

Recommended Reading From the Desk of Mary Ruckelshaus



[How the human condition limits the power of technology,](#)
The Seattle Times, June 11, 2015

[Why Do Many Reasonable People Doubt Science?](#) Joel Achenbach
National Geographic, June 2015

"It's their very detachment, what you might call the cold-bloodedness of science, that makes science the killer app. It's the way science tells us the truth rather than what we'd like the truth to be. Scientists can be as dogmatic as anyone else-but their dogma is always wilting in the hot glare of new research. In science it's not a sin to change your mind when the evidence demands it. For some people, the tribe is more important than the truth; for the best scientists, the truth is more important than the tribe."

[A World Without End,](#)
New Yorker, May 15 Innovation Issue.
An amazing story about a video game called No Man's Sky and the power of software to paint a picture of the world and allow

Gretchen Daily: Taking Our Work to Scale

DISPATCH FROM STOCKHOLM

The Natural Capital Project turns ten years old this October. It's breathtaking to reflect on the change over the past decade, with so many innovative efforts underway to integrate values of nature into decision-making.

In May, we worked together with many partners to create a landmark event--the Stockholm Summit on Natural Capital--to help accelerate the uptake and magnify the impact of these efforts. Leaders came from around the world to learn about the tremendous innovation in the pipeline and to develop a shared action plan.

The setting was a secluded castle and grounds called Steningevik, on a beautiful lakeshore just outside Stockholm. In an atmosphere of intimacy and trust, top representatives from across the public and private sectors, multilateral and financial institutions, academia, and civil society weighed in on the path forward. How could we best work together, to achieve much more than any could alone, to scale models of success for achieving better outcomes for people and nature?

We aimed first to shine a spotlight on the best practices for valuing natural capital, and the use of technology in doing so. A decade ago, the poster children for valuing nature were New York City and Costa Rica--with remarkable programs for investing in nature to secure drinking water (to NYC) and hydropower, tourism, climate stability and biodiversity (for Costa Rica and the world). Then there seemed to be a pause, and people began to doubt ... [\[Click here to read the full essay\]](#)



Gretchen Daily in Stockholm

Lynn Scarlett: Better, Greener, Cheaper, Smarter

Lynn Scarlett, now at The Nature Conservancy, has previously served as Deputy Secretary and Chief Operating Officer at the U.S. Department of the Interior, and, among many other leadership roles, also served on the Executive Committee of the President's Management Council.

Lynn Scarlett is also giving the opening remarks at a panel event, "Integrating Natural Capital Into Decisions" in Washington, D.C., June 30, hosted by The Natural Capital Project. For more information, click [here](#).

As the Managing Director of Public Policy

exploration.

[Valuing Nature: Q&A With Gretchen Daily](#), June 15, 2015.

Check out the great Q&A between Gretchen and Mark Tercek on Mark's blog.

Software Tools



[InVEST](#) is a free and open-source software suite developed by the Natural Capital Project. You can download the latest version of InVEST [here](#).



[OPAL](#) is NatCap's latest free and open-source software for mitigating development impacts. You can download the latest version of OPAL [here](#).



[RIOS](#) is a software tool that helps design cost-effective investments in watershed services. You can download the latest version of RIOS [here](#).

at The Nature Conservancy, you probably go to a lot of meetings. Was there anything about the Stockholm Summit that stood out to you?

The Stockholm Summit was a fairly intimate group, and that was deliberate so that there could be real conversation. What was especially unique was the mix of people that were there. Often what we see with natural capital and natural infrastructure and ecosystem services discussions are a lot of scientists, and sometimes groups of policy makers. But there were a lot of private sector folks. People from various companies, but then also people with backgrounds in investment banking and finance. That made it enriching because you had people bringing that business lens to the discussion.



Lynn Scarlett, Director of Public Policy at The Nature Conservancy

At the summit, participants broke out into three discussion groups. One focused on cities, one on finance and investment and you ended up in the one on sustainable development. Why did you pick that group?

I was really torn, I have to say, between the cities group and the sustainable development one. Torn because not only personally, but at The Nature Conservancy, we're quite focused on cities and nature in cities, nature solutions, natural capital and that context. But I ended up going to the sustainable development one because, we have, at TNC, a global interest in the nexus between people and nature. On the people side of the equation, we have a significant interest in how nature and economic development opportunities and personal livelihoods and social well-being go together.

These are such broad topics, how did you narrow down the discussion?

We tried to not so much narrow it as give it specificity. We focused on the upcoming release of the global sustainable development goals through the United Nations Development Program and the U.N. Environment Program. There will be, in September, the next iteration of sustainable development goals, with 17 different goal categories. We focused on asking how we could try to very deliberately introduce natural capital contexts into specific countries as they strive to think about implementation of the sustainable development goals.

When did you, personally, first start hearing about natural capital as a concept?

It goes waaaaay back. It goes back to the very first publication that Gretchen Daily published on the subject, maybe 20 years ago. That was before I was at the Interior Department. The concept really sang to me. I had always been among those who thought we rather artificially divided the world of conservation ...

[\[To read the full interview, click here\]](#)

Map of the Month

ENHANCING CAPACITY FOR COASTAL MANAGEMENT IN BARBADOS

Click on our infographic to learn more about NatCap's approach to ecosystem services assessment as well the specific methodology that was developed for and applied in Barbados.



[PyGeoProcessing](#) was developed at the Natural Capital Project to create a programmable, open source, and free GIS processing library to support the ecosystem service software InVEST. The latest version 0.2.1 fixes several bugs. Users can pip install pygeoprocessing, upgrade or download the package [here](#).

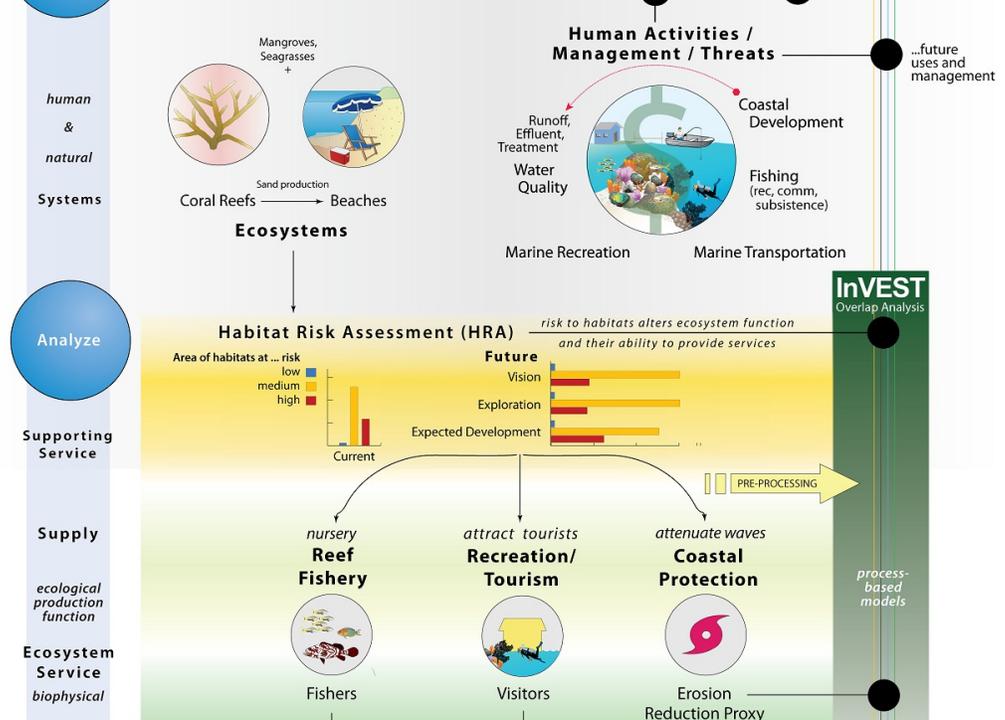
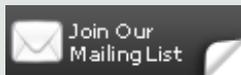
NatCap Forums

For help using InVEST, OPAL and RIOS, visit the [NatCap Forums](#), our online user community.

Newsletter Archive

Check out NatCap's previous newsletters in our [Newsletter Archive](#).

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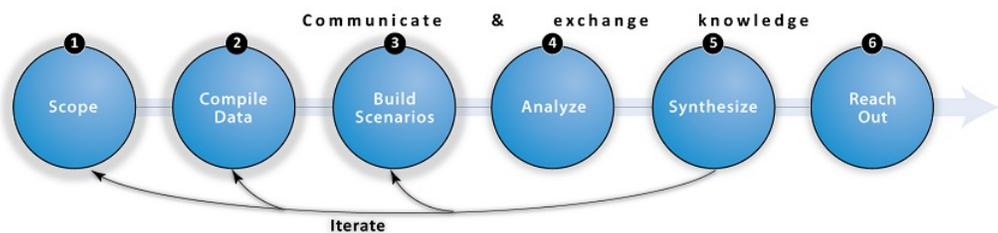


Credit: Gregg Verutes, Jess Silver, Katherine Wyatt & Katie Arkema

In July 2014, NatCap, Downstream Strategies, TNC, and WWF began assisting the Barbados Coastal Zone Management Unit (CZMU) integrate nature's values into coastal management. Over the past year, CZMU has lead a stakeholder-driven process to identify, prioritize, map, and estimate the value of present and potential future ecosystem services in Barbados.

Introducing: The Marine Planning Concierge

MAKING MARINE PLANNING EASIER FOR EVERYONE



As 50 million people are born each year and similar numbers seek to raise their standard of living, the Earth's marine and coastal ecosystems face expanding pressures from fisheries, aquaculture, energy production, runoff from land, shipping, climate change and much more. Marine planning promises for more strategic and streamlined management of our oceans and coasts.

But marine planning is complex, and often the people tasked with doing it run into problems. In our experience at The Natural Capital Project, many of the same barriers to marine planning come up time and time again.

To help address common questions and planning dilemmas, we've designed a "concierge" to make it easier to learn about, get inspired by and implement marine planning. [The Marine Planning Concierge](#) is a website that connects users to resources for using ecosystem services in marine planning. It is in its beta testing stage now, and we would love your [feedback](#) on it—particularly because we are curious about whether or not this kind of guidance might be useful in other aspects of NatCap's work to lower barriers to using ecosystem service understanding in diverse types of decisions.

With the Concierge, (similar to the help desk located in a hotel lobby), we aim to provide clear, modular advice for any stage of the planning process, and to offer a curated library of useful resources. The Concierge also describes and links to examples of how we and others engaging in marine planning processes around the world have gotten over common hurdles, such as how to move forward when data is scarce, how to synthesize and visualize data from different sources and units, or where to go for help when the tools you're using are beyond your technical expertise. The Concierge also connects users to helper tools that make it easier to use InVEST.

The feedback we've gotten so far has affirmed that this guidance is in demand. "As a global trainer and facilitator, I am finding a huge demand for marine spatial planning," said one user. "I am also finding that marine spatial planning has become a "buzz concept" and it is not always the right tool. I think adding a checklist for "Is Marine Spatial Planning the Right Tool" this would be hugely helpful as a filter."

With help from the marine planning community, we hope to iteratively improve this website and to continue to amass a library of interactive guidance to support a variety of decisions that lead to better outcomes for people and nature. We are currently collating feedback and are excited to hear your thoughts.

Recent Press and Publications

Ten years ago, the U.N. Millennium Ecosystem Assessment showed that Earth's ecosystems were widely degraded, and would keep deteriorating, making conditions worse for future generations if people continued to develop land and extract resources along the same trajectory.

Galvanized by these findings, environmental scientists knew they couldn't solve these problems in a silo, and were spurred to more aggressively collaborate across sectors. They aimed to find ways to describe the values of nature in ways that are meaningful for decision-makers, so that clean water, clean air, fisheries, and other nature-derived benefits humans depend upon can be sustained.

Several leading ecosystems services experts, including all of NatCap's founders—Gretchen Daily, Steve Polasky, Peter Kareiva and Taylor Ricketts, along with many other leaders in the field, published new research and perspectives this month, which have been collected into a series of papers in the Proceedings of the National Academy of Sciences. The special feature, "Nature As Capital," was edited by Steve Polasky and Jane Luchenco and includes the work of 83 authors from 10 countries and over 50 institutions. It highlights the accomplishments of these collaborations between field ecology and computer science, non-profits and economists, businesses and governments, and showcases how through working together, our understanding of ecosystem services has matured and our ability as a society to use this information has grown exponentially.

"Ten years ago, this stuff was kind of a glimmer in a few people's eyes," said NatCap lead scientist Anne Guerry, quoted in an article for PBS's NOVA. Guerry was the lead author on the Introduction to the series, [with 22 co-authors] which focused on celebrating the past decade's successes of raising awareness of natural capital, of advancing the science, and of seeing some real uptake on the ground. It also highlights a path forward to tipping the scales from isolated examples to fundamentally changing the way we make decisions on this planet.

After a decade of hard work, we can now point to China's massive reforestation, to Belize's coastal planning, which has inspired a new effort in Barbados (See Map of the Month) and in The Bahamas, to the water funds throughout Latin America and now spreading to Africa, and to our tools ability to show that "where matters" and also "how you do it" matters. And, we are far from alone. We can also point to the amazing



Nature as Capital PNAS 100th Anniversary Special Feature was published June 16, 2015

efforts of colleagues around the world to raise awareness, advance the science, and demonstrate real world implementation.

To read more about the new research, click on the links below.

[Natural capital and ecosystem services informing decisions: From promise to practice](#)

Guerry, Anne D.; Stephen Polasky; Jane Lubchenco; Rebecca Chaplin-Kramer; Gretchen C. Daily; Robert Griffin; Mary Ruckelshaus; Ian J. Bateman; Anantha Duraiappah; Thomas Elmqvist; Marcus W. Feldman; Carl Folke; Jon Hoekstra; Peter M. Kareiva; Bonnie L. Keeler; Shuzhuo Li; Emily McKenzie; Zhiyun Ouyang; Belinda Reyers; Taylor H. Ricketts; Johan Rockström; Heather Tallis; Bhaskar Vira.
PNAS. June 16, 2015, Vol. 112 (24), 7348-7355. doi:10.1073/pnas.1503751112

[Setting the bar: Standards for ecosystem services](#)

Polasky, Stephen; Heather Tallis; Belinda Reyers.
PNAS. June 16, 2015, Vol. 112 (24), 7356-7361. doi:10.1073/pnas.1406490112

[Improving global environmental management with standard corporate reporting](#)

Kareiva, Peter M.; Brynn W. McNally; Steve McCormick; Tom Miller; Mary Ruckelshaus.
PNAS. June 16, 2015, Vol. 112 (24), 7375-7382. doi:10.1073/pnas.1408120111

[Embedding ecosystem services in coastal planning leads to better outcomes for people and nature](#)

Arkema, Katie K.; Gregory M. Verutes; Spencer A. Wood; Chantalle Clarke-Samuels; Samir Rosado; Maritza Canto; Amy Rosenthal; Mary Ruckelshaus; Gregory Guannel; Jodie Toft; Joe Faries; Jessica M. Silver; Robert Griffin; Anne D. Guerry.
PNAS. June 16, 2015, Vol. 112 (24), 7390-7395. doi:10.1073/pnas.1406483112

[Impacts of conservation and human development policy across stakeholders and scales](#)

Li, Cong; Hua Zheng; Shuzhuo Li; Xiaoshu Chen; Jie Li; Weihong Zeng; Yicheng Liang; Stephen Polasky; Marcus W. Feldman; Mary Ruckelshaus; Zhiyun Ouyang; Gretchen C. Daily.
PNAS. June 16, 2015, Vol. 112 (24), 7396-7401. doi:10.1073/pnas.1406486112

[Spatial patterns of agricultural expansion determine impacts on biodiversity and carbon storage](#)

Chaplin-Kramer, Rebecca; Richard P. Sharp; Lisa Mandle; Sarah Sim; Justin Johnson; Isabela Butnar; Llorenç Milà i Canals; Bradley A. Eichelberger; Ivan Ramler; Carina Mueller; Nikolaus McLachlan; Anahita Yousefi; Henry King; Peter M. Kareiva.
PNAS. June 16, 2015, Vol. 112 (24), 7402-7407. doi:10.1073/pnas.1406485112

[Estimating the impacts of conservation on ecosystem services and poverty by integrating modeling and evaluation](#)

Ferraro, Paul J.; Merlin M. Hanauer; Daniela A. Miteva; Joanna L. Nelson; Subhrendu K. Pattanayak; Christoph Nolte; Katharine R. E. Sims.
PNAS. June 16, 2015, Vol. 112 (24), 7420-7425. doi:10.1073/pnas.1406487112

[Putting a Price on Nature](#)

by Ana Lieb, *PBS Nova Next*, June 18, 2015

Other Press and Publications:

[Delivery of crop pollination services is an insufficient argument for wild pollinator conservation](#)

Kleijn, David; Rachael Winfree; Ignasi Bartomeus; Luísa G Carvalheiro; Mickaël Henry; Rufus Isaacs; Alexandra-Maria Klein; Claire Kremen; Leithen K M'Gonigle; Romina Rader; Taylor H Ricketts; Neal M Williams; Nancy Lee Adamson; John S Ascher; András Báldi; Péter Batáry; Faye Benjamin; Jacobus C Biesmeijer; Eleanor J Blitzer; Riccardo Bommarco; Mariëtte R Brand; Vincent Bretagnolle; Lindsey Button; Daniel P Cariveau; Rémy Chifflet; Jonathan F Colville; Bryan N Danforth; Elizabeth Elle; Michael P.D. Garratt; Felix Herzog; Andrea Holzschuh; Brad G Howlett; Frank Jauker; Shalene Jha; Eva Knop; Kristin M Krewenka; Violette Le Féon; Yael Mandelik; Emily A May; Mia G Park; Gideon Pisanty; Menno Reemer; Verena Riedinger; Orianne Rollin; Maj Rundlöf; Hillary S Sardiñas; Jeroen Scheper; Amber R Sciligo; Henrik G Smith; Ingolf

Steffan-Dewenter; Robbin Thorp; Teja Tscharntke; Jort Verhulst; Blandina F Viana; Bernard E Vaissière; Ruan Veldtman; Catrin Westphal; Simon G Potts.
Nature Communications. June 16, 2015. doi: 10.1038/ncomms8414

[Valuing Nature: Q & A With Gretchen Daily](#)

by Mark Tercek, *Huff Post Green*, June 15, 2016

[Moderate land use changes plant functional composition without loss of functional diversity in India's Western Ghats](#)

Mandle, L.; T. Ticktin.

Ecological Applications. 2015. doi: 10.1890/15-0068.1

[Energy as a driver of change in the Great Lakes-St. Lawrence River Basin](#)

Kelly, B.; B. Keeler; G. Helm; G. Krantzberg; T. Lyon; W. Mabee.

Journal of Great Lakes Research. 2015, Vol. 41, 59-68. doi:10.1016/j.jglr.2014.11.019

[Marine Protected Areas: Smart investments in ocean health](#)

Reuchlin-Hugenholtz, E.; E. McKenzie.

WWF, Gland, Switzerland. 2015.

A full list of [news stories](#) and [publications](#) are available on our website. Access to full articles may require library access.

Thank you for your continued interest in the Natural Capital Project. If you have any questions, please feel free to contact us at invest@naturalcapitalproject.org.

