The Power of Trees: Natural Capital and Cities

Gretchen C. Daily
Mainstreaming
The Values of Nature

UNDERSTANDING
TOOLS
DEMONSTRATIONS

NATURAL CAPITAL
SCIENCE & TECHNOLOGY PLATFORM
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natural capital
PROJECT
Values of Rainforest?
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20% yield
50% quality
(Ricketts et al 2004)
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infestation by 50% 
(Karp et al 2013)
Values of Rainforest?

- 20% yield
- 50% quality
  (Ricketts et al 2004)

- infestation by 50%
  (Karp et al 2013)

- humbling
  (Karp & Daily 2014)
Values of Rainforest?

1000s of Studies Over Past Decade

20% yield
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(Ricketts et al 2004)

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Values of Rainforest?

From Studies to Meaningful Investments?

20% yield
50% quality
(Ricketts et al 2004)

infestation by 50%
(Karp et al 2013)

humbling
(Karp & Daily 2014)
Mental Health

City Living

20% increase in anxiety disorders
40% increase in mood disorders
Nature & Mental Health

Cognitive functioning
Emotional well-being
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100s of Studies Over Past Decade
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InVEST

integrated valuation of environmental services and tradeoffs
Download InVEST 3.0

100+ countries

www.naturalcapitalproject.org
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WATER SECURITY FOR CITIES
Water Security for Cities
Targeting Investments

Which activities?

Where in the watershed?
Investment Portfolio

Cauca Valley, Colombia
What is the ROI?

InVEST
integrated valuation of environmental services and tradeoffs

What is the ROI?
Water Security for Cities

A standardized approach
• Eco-hydrology
• Financing
• Governance
• Monitoring

Scaling up to 40+ funds now
Testing in Africa
CHINA’S DREAM
THE "ECOLOGICAL CIVILIZATION OF THE 21ST CENTURY"
Harmonizing People and Nature

Where & what should we protect?
China's Ecological Accounts

Food production

(Ouyang et al. 2016 SCIENCE)
China's Ecological Accounts

Carbon sequestration

(Ouyang et al. 2016 SCIENCE)
China’s Ecological Accounts

Sand storm prevention

(Ouyang et al. 2016 SCIENCE)
China’s Ecological Accounts

Water retention

10^10 t · capita · km^{-2}

High: 492
Low: 0

(Ouyang et al. 2016 SCIENCE)
China’s Ecological Accounts

Importance of ecosystem service provision

(Ouyang et al. 2016 SCIENCE)
>$150 Billion Investment into New Ecosystem Function Conservation Areas

- flood control
- biodiversity
- sandstorm control
- water purification
- water supply & flood control
200M People Paid for Conservation & Restoration, Mostly of Trees
Gross Ecosystem Product

GEP – the total value of ecosystem goods and services supplied annually

- State Council, March 2014
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UNDERSTANDING

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Natural Capital

Science & Technology

Data

Science

Platform

Tools
We can smell land
Thank you!