

WHY FORESTS NEED TO BE ENLISTED IN CLIMATE CHANGE ACTIONS

DOMINICK A. DELLASALA, PH.D.

Chief Scientist, Geos Institute

President, Society for Conservation Biology,
North America Section

GEOS
INSTITUTE



www.geosinstitute.org

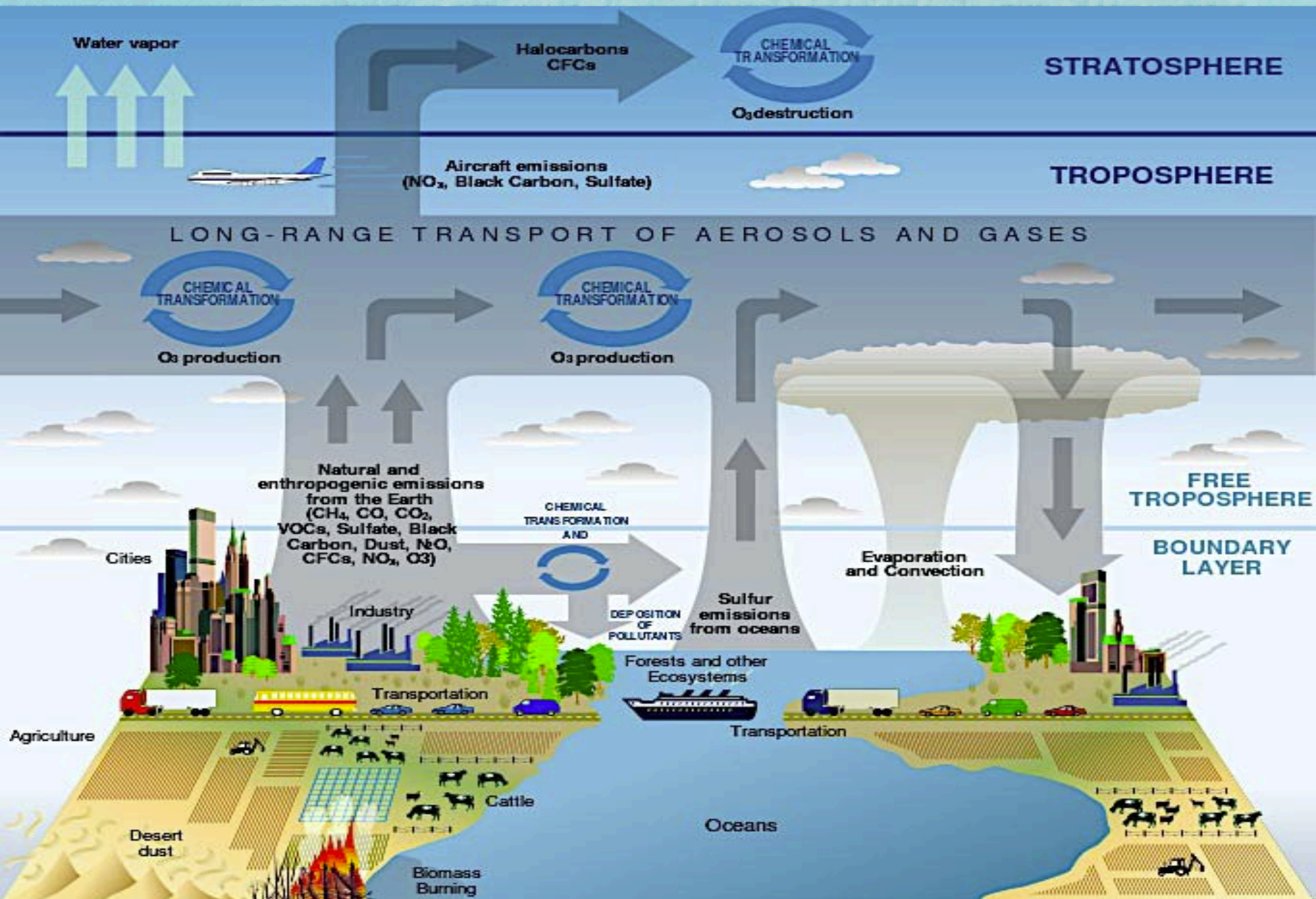
www.conbio.org



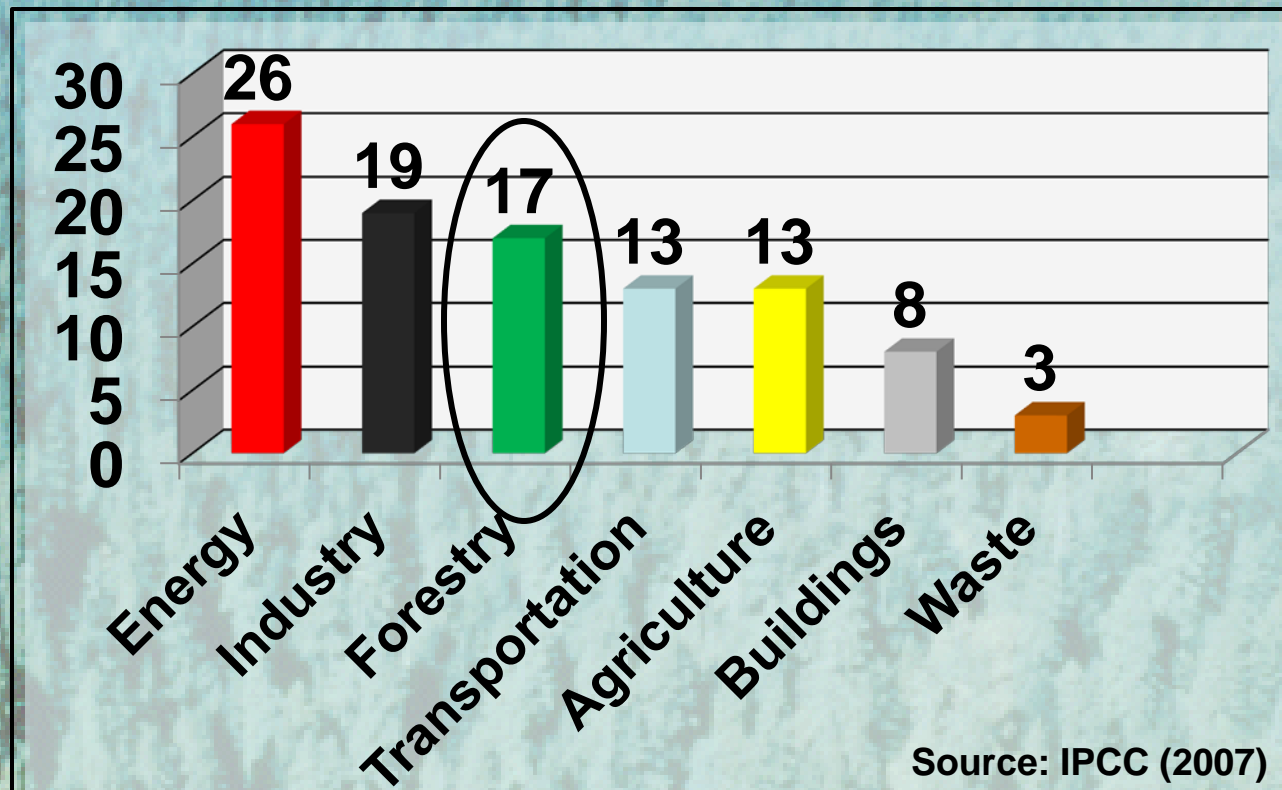
HOW DOES CARBON SHOW UP IN PRESIDENT OBAMA'S CLIMATE ACTION PLAN?

- **“Conservation and sustainable management can help to ensure our forests continue to remove carbon from the atmosphere while also improving soil and water quality, reducing wildfire risk, and otherwise managing forests to be more resilient in the face of climate change.”**
- **“The Administration is working to identify new approaches to protect and restore our forests, as well as other critical landscapes including grasslands and wetlands, in the face of a changing climate.” (June 2013)**

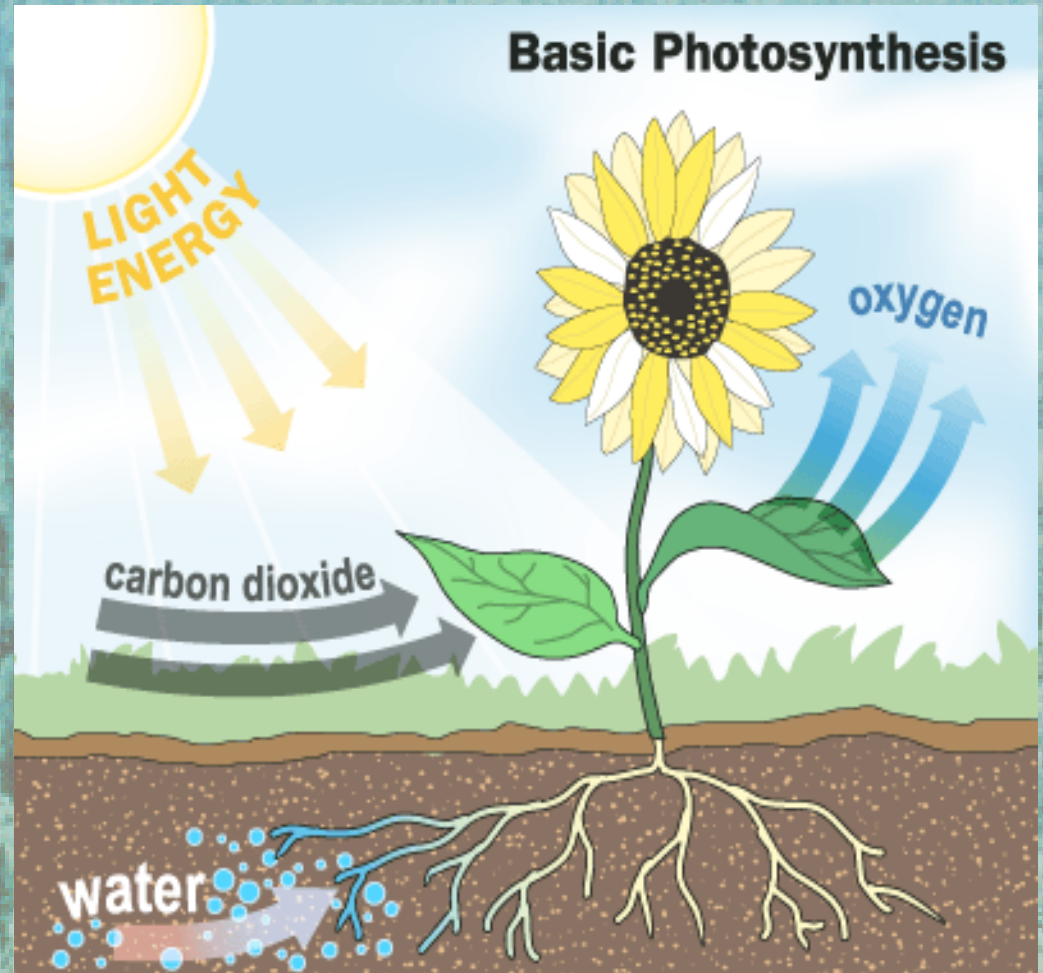
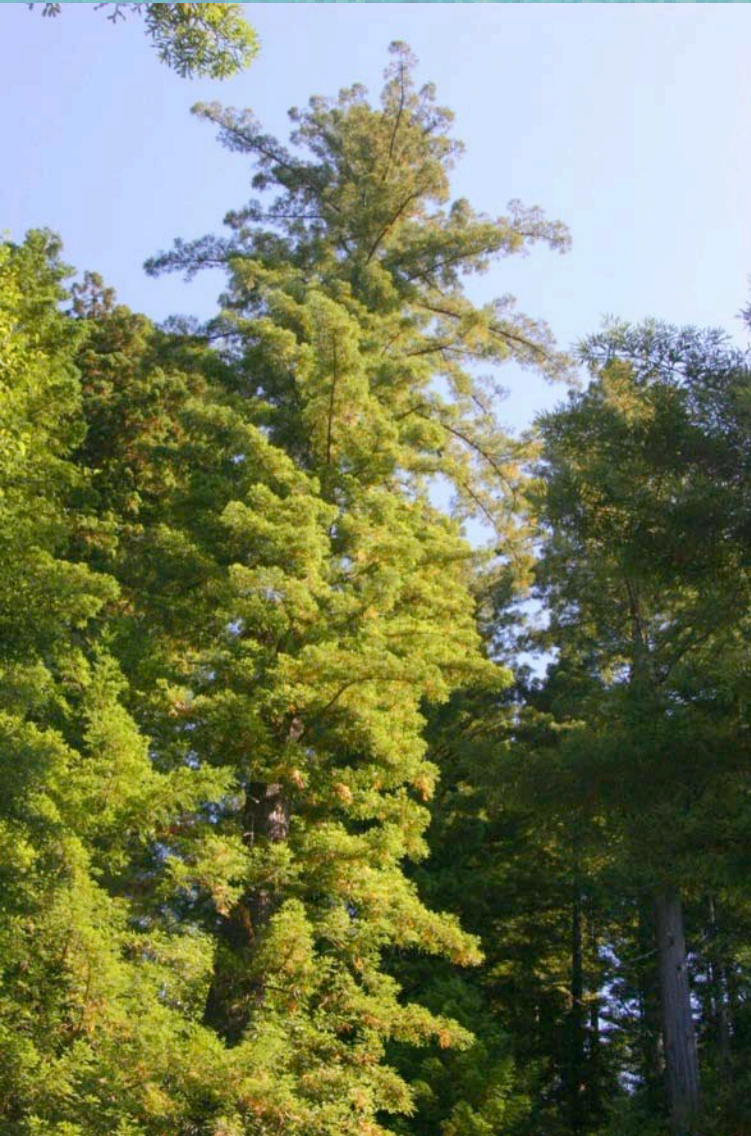
AMOUNT OF CO₂ IN ATMOSPHERE DEPENDS ON "SOURCE-SINK" BALANCE



DEFORESTATION AND FOREST DEGRADATION TIPPING CO₂ BALANCE



FORESTS SEQUESTER AND STORE CARBON – “SINKS”



**A single acre of temperate rainforests =
~ 1 billion leaves (planet's “lungs”)**

Source: DellaSala (2011)

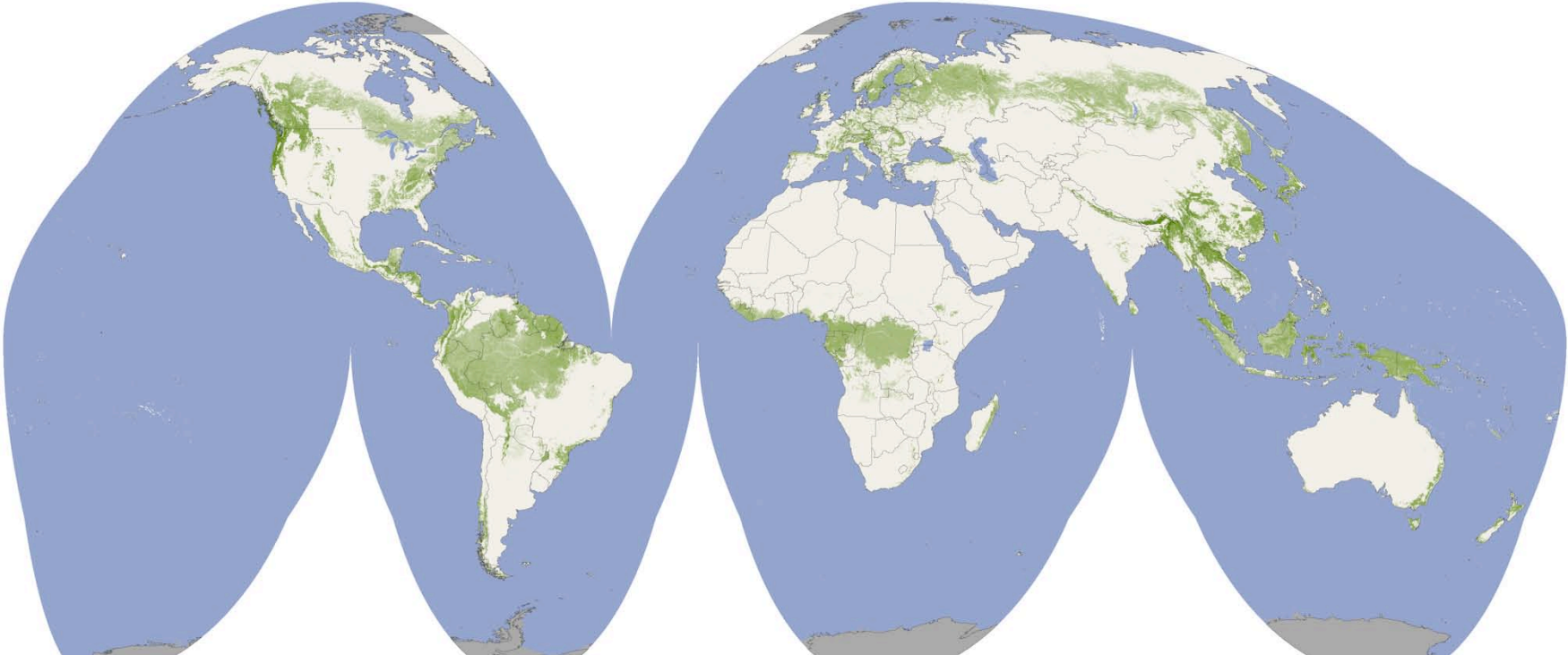
LOGGING & OTHER DISTURBANCES EMIT CO₂ - “SOURCES”



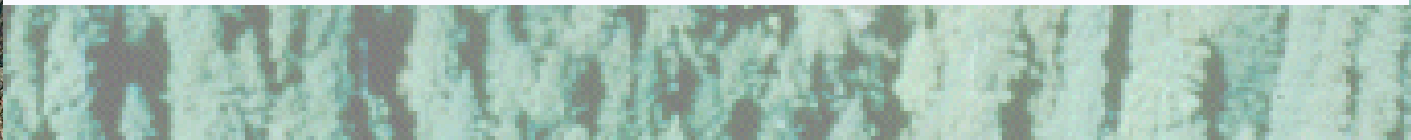
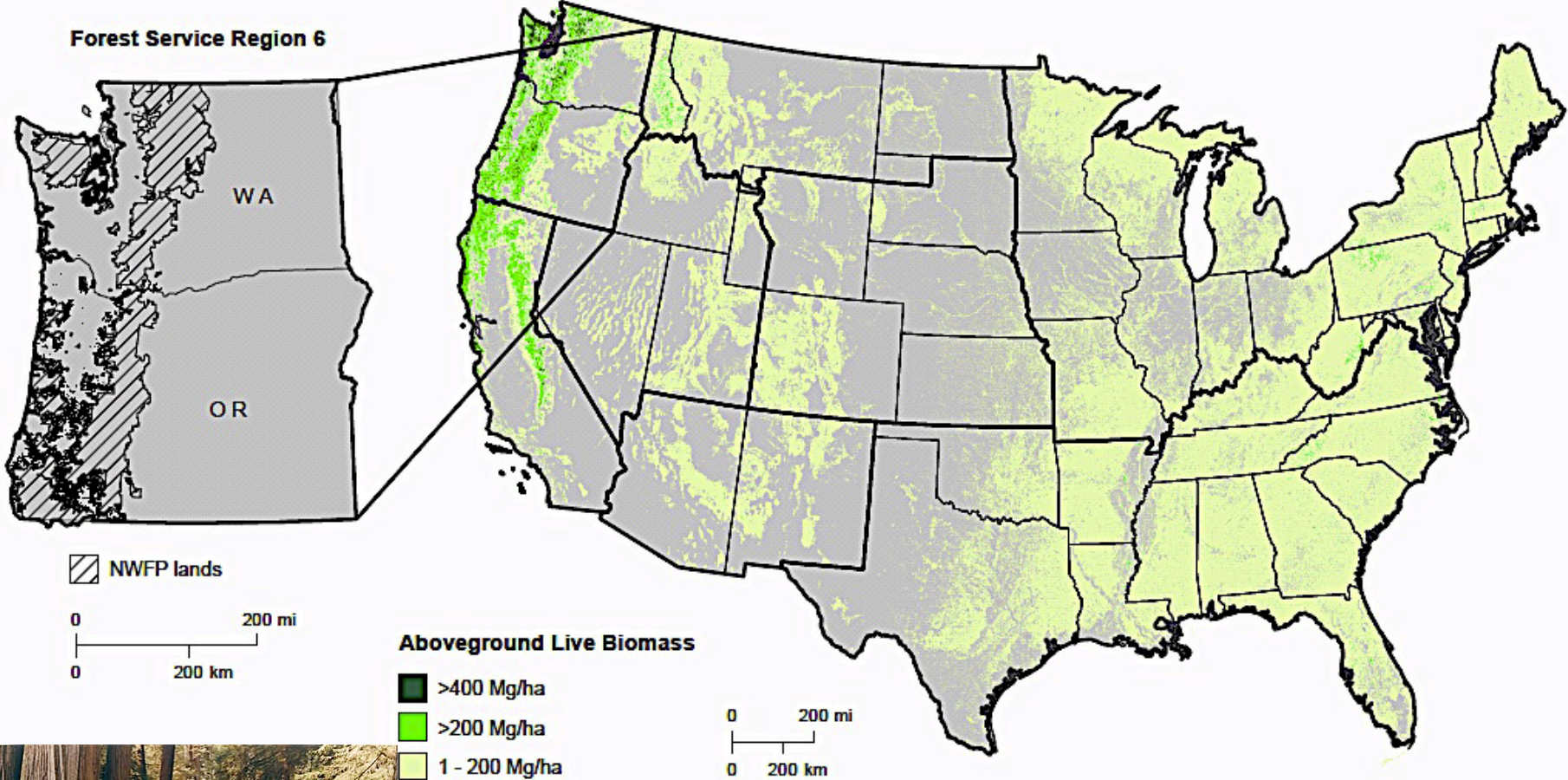
- Logged forests emit CO₂ for at ~15 years
- Off-gassed CO₂ is not made up by planting trees or wood products

Source: Harmon et al. (1990); Law & Harmon (2011); Campbell & Harmon (2011)

THE GLOBAL FOREST SINK – NASA FOREST HEIGHT MAP



FOREST CARBON STORES

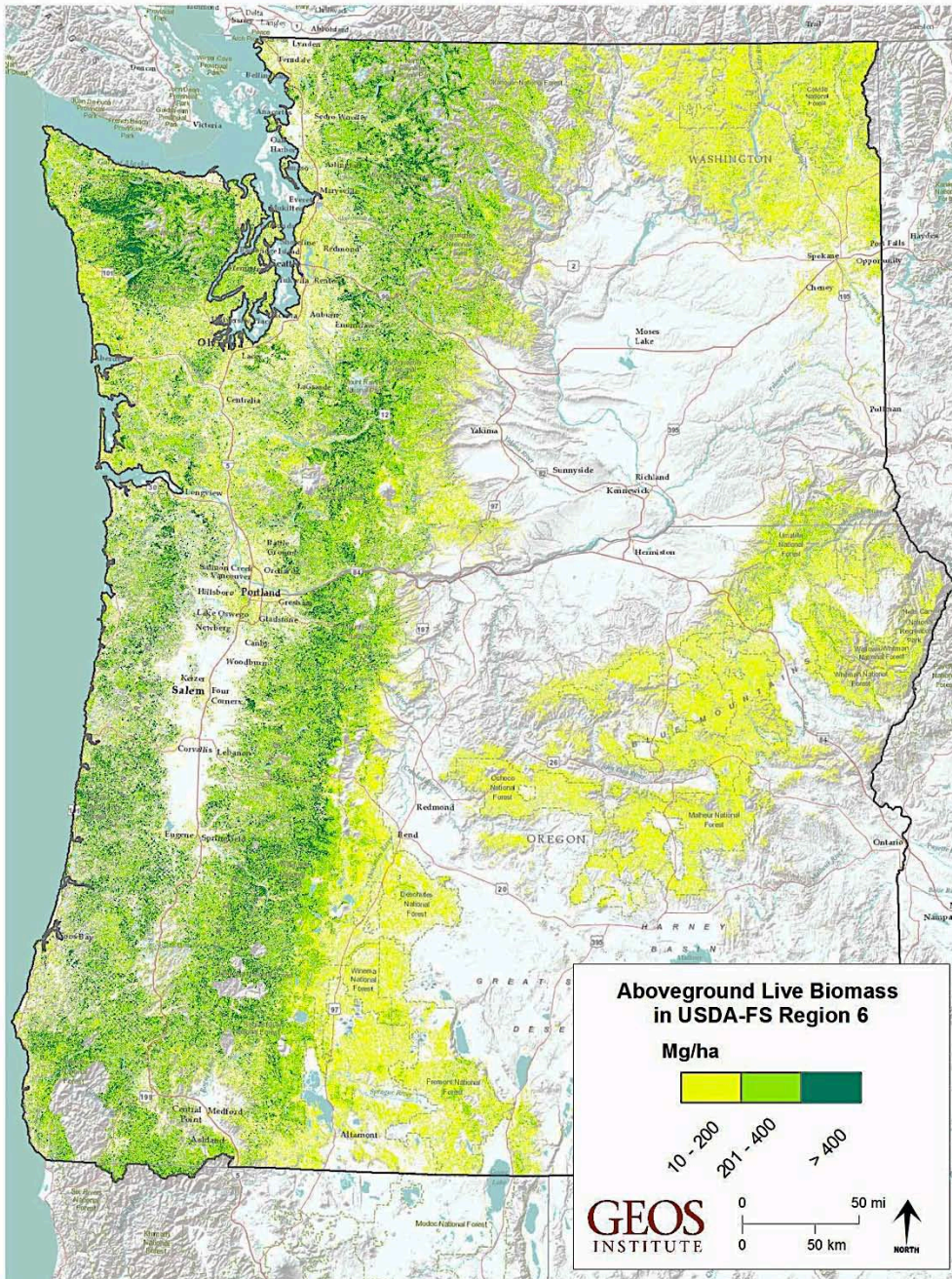


Source: Krankina, DellaSala, in review

GLOBALLY SIGNIFICANT FOREST CARBON STORES

- 9 million ac FS/BLM = 15 billion metric tons CO₂(e)
- OR (2010) + WA (2010) emissions = 115 million metric tons CO₂ (e)
- Managing forests as sinks = 130 x State emissions
- Northwest Forest Plan = sink

Source: Krankina et al. (2012), Krankina, DellaSala et al. (in review)



Georgia's Power Plant Scherer



BLM Clearcut on O&C Lands



HR 1526 – BLM O & C “Trust Lands” = CO2 emitter

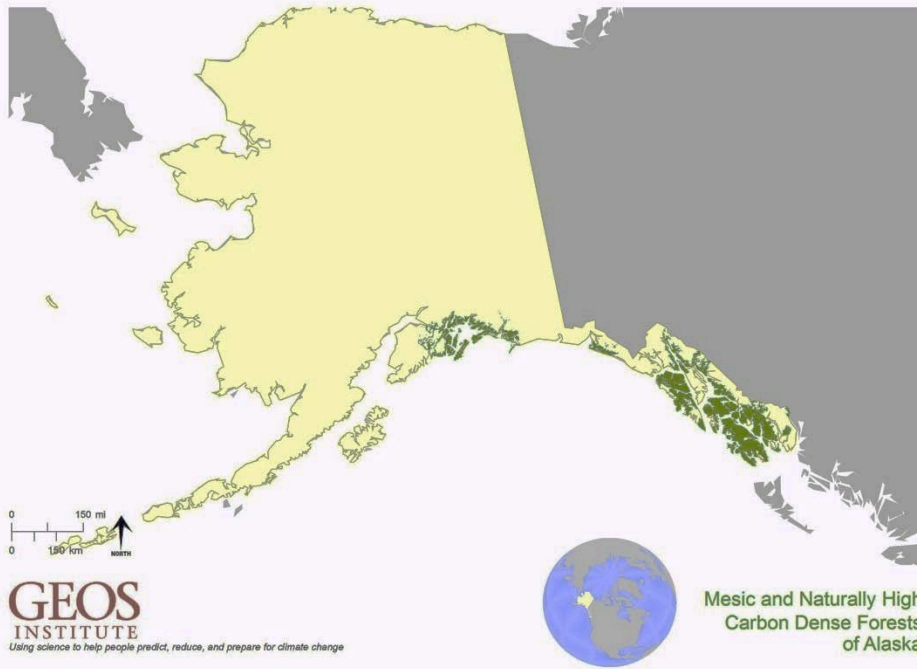
- **1.6 million acres = ~ 26 billion metric tons CO2 (e)**
- **Logging = 113 x dirtiest power plant's annual emissions**
- **Northwest Forest Plan in western Oregon switches from sink to source**

GLOBALLY SIGNIFICANT FOREST CARBON STORES

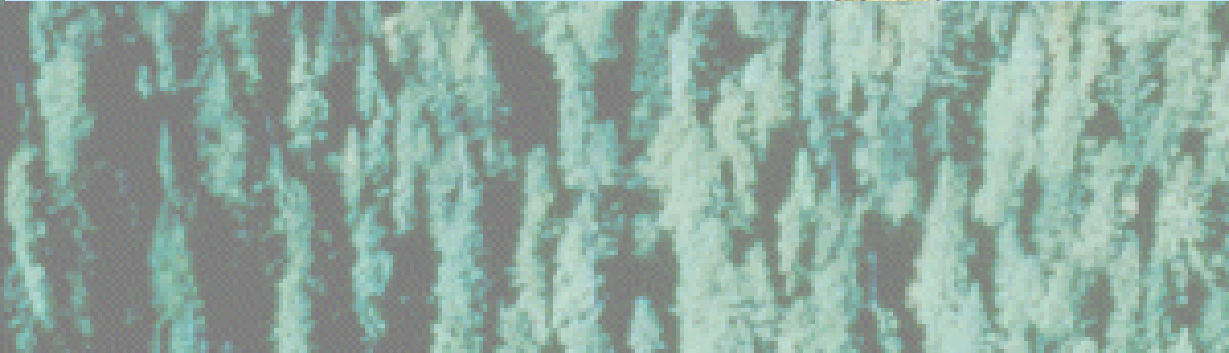
- 5 million acres of productive rainforest = 4 billion metric tons CO₂ (e) = 80 x Alaska's (2010) emissions

- Salmon-carbon rainforest

Source: Leighty et al. (2006); DellaSala (2011)



Photos: J. Schoen





HOW DOES CARBON SHOW UP WITH CEQ?

- *Land management techniques, including changes in land use or land management strategies, lack any established Federal protocol for assessing their effect on atmospheric carbon release and sequestration at a landscape scale.*
- *....CEQ seeks public comment on this issue but has not identified any protocol that is useful and appropriate for NEPA analysis of a proposed land and resource management actions.”*



HOW DOES CARBON SHOW UP WITH DOI?

- **“Each bureau and office of the Department must consider and analyze potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research and investigations, developing multi-year management plans, and making major decisions regarding potential use of resources under the Department’s purview.” (Secretarial Order 3289 (September 14, 2009))**
- **What is BLM doing different about management plans (no specific C policy)?**

HOW DOES CARBON SHOW UP WITH THE FOREST SERVICE?

- “..... increase the amount of carbon sequestered on U.S. lands, and bring all National Forests into compliance with a climate change adaptation and mitigation strategy (USFS – National Road Map for Responding to Climate Change).”
- “Planning units are expected to include a basic analysis of conditions and trends of carbon stocks and fluxes on the planning unit and greenhouse gas emissions influenced by the management of the planning unit” (USFS Planning Rule).”





WHAT NEW POLICIES ARE NEEDED TO IMPLEMENT EFFECTIVE CLIMATE ACTION?

- Forestry must do its part to reduce emissions
- CEQ guidance needed on “upstream/downstream” CO2 releases from land use
- Protect carbon-dense forests in the PNW and Alaska ~ 3 million acres vulnerable to logging (Krankina/DellaSala, in review)
- Restore fragmented lands, identify climate refugia, protect public water supplies, thin flammable tree plantations (forest planning)
- Forests likely to switch from sink to source? reduce non-climate stressors (forest planning)

*“Conservation and sustainable management can help to ensure our forests continue to remove carbon from the atmosphere”
(President Obama’s Climate Action Plan, June 2013)*