

## Making Marine Science Matter



NatCap ran a focus group at the 3rd International Marine Conservation Conference, Making Marine Science Matter - [Tricks for the Trade: Identifying and Overcoming Barriers to Spatial Planning](#) - in Glasgow, Scotland. This workshop was a great opportunity for participants to discuss barriers to spatial planning, explore how tools might help overcome some of those, and envision novel solutions to remaining challenges.

We had over 25 participants from Australia, Canada, the UK, and the US-and from universities, NGO's, governments, and multilaterals. We will use the discussion in the Focus Group to inform our next steps in the building of our tailored tool for marine planning.

### PostDoc Opportunity

Steve Polasky and NatCap are teaming up with Peter Reich's forest ecology lab at the University of Minnesota to offer a [new](#)

## Natural Capital & Roads

INCLUDING ECOSYSTEM SERVICES IN ROAD DESIGN AND DEVELOPMENT

The Inter-American Development Bank (IDB) is the primary source of multilateral financing in Latin America; their lending decisions have a huge impact on ecosystems and human wellbeing. IDB in 2013 launched a new [Biodiversity and Ecosystems Services \(BES\) Program](#) to leverage natural capital in Latin America and the Caribbean to achieve sustainable development through their loan programs. One of their largest development areas is in infrastructure, particularly in support of roads. This year alone IDB has lent over 300 million dollars to fund transportation projects in the region.



Peruvian road from from Paracas to Nazca. (cc) WorldWideGifts.com

Selecting which projects to fund, and how they contribute to sustainability goals of countries and IDB is no easy task. IDB aims to fund development projects that will improve people's quality of life 'in an efficient, affordable, sustainable, and safe way.' As a first step to operationalizing these aims, NatCap is working with the BES Program and the [Transportation Division](#) at IDB to explicitly consider ecosystem services in lending decisions for road construction and improvement in Latin America and the Caribbean. Our broader goal is to work with the BES Program to mainstream the inclusion of information on biodiversity and ecosystem services into various types of lending decisions throughout the Bank.

NatCap has worked with IDB's BES Program and the Transportation Division to understand how ecosystem services can help secure road investments, how roads can in turn negatively impact ecosystem services and potentially human wellbeing, and identify several ways in which ecosystem services can inform choices about road development projects. For example, intact vegetation near roads can prevent erosion of a road and reduce the risk of upslope sediment washing out onto the surface, reducing maintenance costs. These reduced risks from intact forests and vegetation can help to keep dirt roads open even in the rainy season, allowing for safe and cost-effective transportation of people and goods to market. Our new report for IDB, [Natural Capital & Roads: Managing dependencies and impacts on ecosystem services for sustainable road investments](#), provides an introduction to incorporating ecosystem services into road design and development. It is intended to help transportation specialists and road engineers at the IDB—as well as others planning and building roads—to identify, prioritize, and proactively manage the ways the environment can reduce risks to roads and, in turn, the impacts roads have on the environment and people. Last month, we presented our findings in DC with our IDB colleagues and at a training in Paraguay for IDB specialists, government officials, and consultants from the Latin America and Caribbean region. Documents and recordings from this meeting will be available online through IDB's [Knowledge and Learning Sector](#).

Integrating ecosystem services into planning, preparation, and implementation of road projects can maximize returns on investment by producing more reliable and durable

[post-doc position on forest ecosystem services](#) at UMN.

### Software tools:



[InVEST](#) is a free and open-source software suite developed by the Natural Capital Project. [InVEST 3.0.1](#) was released on April 21st, 2014. The latest update fixes a few bugs and contains performance and usability updates across all the models. We recommend that users upgrade to this version which can be downloaded [here](#).



RIOS is a software tool that helps design cost-effective investments in watershed services. [RIOS 1.0.0b8](#) was released on November 6, 2013.

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

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roads that contribute to sustainable and equitable economic benefits. The Latin America and Caribbean region and the Inter-American Development Bank are poised to lead the way, demonstrating the benefits of this approach to the global community.

## Scenario Generator Tool

HELPING INVEST USERS DESIGN POSSIBLE ALTERNATE FUTURES

Fundamentally, InVEST is most powerful when used to compare the likely outcomes of various management and climate scenarios. After significant feedback from users stumbling with generating scenarios to feed into InVEST, we designed the Scenario Generator tool. This new tool is now a part of the latest version of InVEST.

Scenarios are essentially storylines that depict future events and states. They often define alternative futures, such as "business as usual" or "conservation" and are used to help people make decisions about land and water use.

Scenario development can be a complicated process that usually requires significant stakeholder input. To guide users through the process and to provide general background information on the development of scenarios, we created our [Scenarios Primer](#). However, we found that translating general statements such as "an expected 10% increase in urban area, which will most likely come from nearby farmland" into a map that can serve as an input to InVEST was difficult for most users. Our new scenario generator tool responds to this need by using general (and adaptable) rules to quickly and easily translate stakeholders' visions of alternative futures into map form.

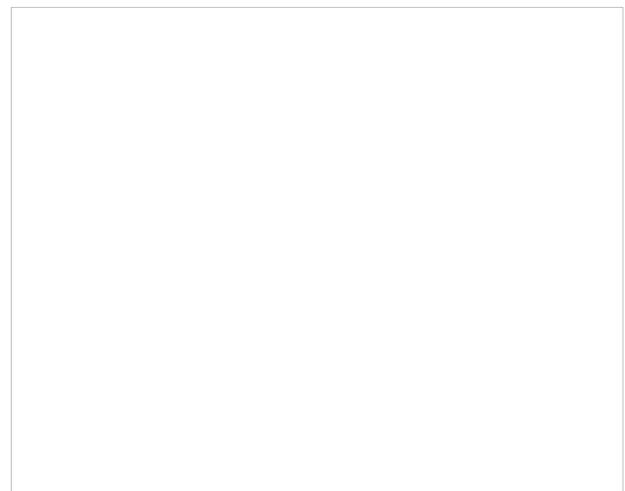
To learn more about the Scenario Generator tool, read the description in the [InVEST User Guide](#) and download the latest version of [InVEST](#) to get started.



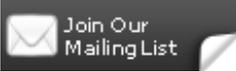
Participants developing scenarios at a workshop. Image courtesy of Nasser Olwero

## Recent Press and Publications

A new study came out this month from NatCappers at the University of Minnesota, part of a series of high-profile studies coming out of UMN's Institute on the Environment on how to feed the world in 2050. This study, published in [PNAS](#), shows how we can meet the projected need to [double food production by 2050 while saving \\$1 trillion dollars in climate change mitigation costs](#) compared to a business-as-usual scenario. By strategically converting natural areas into cropland that have the greatest potential for caloric production and a comparatively low potential for carbon storage and sequestration, the study calculated we could save 6 billion metric tons of carbon, substantially reducing the damage expansion in food



Red areas could produce the most calories while preserving the most carbon, while green areas have the highest carbon storage potential and lowest yield potential. From: "Global Agriculture and Carbon Tradeoffs," Justin Andrew Johnson et al., PNAS 2014.



production would have otherwise had on our climate.

[Global agriculture and carbon trade-offs](#)

Johnson, Justin Andrew; Carlisle Ford Runge; Benjamin Senauer; Jonathan Foley; Stephen Polasky  
*PNAS*. August 11, 2014. doi: 10.1073/pnas.1412835111

[Strategically focusing agricultural expansion could save 6 billion metric tons of carbon](#)

*University of Minnesota Discover* August 11, 2014

[Expanding existing farmland could benefit climate](#)

*Climate Central* August 14, 2014 by Bobby Magill

[Feeding everyone with a minimum of carbon emissions](#)

*Ars Technica*, August 11, 2014, by John Timmer

[Expanding agriculture more selectively could produce more food, save more carbon](#)

*WTIP North Shore Community Radio - The Roadhouse*, August 25, 2014

### Other Press and Publications:

[Key Lessons for Incorporating natural infrastructure into regional climate adaptation planning](#)

Langridge, Suzanne M.; Eric H. Hartge; Ross Clark; Katie Arkema; Gregory M. Verutes; Erin E. Prahler; Sarah Stoner-Duncan; David L. Revell; Margaret R. Caldwell; Anne D. Guerry; Mary Ruckelshaus; Adina Abeles; Chris Coburn; Kevin O'Connor.  
*Ocean & Coastal Management*. July 2014, Vol. 95, pp 189-197. DOI: 10.1016/j.ocecoaman.2014.03.019

[Sustainability for the Nation: Resource Connections and Governance Linkages](#)

Graedel, T.E.; Deborah Swackhamer; Robert Anex; William F. Carroll, Jr.; Glen T. Daigger; Paulo Ferrão; Howard Frumkin; Sally Katzen; Anna Palmisano; Stephen Polasky; Lynn Scarlett; Robert Stephens; Lauren Zeise  
*Environmental Science Technology*. 2014, Vol. 48 (13), pp 7197-7199. DOI: 10.1021/es502328v

[Influence of watershed-climate interactions on stream temperature, sediment yield, and metabolism along a land use intensity gradient in Indonesian Borneo](#)

Carlson, Kimberly M.; Lis M. Curran; Alexandria G. Ponette-González; Dessy Ratnasari; Ruspita; Neil Lisnawati; Yadi Purwanto; Kate A. Brauman; Peter A. Raymond  
*Journal of Geophysical Research: Biogeosciences*. June 2014, Vol. 119(6), pp 1110-1128.

[Take Nothing but Pictures](#)

*Stanford Magazine*, July-August Issue, By Hugh Biggar

Natural Capital Project Deploys Approaches and Tools for Measuring Ecosystem Services and Resource Values

*Environmental Business Journal*, Volume XXVII, Number 4/5, 2014

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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](mailto:invest@naturalcapitalproject.org).

