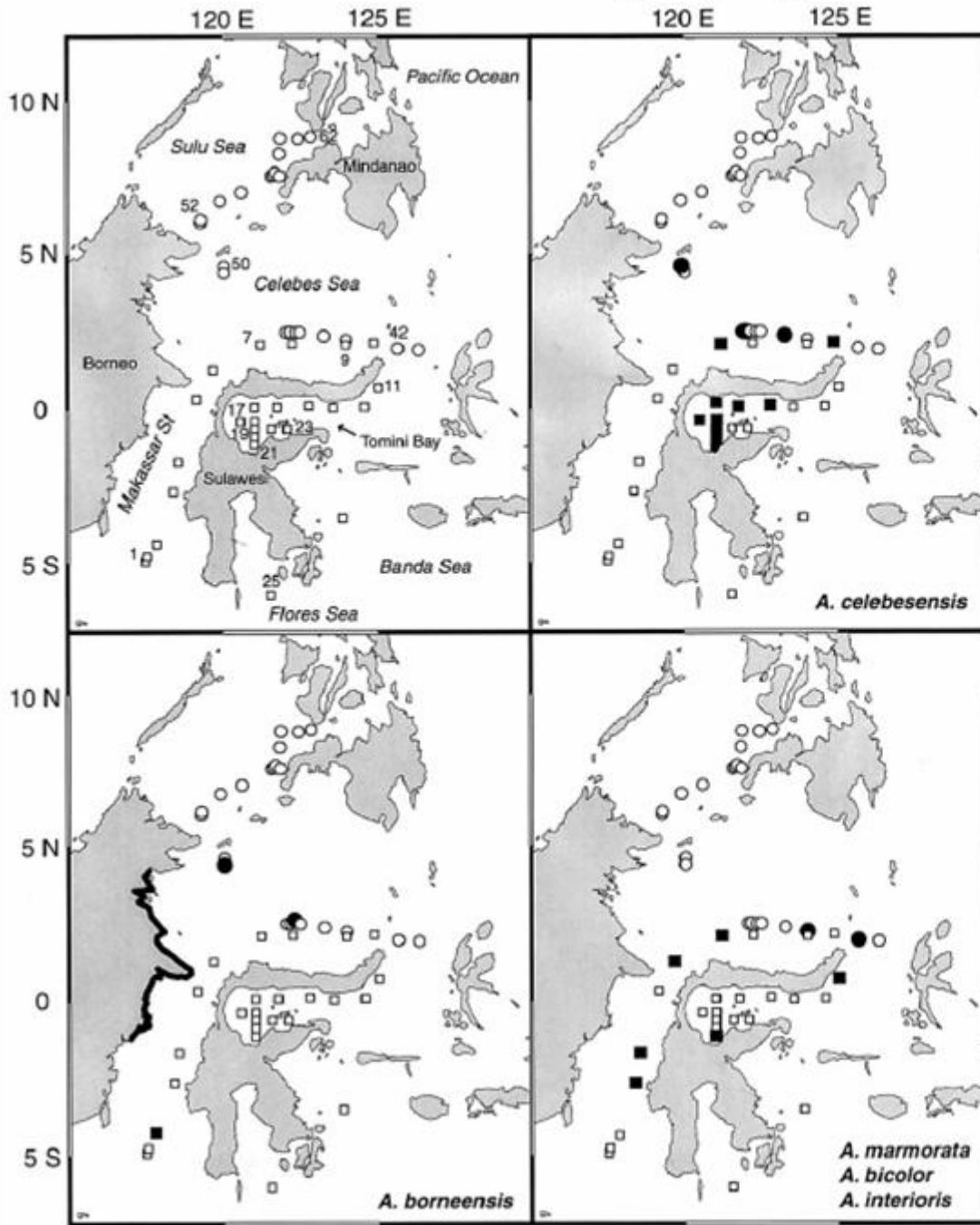


Persentase jenis ikan air tawar endemik pada setiap bioregion (Abell, 2008)

C



T. Tomini untuk kasus Sogili (*Anguila celebensis*)



Laut Sulawesi dan Teluk Tomini adalah “spawning ground” dari *A. celebensis* (Arai dkk 1999)



Keterangan:

- Lingkaran dan kotak menunjuk 2 ekspedisi yang berbeda.
- Hitam artinya ditemukan, putih tidak ditemukan.

Kawasan Wallacea

Teluk Tomini dan Kawasan Wallacea



Sulawesi adalah pulau dengan nilai global terpenting di Kawasan Wallacea

Australasia

Pulau Sulawesi



Pulau Sulawesi



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Mengapa SULAWESI?

Keanekaan hayati yang tinggi

Keanekaan ekosistem yang tinggi

Sejarah geologi yang unik*

Region ekologi yang tegas

* (Villeneuve dkk 2002, Hope 2001)

Sulawesi adalah:

"an Endemic Bird Area" (Birdlife)

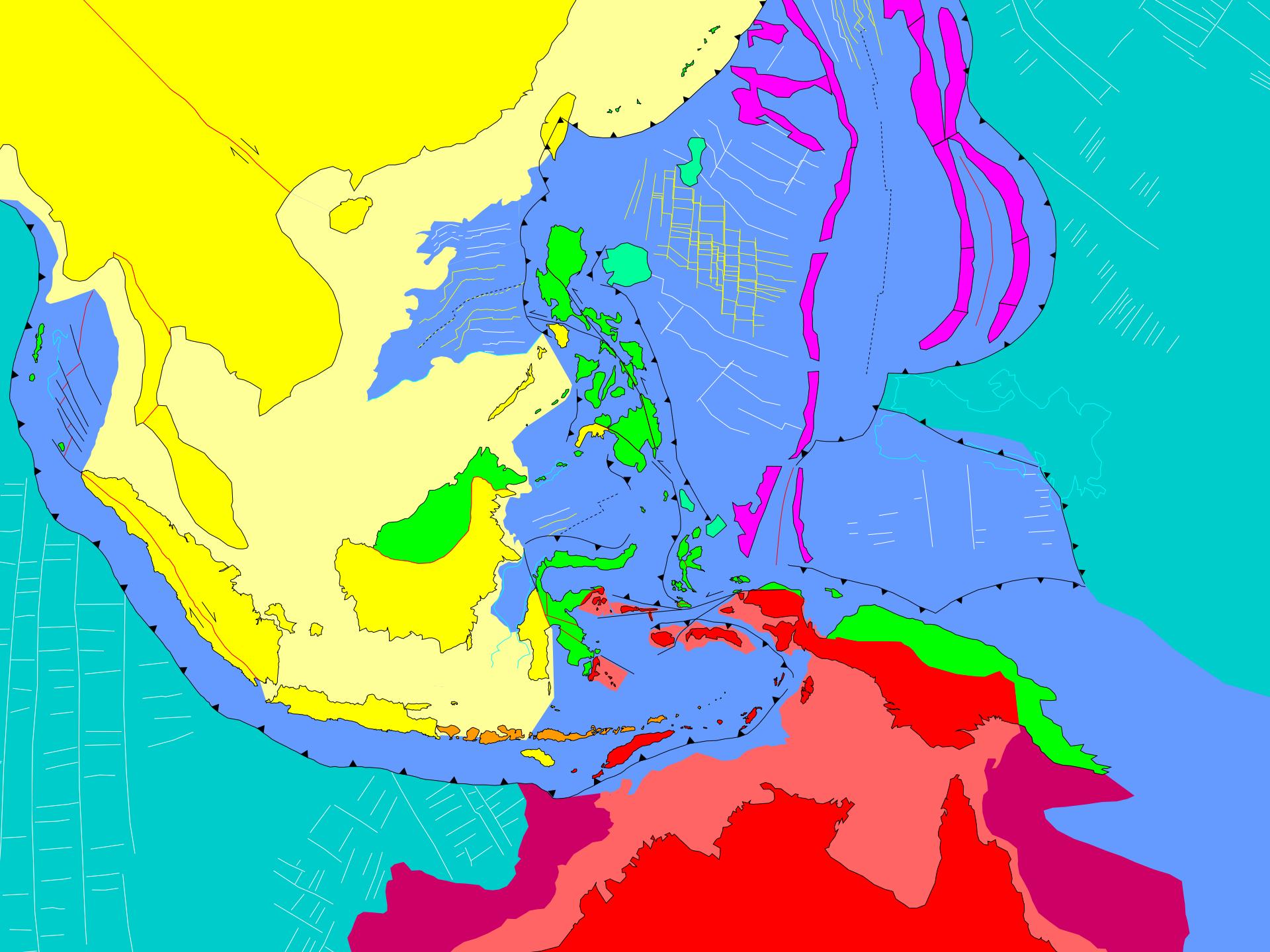
"significant Ecoregion" (WWF)

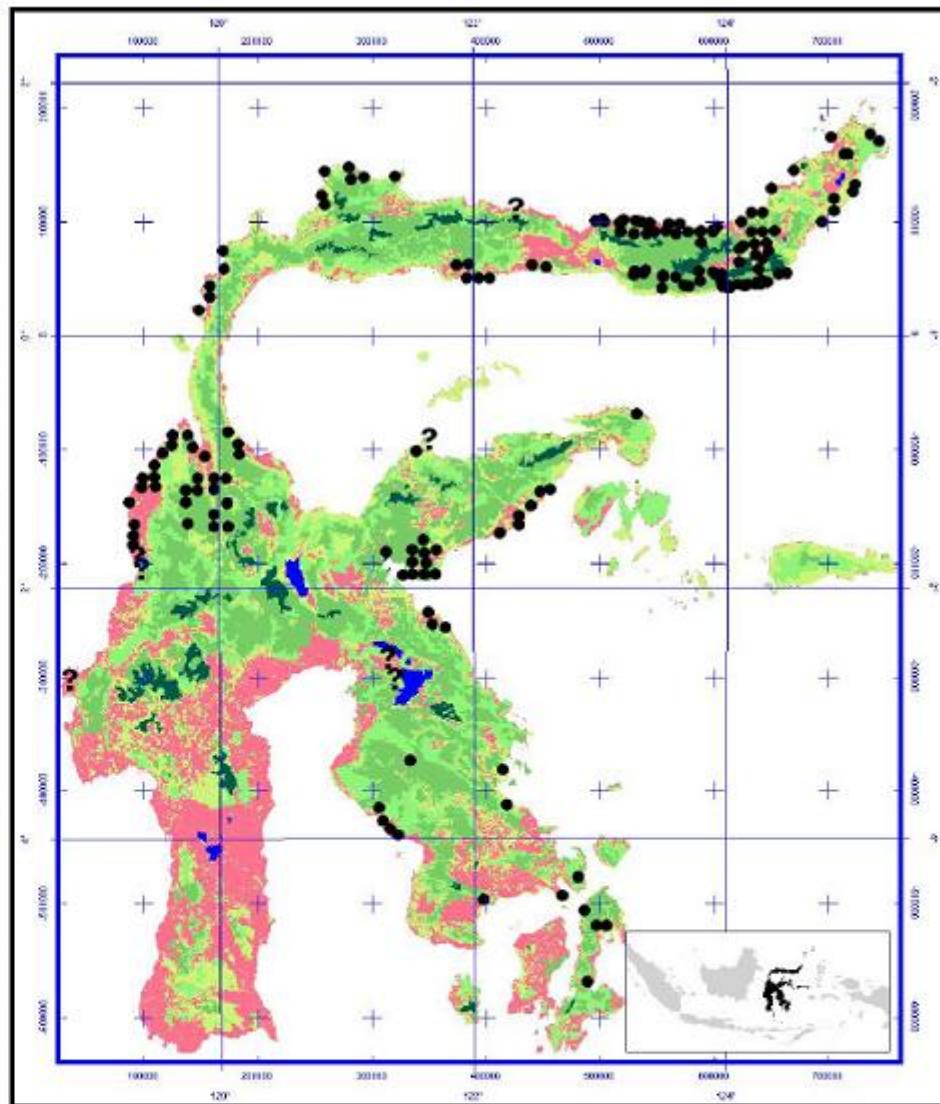
"priority for conservation investment" (Wilson dkk, 2006)

Sulawesi adalah pulau dengan tingkat endemisitas tertinggi di dunia

Jenis	Endemik Indonesia	Endemik Sulawesi	Total Sulawesi	Tingkat Endemisitas
Mamalia	165	76 (46%)	127	60%
Burung	256	84 (33%)	233	36%
Reptilia	150	29 (19%)	104	28%

Sumber: Lee dkk, 2001





LEGENDA

Kondisi nesting ground Maleo
● Nesting Ground
? Unknown Status

Kondisi hutan
■ Old Growth
■ Good
■ Fair
■ Poor
■ Open
■ Water

SEBARAN NESTING GROUND MALEO
DAN KONDISI HUTAN DI SULAWESI



50000 0 50000 100000 150000 Meters

Sumber: Whitten dkk. 2002



Distribusi monyet juga mengikuti gradien geografi.

Sekarang di Sulawesi dikenal:

1. Macaca maura
2. Macaca ochreata
3. Macaca brunnescens
4. Macaca tonkeana
5. Macaca balantakensis
6. Macaca hecki
7. Macaca nigra



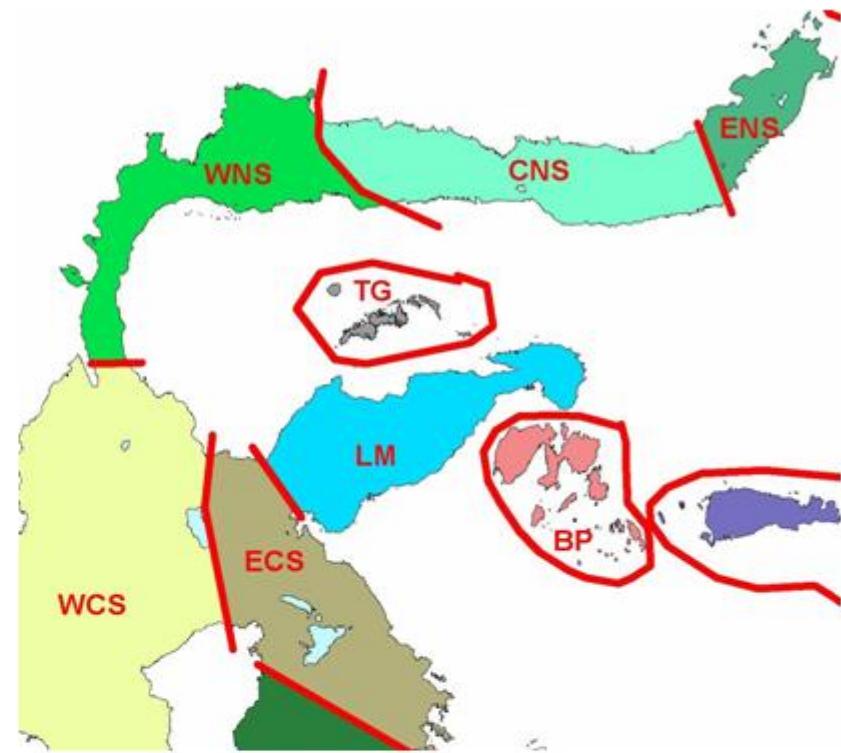
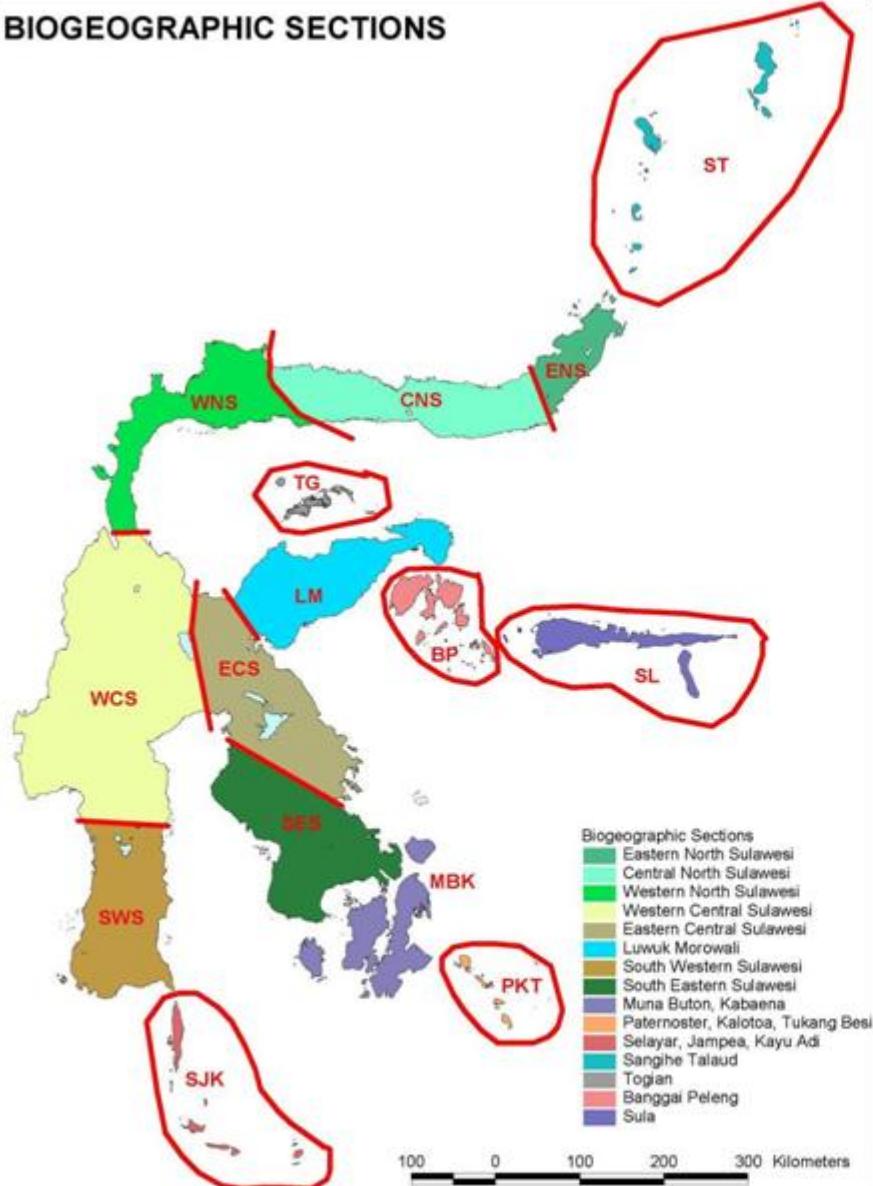
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BIOGEOGRAPHIC SECTIONS



Seksi biogeografi berdasarkan ECA:

- Luwuk Morowali
- Togian (TG)
- Eastern Central Sulawesi (ECS)
- West Central Sulawesi (WCS)
- West North Sulawesi (WNS)
- Central North Sulawesi (WNS)
- East North Sulawesi (ENS)

DAFTAR PUSTAKA

- Abell, R., M.L. Thieme, C. Revenga, M. Bryer, M. Kottelat, N. Bogutskaya, B. Coad, N. Mandrak, S.C. Balderas, W. Bussing, M.L.J. Stiassny, P. Skelton, G.R. Allen, P. Unmack, A. Naseka, R. Ng, N. Sindorf, J. Robertson, E. Armijo, J.V. Higgins, T.J. Heibel, E. Wikramanayake, D. Olson, H.L. López, R.E. Reis, J.G. Lundberg, M.H. Sabaj Pérez, and P. Petry. 2008. Freshwater Ecoregions of the World: A New Map of Biogeographic Units for Freshwater Biodiversity Conservation. BioScience 58 (5): 404-414.
- Arai, T., J. Aoyama, D. Limbong, K. Tsukamoto. 1999. Species composition and inshore migration of the tropical eels *Anguilla* spp. recruiting to the estuary of the Poigar River, Sulawesi Island. Marine Ecology Progress Series 188: 299-303
- Hope, G.. 2001. Environmental change in the Late Pleistocene and later Holocene at Wanda site, Soroako, South Sulawesi, Indonesia. Palaeography, Palaeoclimatology, Palaeoecology 17:129-145.
- Lee, R.J., J. Riley, R. Merrill, dan R.P. Manoppo. 2001. Keanekaragaman Hayati dan Konservasi di Sulawesi Bagian Utara. WCS - IP dan NRM. Manado.
- Olson, D.M., E. Dinerstein, E.D. Wikramanayake , N.D. Burgess, G.V.N. Powell, E.C. Underwood, J.A. D'amico, I. Itoua, H.E. Strand, J.C. Morrison, C.J. Loucks, T.F. Allnutt, T.H. Ricketts, Y. Kura, J.F. Lamoreux, W.W. Wettengele , P. Hedao, and K.R. Kassem. 2001. Terrestrial Ecoregions of the Wo rld: A New Map of Life on Earth. BioScience 51 (11): 933-938
- Spalding, M.D., H.E. Fox, G.R. Allen, N. Davidson, Z.A. Ferdaña, M. Finlayson, B.S. Halpern, M.A. Jorge, A. Lombana, S.A. Lourie, K.D. Martin, E. McManus, J. Molnar, C.A. Recchia, and J. Robertson. 2007. Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas. BioScience 57 (7): 574-583
- Tasirin, J.S. dan B. Antono. 2010. Profil dan Potensi Kawasan Area Penggunaan Lain di Propinsi Sulawesi Utara. Badan Perencanaan Pembangunan Daerah Propinsi Sulawesi Utara. Manado.
- TNC. 2005. Ecoregional Conservation Assessment: Sulawesi Indonesia. The Nature Conservancy Indonesia Program. Jakarta.
- Villeneuve, M., W. Gunawan, J. Cornee, O. Vidal. 2002. Geology of the central Sulawesi belt (eastern Indonesia): constraints for geodynamic models. International Journal of Earth Science 91:524–537
- Wallace, A.R.. 1876. The Geographical Distribution of Animals, With a Study of the Relations of Living and Extinct Faunas As Elucidating the Past Changes of the Earth's Surface. Harper and Brothers, New York.
- Whitten, T., M. Mustafa, G.S. Henderson. 2002. The Ecology of Sulawesi. Periplus. Singapore.