

PRESENTATION GIVEN AT THE TRANSLINKS
PAYMENTS FOR ECOSYSTEM SERVICES WORKSHOP

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HOSTED BY

THE WILDLIFE CONSERVATION SOCIETY



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PES at WCS and the Mbe Watershed Case Study

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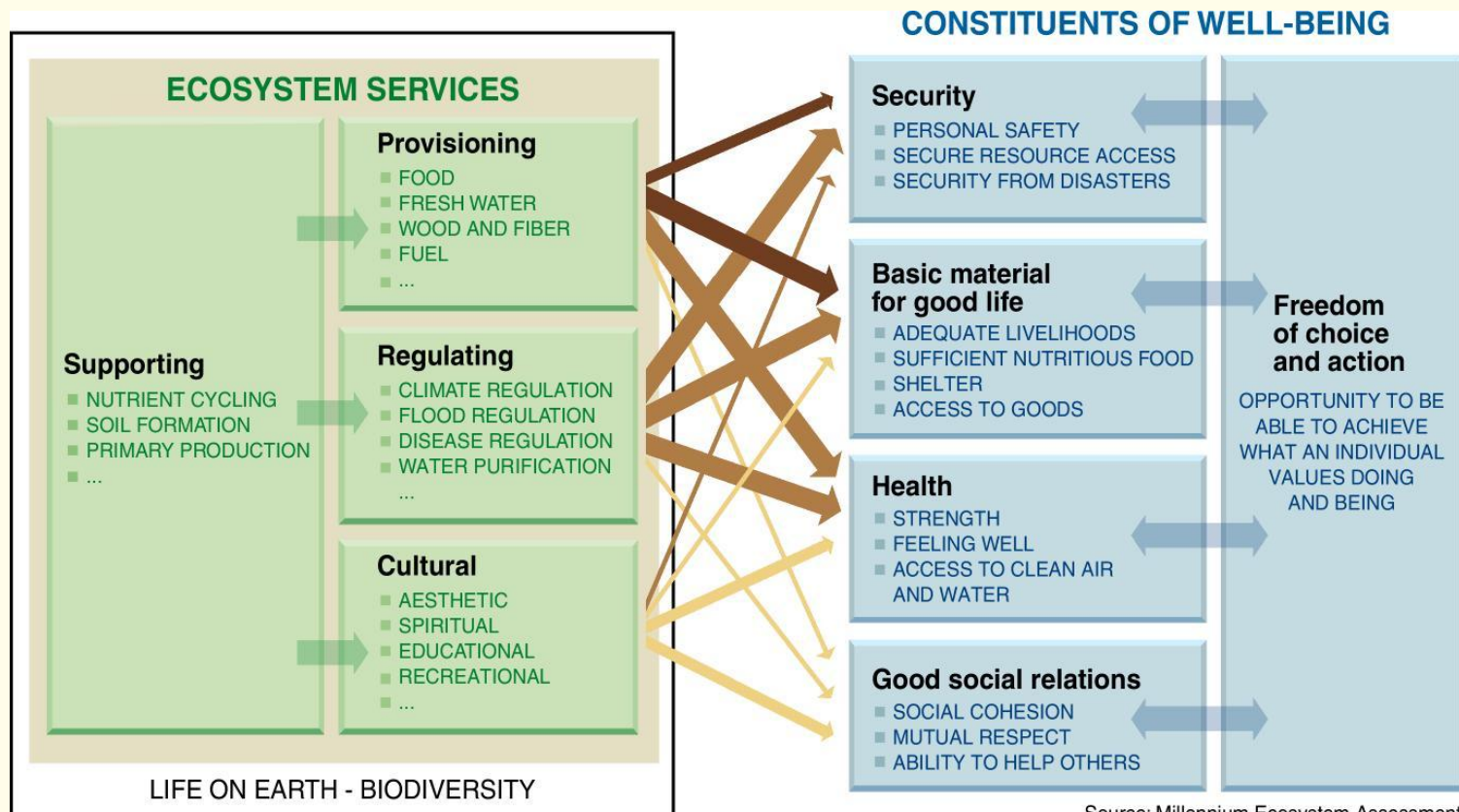
Payments for Ecosystem Services



Ecosystem services are the benefits human derive from nature

ECOSYSTEM SERVICES	ECOSYSTEM FUNCTIONS
Gas regulation	Regulation of atmospheric chemical composition.
Climate regulation	Regulation of global temperature, precipitation, and other biologically mediated climatic processes at global, regional, or local levels.
Disturbance regulation	Capacitance, damping and integrity of ecosystem response to environmental fluctuations.
Water regulation	Regulation of hydrological flows.
Water supply	Storage and retention of water.
Erosion control and sediment retention	Retention of soil within an ecosystem.
Soil formation	Soil formation processes.
Nutrient cycling	Storage, internal cycling, processing, and acquisition of nutrients.
Waste treatment	Recovery of mobile nutrients and removal or breakdown of excess or xenic nutrients and compounds.
Pollination	Movement of floral gametes.
Biological control	Trophic-dynamic regulations of populations.
Refugia	Habitat for resident and transient populations.
Food production	That portion of gross primary production extractable as food.
Raw materials	That portion of gross primary production extractable as raw materials.
Genetic resources	Sources of unique biological materials and products.
Recreation	Providing opportunities for recreational activities.
Cultural	Providing opportunities for non-commercial uses.

Categories of ecosystem services



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

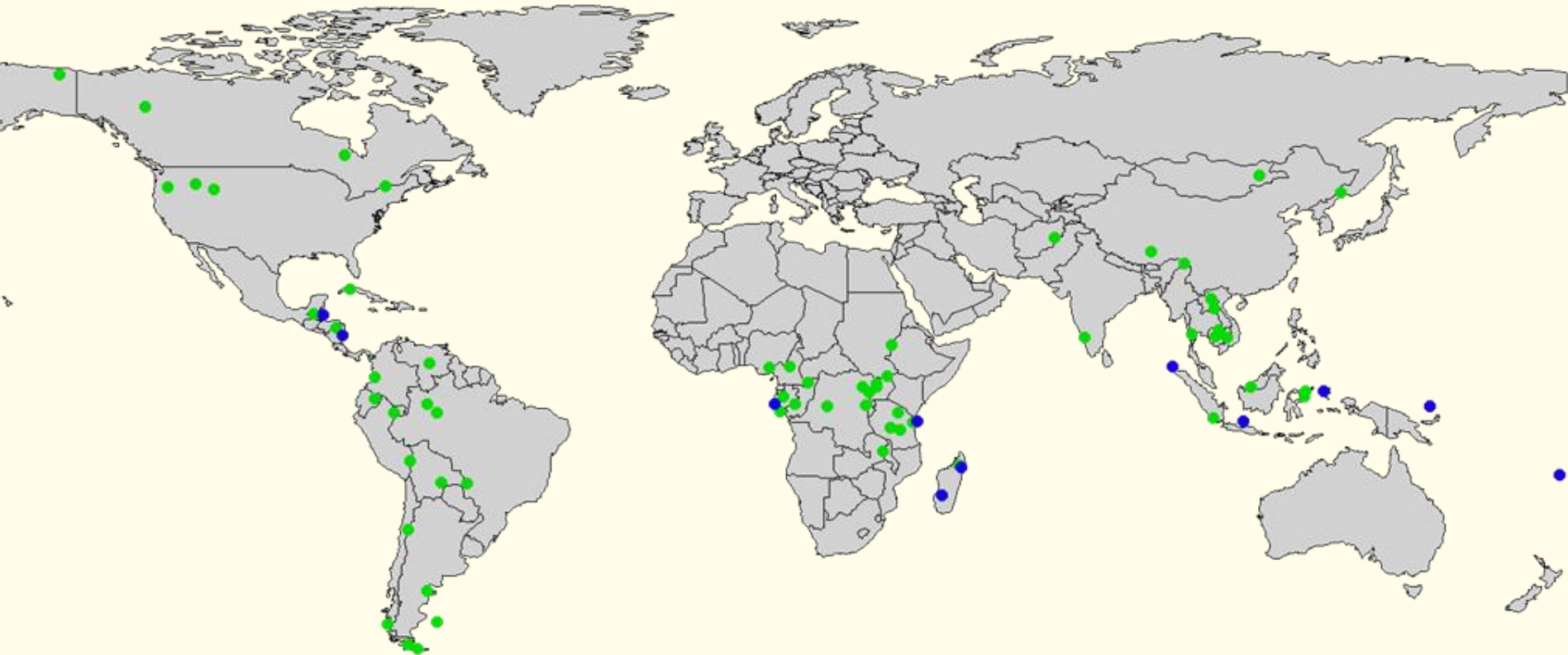
- Weak
- Medium
- Strong



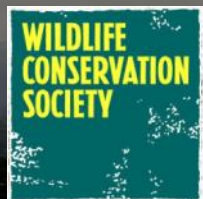
PES broad definition

- Mechanisms through which ecosystem managers are paid for good ecosystem management
- *Payments are typically conditional on management practice/service provision*
- Payments are typically for a *specific service, provided by specific management practice or activity*
- WCS work focuses on Ecosystem services that:
 - Direct and indirect linkages with wild places and wildlife
 - Affect/improve livelihood of local communities

Where we work



- 73 scapes in 47 countries



WCS PES Initiatives

Ecosystem Services Targeted by WCS PES Initiatives					
	Supporting	Provisioning	Regulating	Cultural	Total
Asia	3	2	7	5	17
Latin America	3	13	3	4	23
Africa	5	6	11	6	28
Total Number of Initiatives	11	21	21	15	68
WCS Initiatives by Ecosystem Service Market					
	Green Markets	Water	Biodiversity	Carbon	Total
Asia	2	1	8	6	17
Latin America	12	0	7	3	22
Africa	4	4	7	7	22
Total Number of Initiatives	18	5	22	16	61

Number of Countries with PES programs:
Asia=6; Africa=8; Latin America=9

Gabon: challenges for forest carbon as an ecosystem service in a low deforestation country



- 22m ha of tropical rainforest - largest populations of forest elephants, gorillas, chimps, mandrill etc
- Deforestation rates low (0.05-0.16%)
- Degradation due to logging significant given area involved
 - 12m ha production forests
 - 3+1m ha APs
 - 6m ha community zone
- Shift from normal to reduced-impact logging can reduce biomass losses after 1 rotation by 30-50% (Putz et al 2008)
 - potentially high avoided CO₂ emissions + reduced environmental impact
- Can we capitalise on this to support more sustainable forest management and conservation in our landscapes?

Gabon: challenges for forest carbon as an ecosystem service in a low deforestation country



- Problems of additionality and transaction/monitoring/buffering costs not sufficiently evaluated in existing studies
- Virtually no data from CA, let alone Gabon, so studies are based on extrapolation from other continents
 - Most existing field data is poor quality, biased or otherwise difficult to use
 - Data on timescale of more than one rotation virtually non-existent
 - Remote sensing not yet up to the task since signals saturate at high biomass levels
- Verification of emission reductions likely to be a major transaction cost
 - Conceptual frameworks exist, but no accredited methodology for evaluating degradation (VCS etc)
 - How do you separate the anthropogenic portion of the effect when so little understanding of the basic science?
 - Degradation is such a small % of the total biomass that sample sizes must be high = verification expensive

Gabon: opportunities for forest carbon as an ecosystem service in a low deforestation country



- REDD probably represents the best opportunity in a generation to promote good forest stewardship in Gabon
- First step: Get some data on logging + carbon
 - Initial focus on ecological data is non-threatening
 - Make a real contribution to the debate (and Gabon / COMIFAC's negotiating position)
 - Means we become a player in all things REDD in Gabon (and more widely in CA)
 - Working on carbon and forestry can create a positive relationship with companies
- Next steps:
 - Focus on measuring wildlife and biodiversity co-benefits? (High demand from FSC companies already)
 - Pilot project in partnership with a logging company?
 - How can we ensure that improved monitoring of carbon translate into improved management of wildlife?

Gabon: opportunities for forest carbon as an ecosystem service in a low deforestation country



- Detailed before-and-after study of logging impact on carbon in CA
 - Adjacent 45ha plots in a 'model forest', 1 to be logged using Conventional Logging, the other Reduced Impact Logging - establish permanent plots in each
 - Expand to 1-3 'real world' logging concessions
 - Controls in Nps?
 - Training/capacity building
- Outputs:
 - Literature review on degradation aspect of REDD, focusing on how to measure in in a real world situation
 - Report of field study, focusing on implications for measurement
 - Methodology/proposal for wider logging + carbon study to lead into development of a pilot proposal
- Wider relevance:
 - 115m ha of production forest in RoC, Cameroon and DRC...

PWS potential in Gabon



- Biologically important
 - The most botanically diverse area in Gabon (high endemism, Pleistocene refuge)
- Economically important
 - Via 2 hydroelectric dams - 54% electricity for Libreville (which is c. 75% Gabon's population)
 - (Originally thought to also be the source of drinking water)
- Political support
 - Curiosity – in line with Gabon's "vision"
 - First PWS pilot site in Congo basin?



What have we been doing?

- Designing a PWS mechanism which links beneficiaries of the watershed services with the providers to ensure upstream forest protection
- Identifying the services
 - Water quality (low sedimentation load), quantity and flow regulation
- Identifying beneficiaries (buyers)
 - SEEG (hydroelectric dam company)
- Identifying providers (sellers)
 - National Park, Forestry concessions, mining concessions

Challenges and our approach

- How to initiate a PES scheme where threats are not immediate?
- Institutional complexity
 - Various ministries have jurisdiction over the watershed
 - Various different potential actors
- Convincing actors to participate
 - Getting science right (current lack of data)
 - Will PWS pay enough to offset opportunity costs
 -
- Whilst the overall aim is to take a watershed scale approach involving all land users, our initial focus will be on the management of the national park.



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