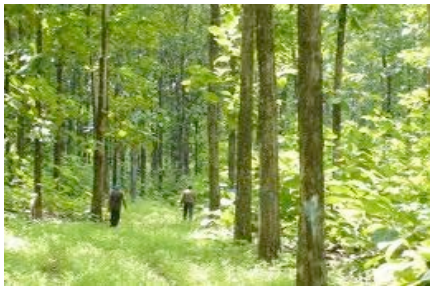
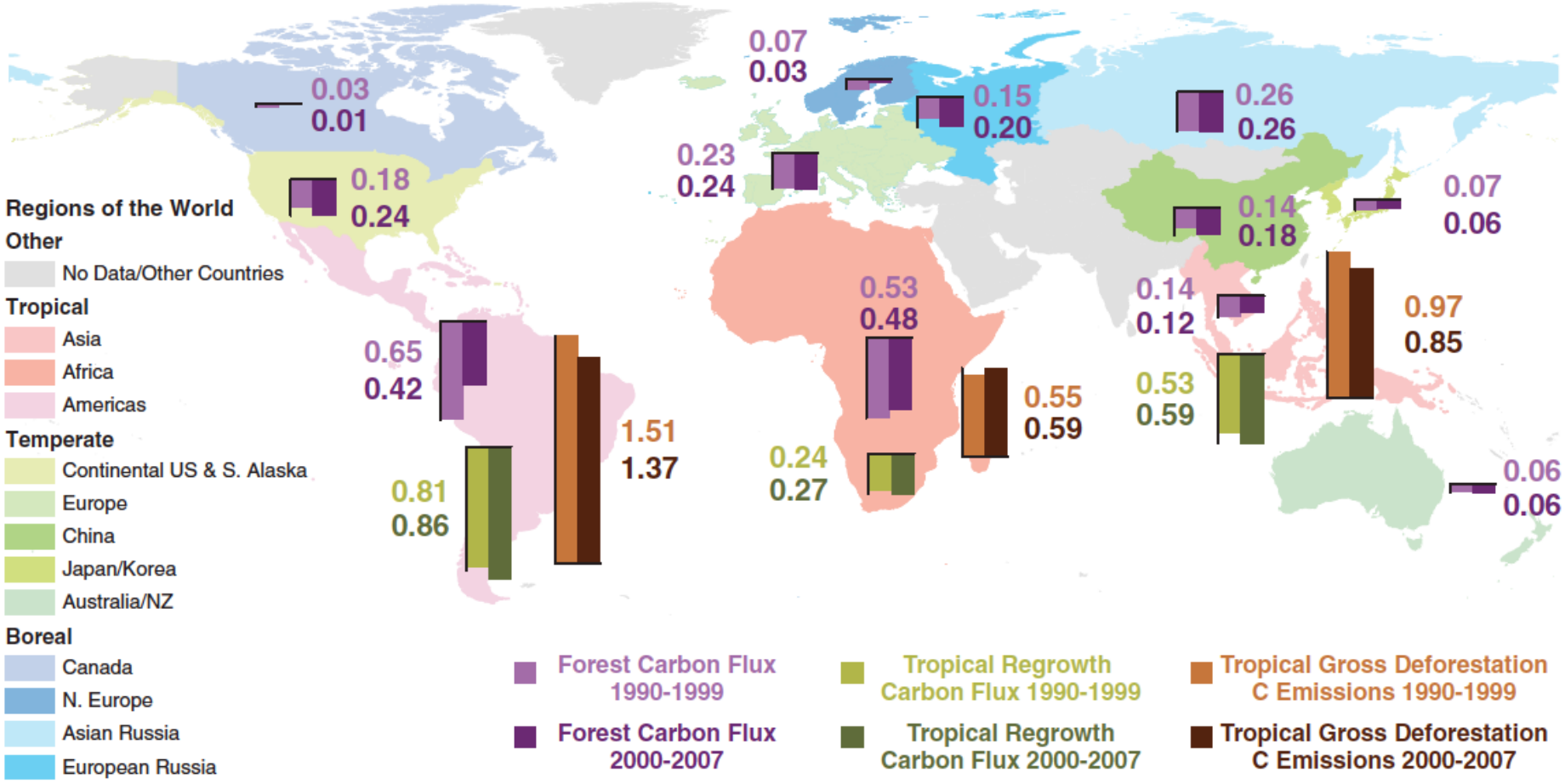


Forest age datasets

Ben Poulter

With contributions from L Aragão, V Bellassen, T Kato, X Lin, S Luyssaert, B Nachin, N Pederson, P Peylin, S Piao, D Schepaschenko, A Shivdenko, S Saatchi, M Schelhaas, P Ciais & TRENDY modelers

Closing the global carbon budget

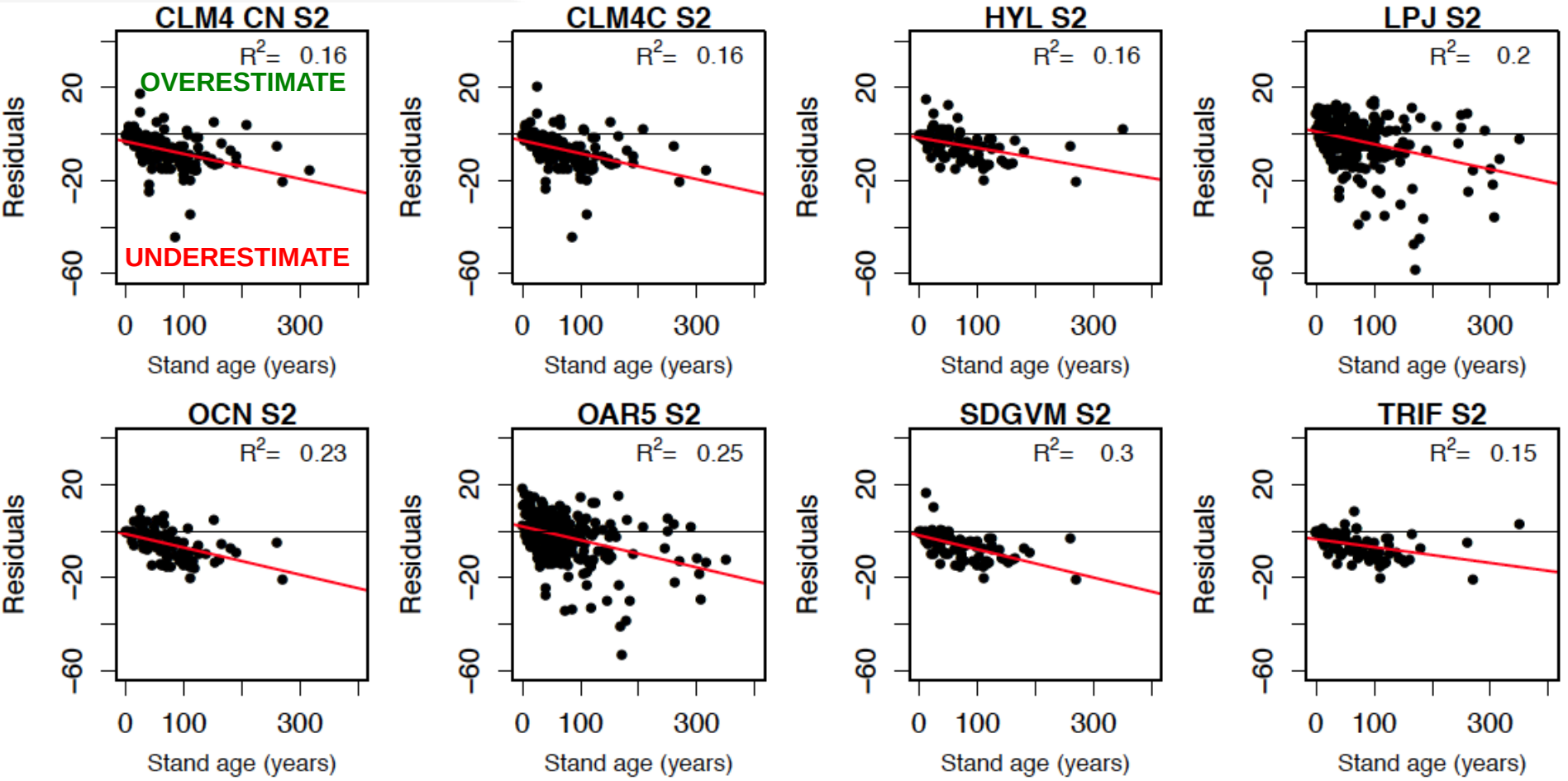


$$L_{sink} = FF_{source} + LUC_{source} - O_{sink} - A_{sink}$$

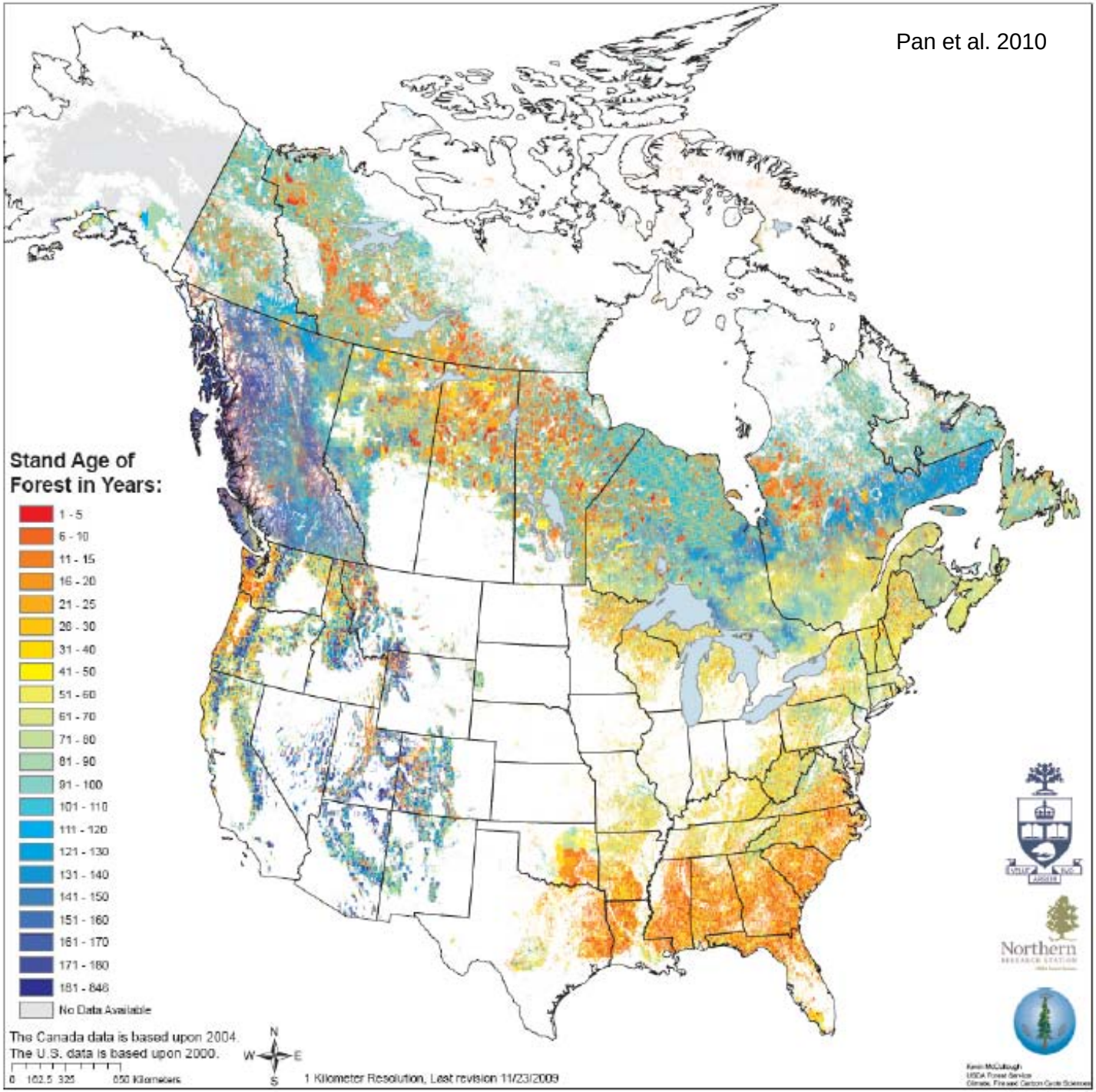
Pan et al. 2011

Closing the global carbon budget

Forest age explains 15-30% of model minus data residual



Pan et al. 2010

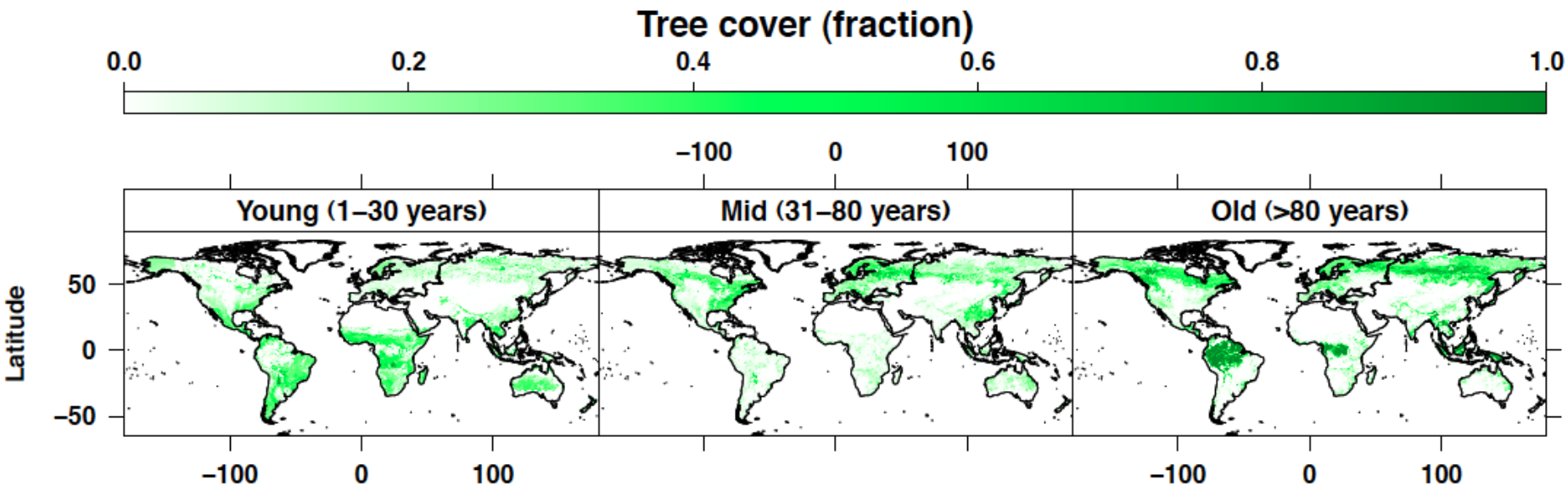


Global mapping of forest age structure

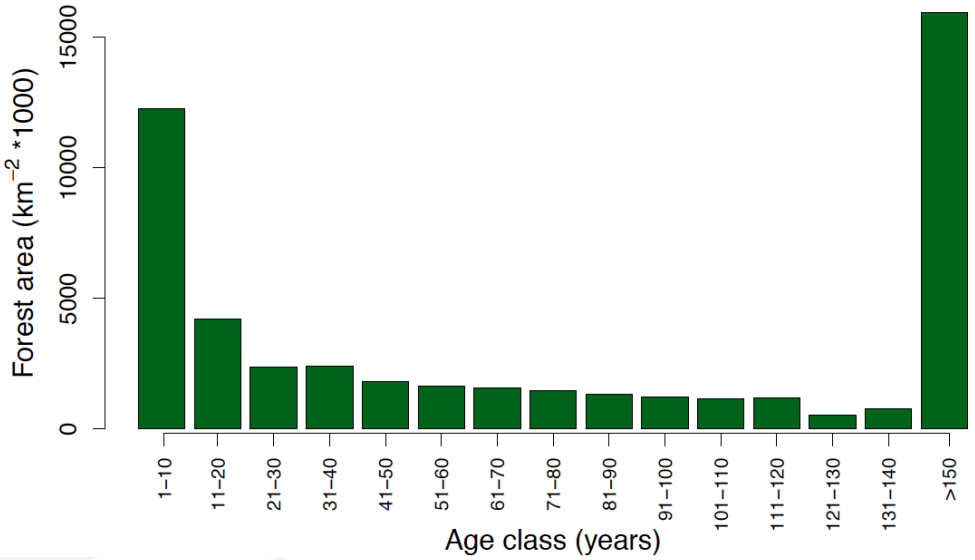
Region/Country	Data Source	Managed/Unmanaged	Ancillary data
United States	US FIA	None	States
Russia	IIASA	None	
Canada	CanFI	Yes	Large fires database
Europe	EFISCEN	None	Provinces
Pan-tropics	Saatchi biomass	None	Marin-Spiotta biomass-age curves
China	6th National Forest Inventory	Yes	Plantations
Other countries	New Zealand NFI Mongolia NFI Japan NFI	None None Yes	Provinces

- MODIS version 5.1 land cover converted to 0.5 degree plant functional types
- Spatial downscaling assumed homogeneous variance within each spatial domain
- For the tropics, climate-stratified biomass-age curves (Marin-Spiotta & Saatchi)

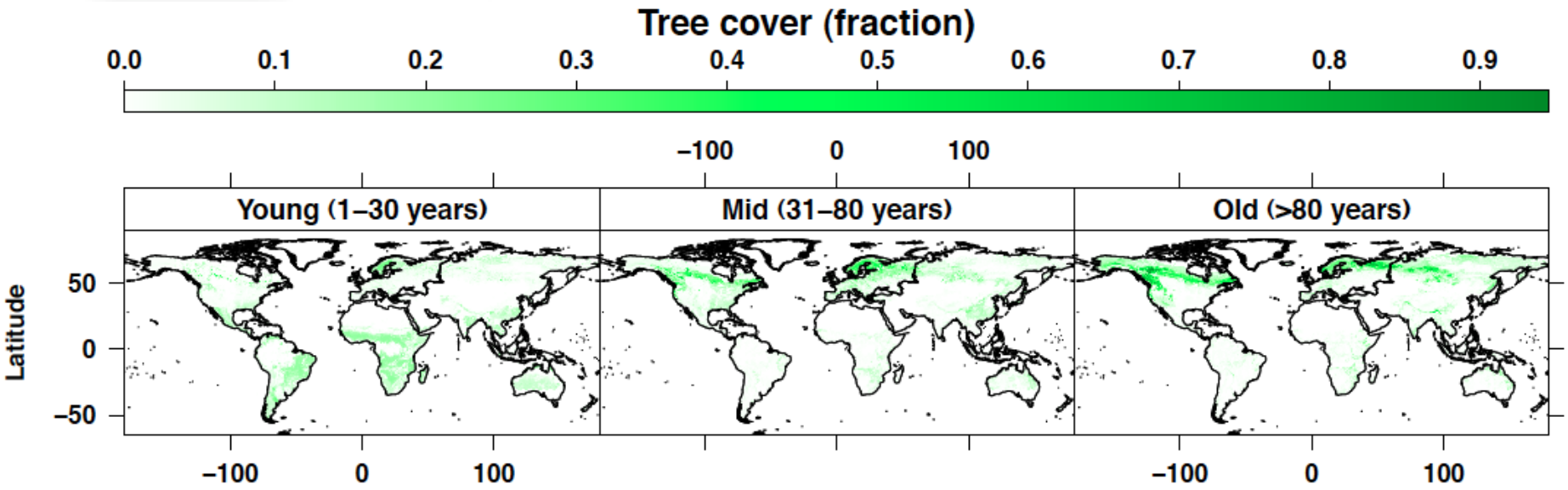
Global mapping of forest age structure



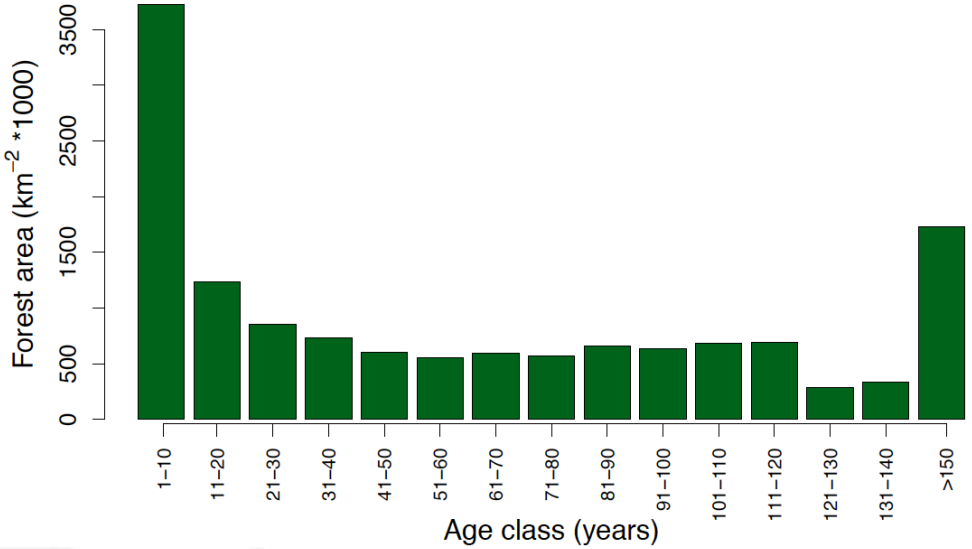
Global Forest Age



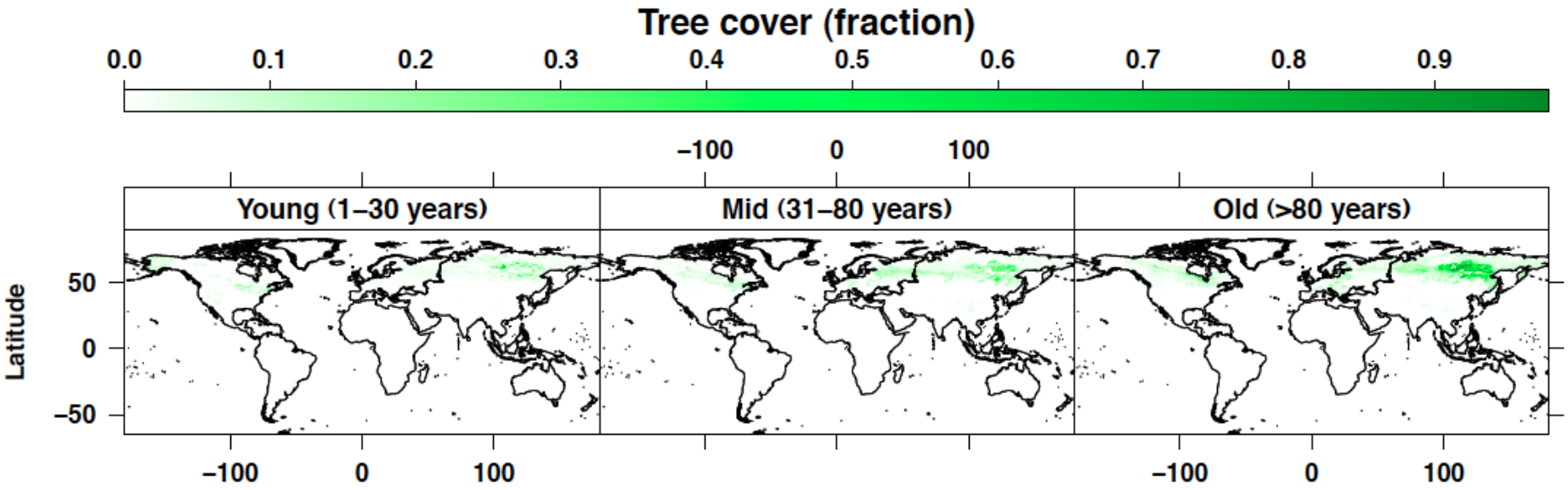
Global mapping of forest age structure



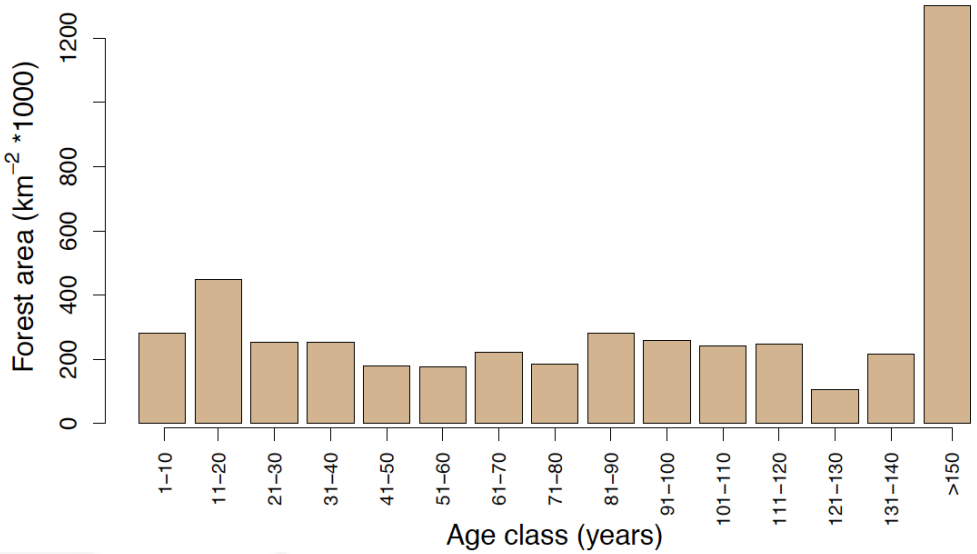
Needleleaf evergreen forest age



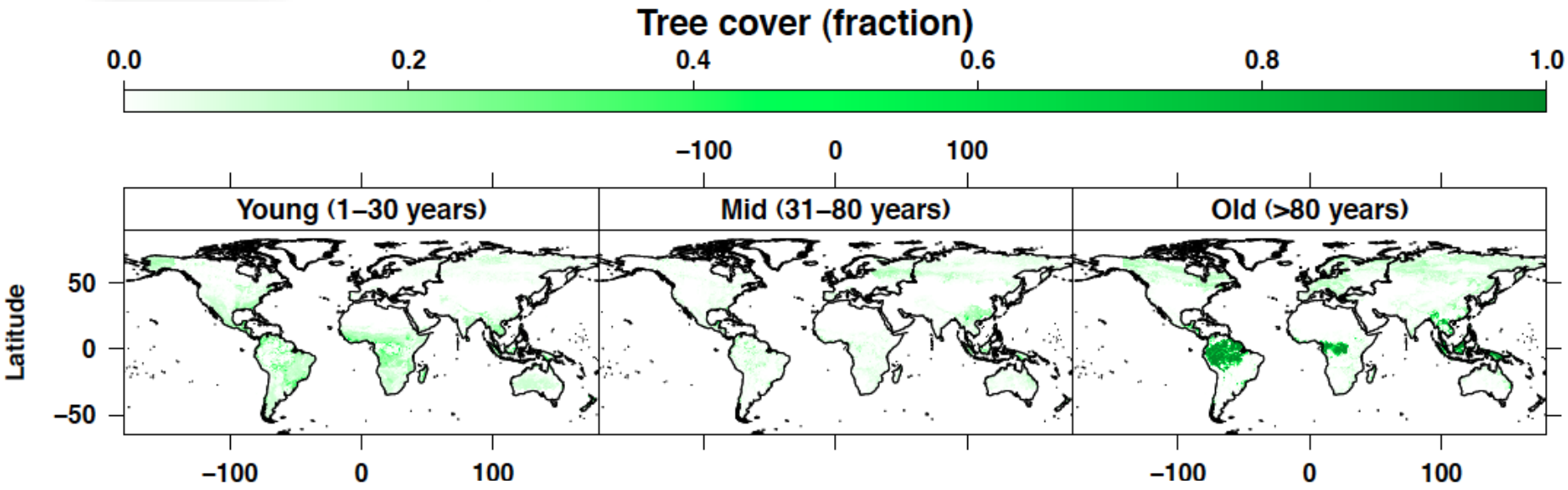
Global mapping of forest age structure



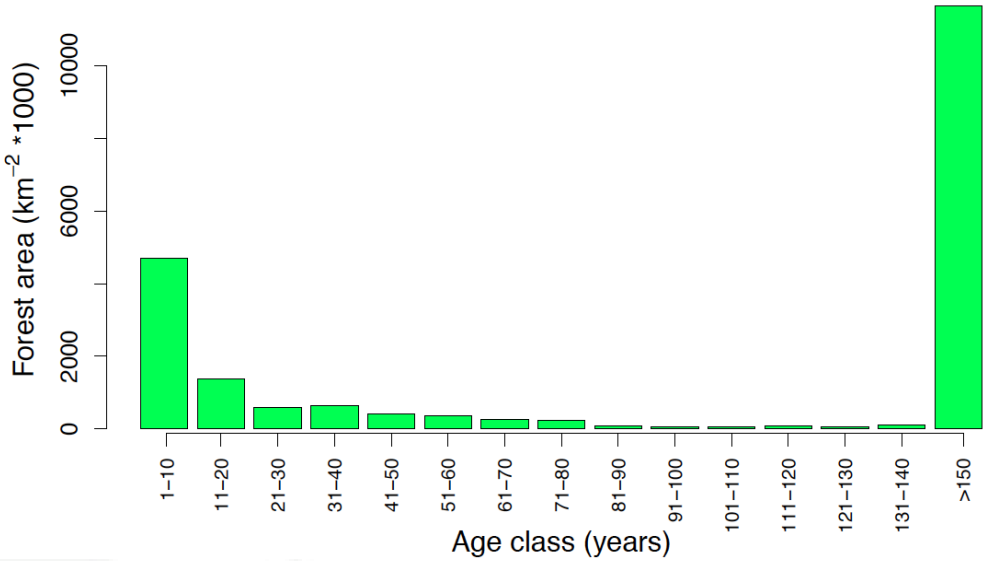
Needleleaf deciduous forest age



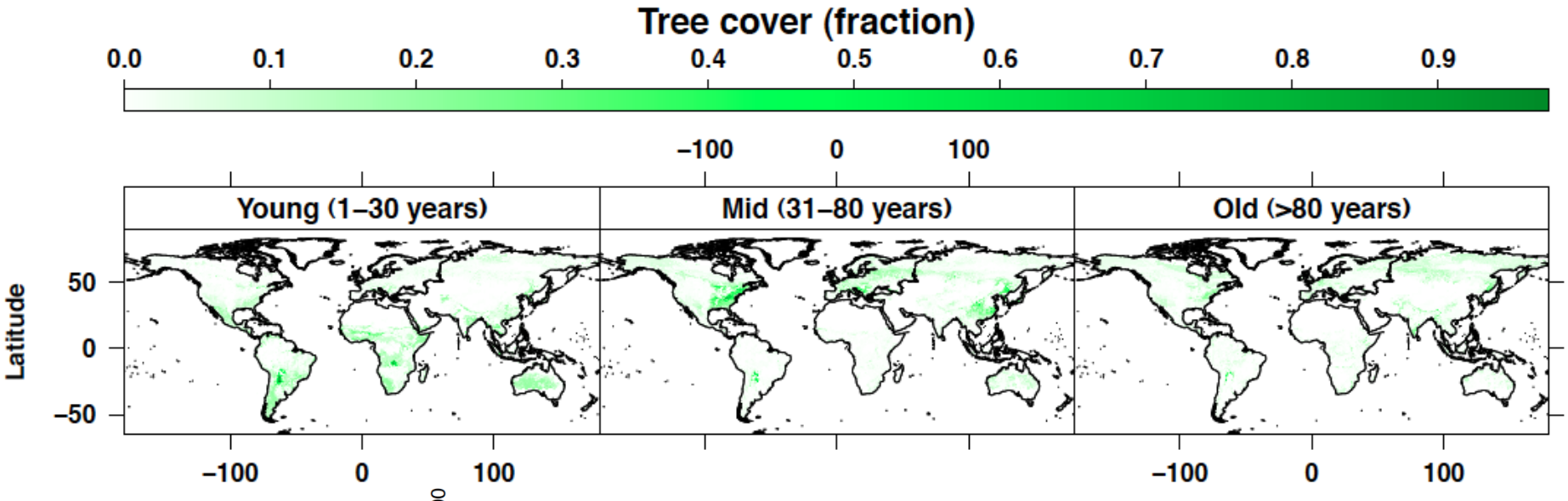
Global mapping of forest age structure



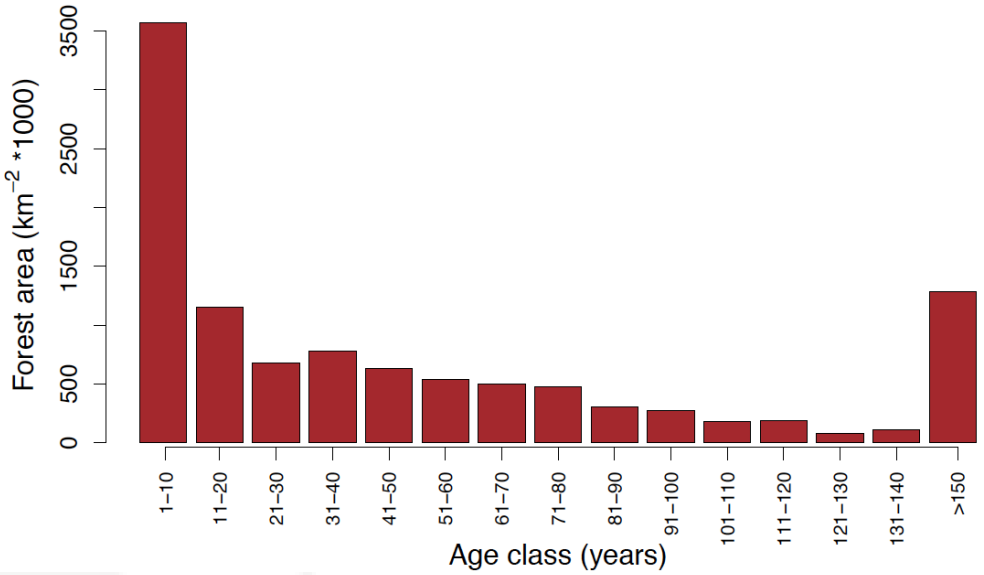
Broadleaf evergreen forest age



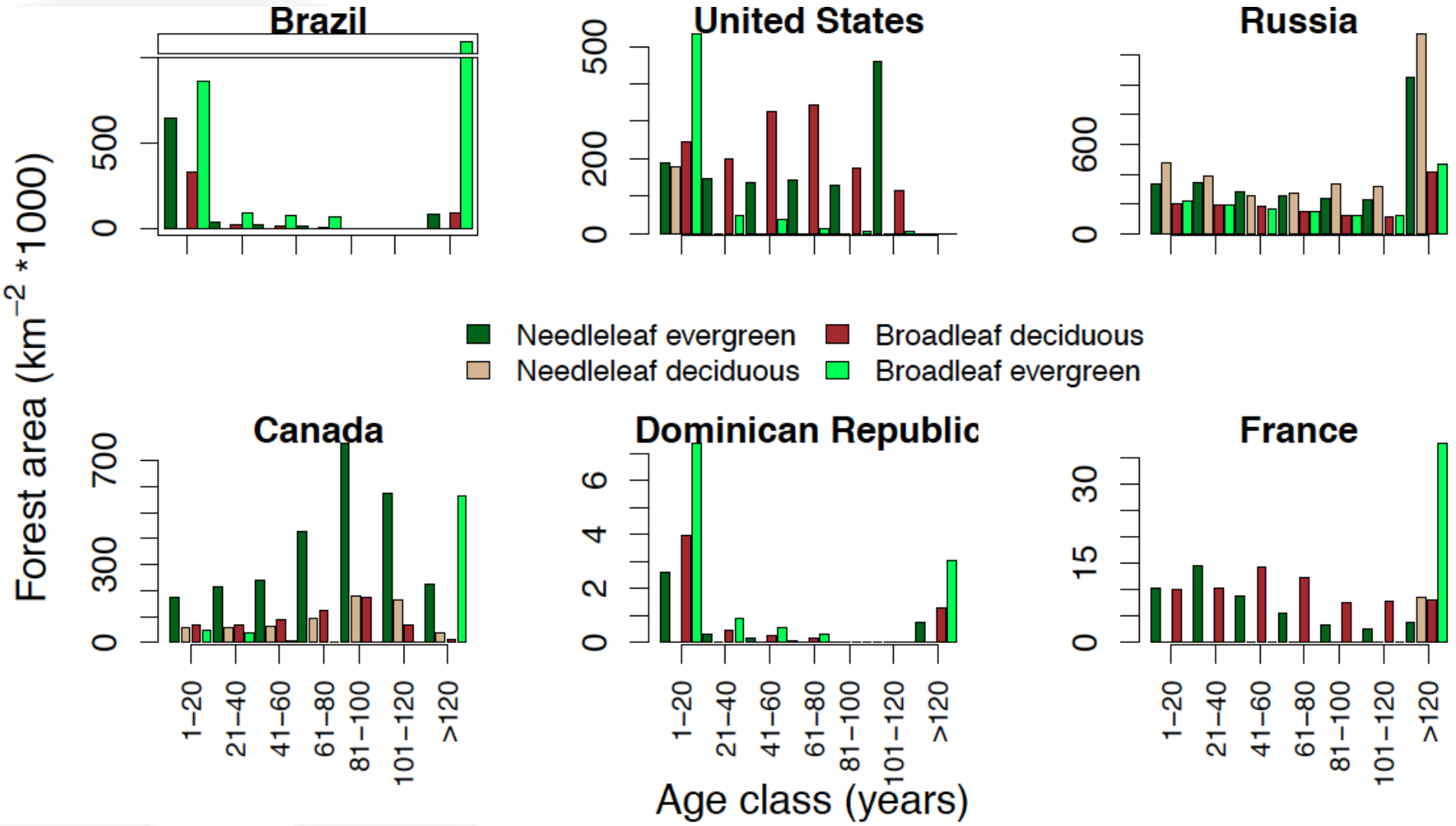
Global mapping of forest age structure



Broadleaf deciduous forest age



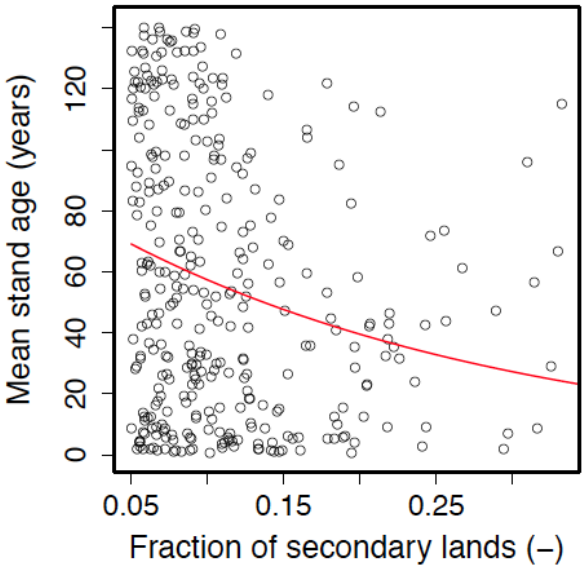
Global mapping of forest age structure

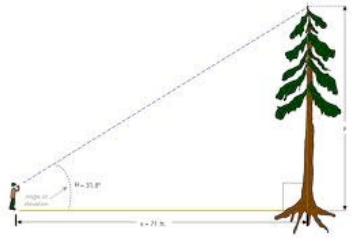


Global mapping of forest age structure

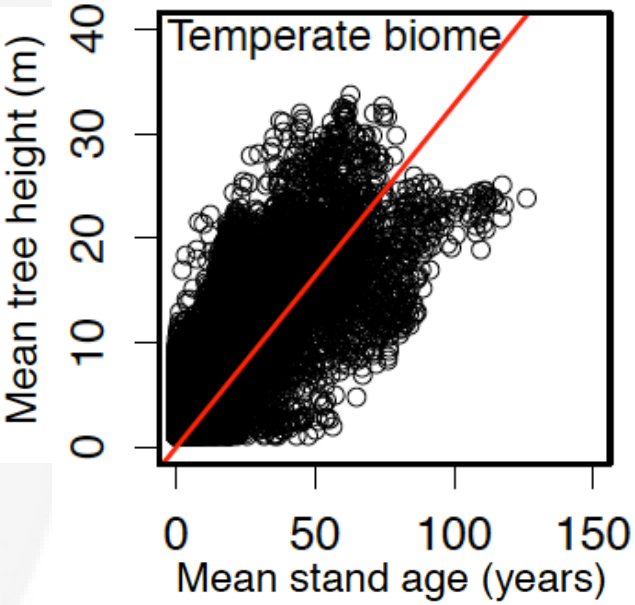
Consistency check:

Tropical Secondary Forests





Tree Height (Simard et al)



Burned area (GFED v3.1)