

# A Large and Persistent Carbon Sink in the World's Forests

Yude Pan, Richard Birdsey, Jingyun Fang, Richard Houghton, Pekka Kauppi, Werner A. Kurz, Oliver L. Phillips, Anatoly Shvidenko, Simon L. Lewis, Josep G. Canadell, Philippe Ciais, Robert B. Jackson, Stephen Pacala, A David McGuire, Shilong Piao, Aapo Rautiainen, Stephen Sitch, Daniel Hayes (2011) A Large and Persistent Carbon Sink in the World's Forests. *Science (online Science Express, Thursday 14 July 2011)*

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# The Human Perturbation of the CO<sub>2</sub> Budget (2000-2009)

$7.7 \pm 0.5 \text{ PgC y}^{-1}$



$1.1 \pm 0.7 \text{ PgC y}^{-1}$

+



$4.1 \pm 0.1 \text{ PgC y}^{-1}$

47%

$2.4 \text{ PgC y}^{-1}$   
27%

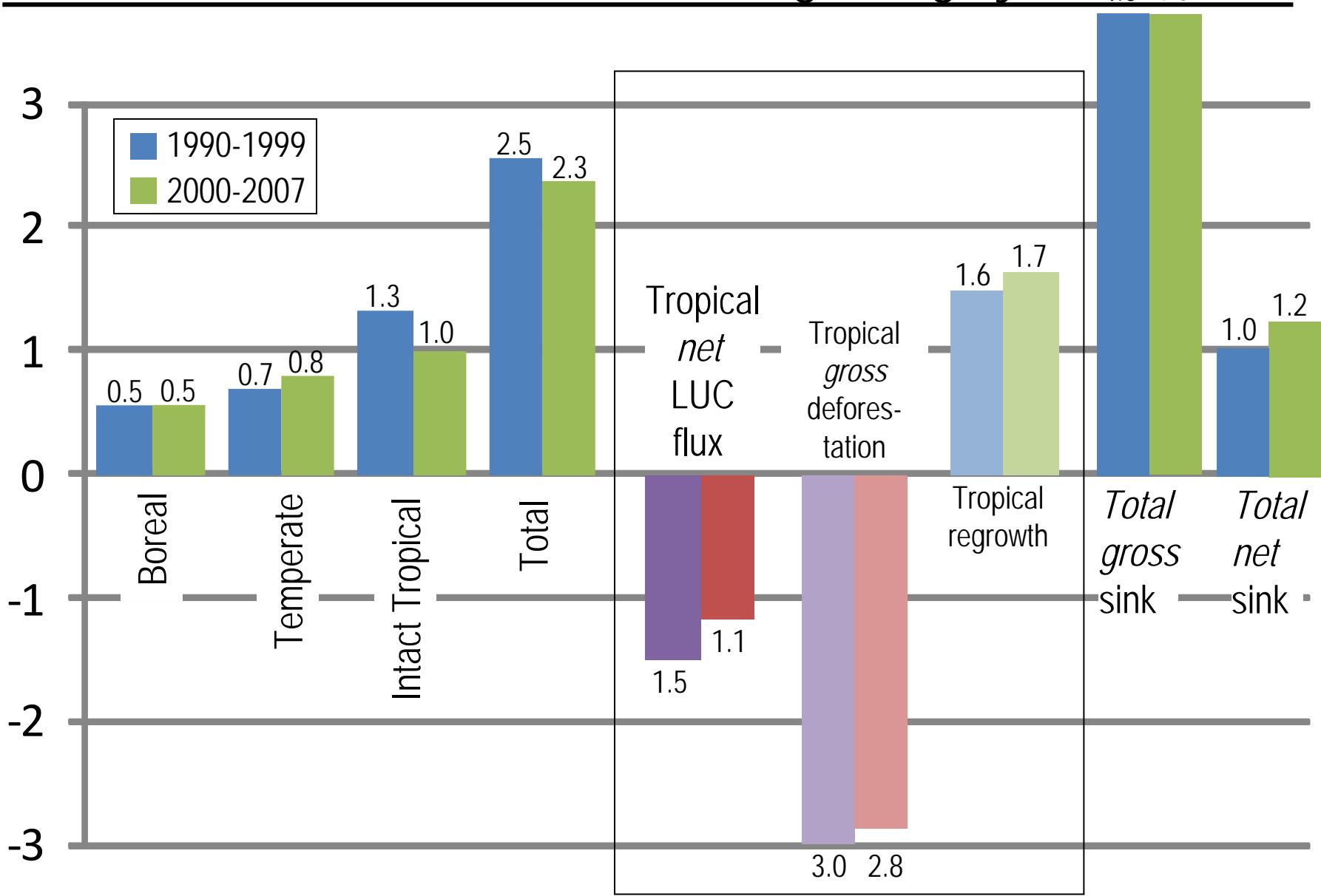
Calculated as the residual



26%

$2.3 \pm 0.4 \text{ PgC y}^{-1}$

# Global Forest Carbon Budget ( $\text{PgCy}^{-1}$ )



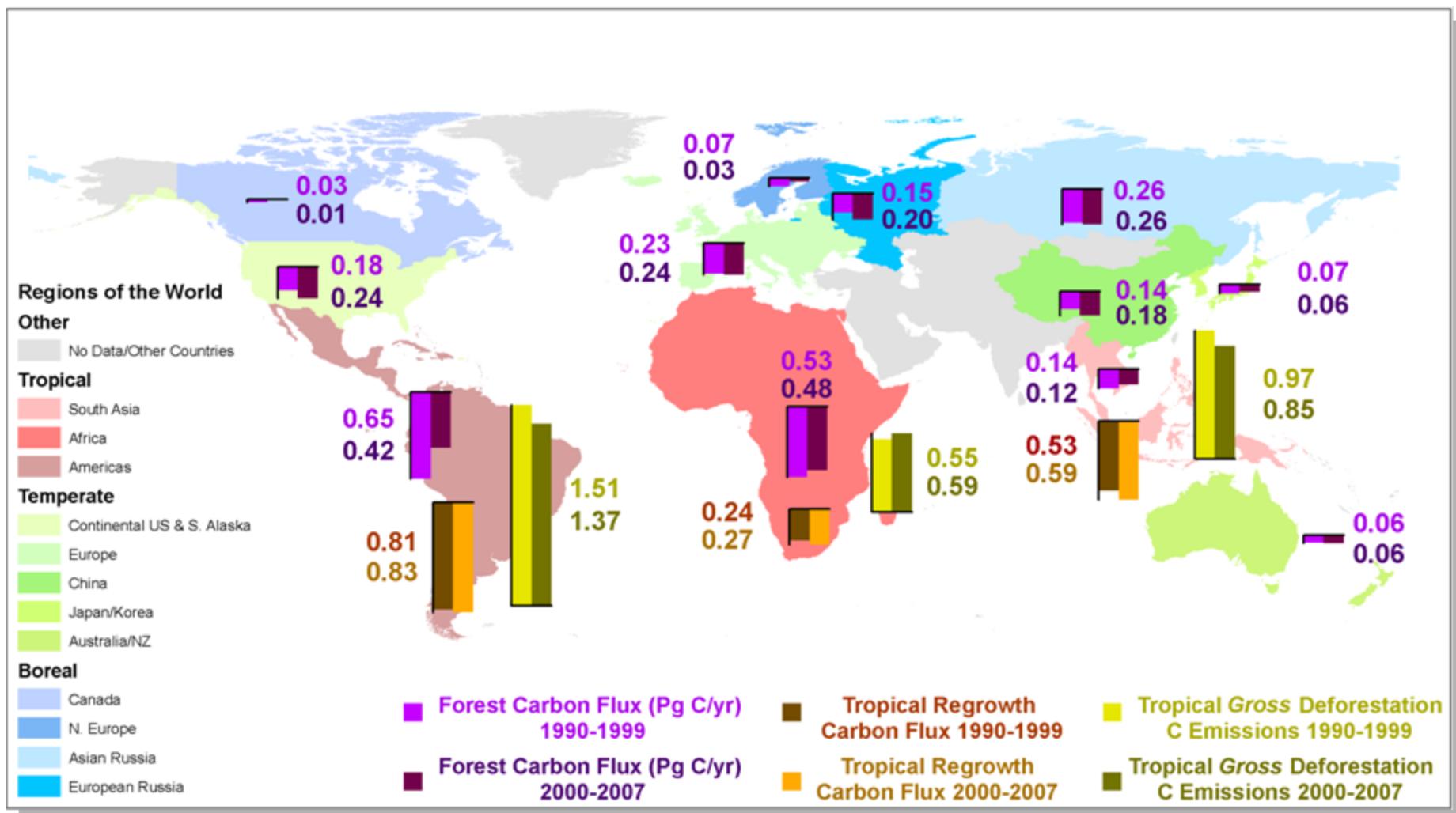
# Forest Carbon Sinks and Sources (2000-2007, PgCy<sup>-1</sup>)

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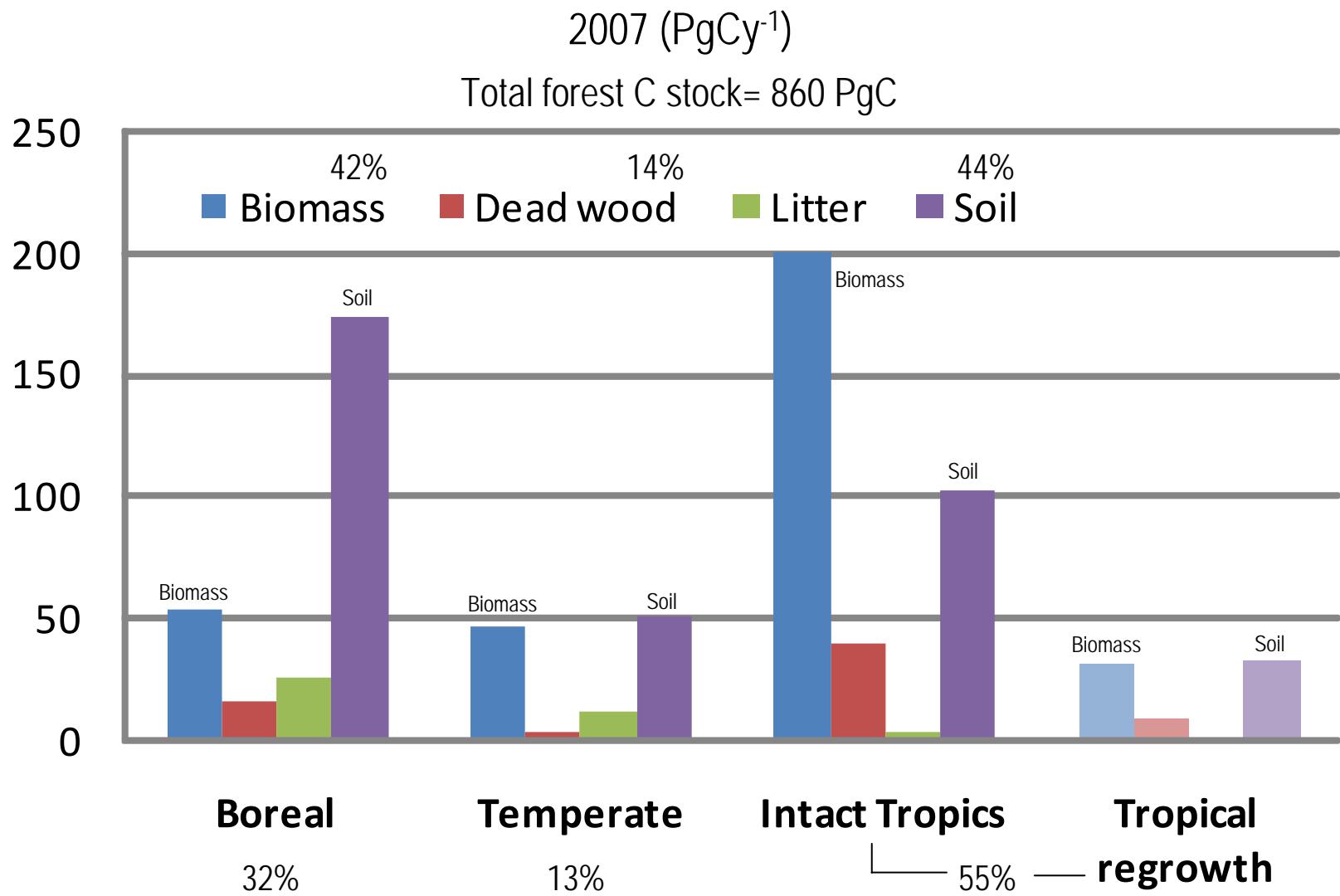


Boreal Forest	$0.5 \pm 0.08$
Temperate Forest	$0.8 \pm 0.09$
Tropical "intact" Forest	$1.0 \pm 0.41$
Total	$2.3 \pm 0.49$
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Tropical <i>net</i> deforestation	$-1.1 \pm 0.70$
Tropical <i>gross</i> deforestation	$-2.8 \pm 0.45$
Tropical forest regrowth	$1.7 \pm 0.54$
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Global <i>gross</i> forest sink	$4.0 \pm 0.73$
Global <i>net</i> forest sink	$1.2 \pm 0.85$

# Large and Consistent Global Forest Carbon Sink



# Carbon Stocks in Biomass, Deadwood, Litter and Soil



For further information on this paper visit:  
<http://www.globalcarbonproject.org/news/forestsink.html>

