

About Us

The Natural Capital Project (NatCap) is a partnership among Stanford University, The Nature Conservancy, the World Wildlife Fund, and the University of Minnesota that works to develop scientifically rigorous approaches to incorporate natural capital into decisions, create innovative software tools to model, map, and value nature's benefits to society, and engage influential leaders to advance change in policy and practice through mainstreaming the approaches.

InVEST

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integrated valuation of
environmental services
and tradeoffs

Integrated Valuation of
Environmental Services
and Tradeoffs

([InVEST](#)) is a free and open-source software suite developed by the Natural Capital Project. It maps and values the goods and services from nature that contribute to sustaining and fulfilling human well being. Version 2.5.3 was released on March 21st, 2013 and contains both ArcGIS dependent and standalone tools. Check out [our website](#) to see

The Impacts of Development on Nature and People

Greetings!

Development can create new jobs, improve transportation and communication, and provide cheaper energy. However, these benefits often also come with environmental costs, including pollution of water and air, lost access to outdoor recreation, and threats to biodiversity.

At the Natural Capital Project (NatCap), we are developing new approaches and tools to evaluate the effects of infrastructure and other development activities on ecosystems and people. Working with partners in Latin America, NatCap is assessing the impacts of proposed coal mines in Colombia and a new road through the Peruvian Amazon. We are looking at the impact these development activities will have on the provision of ecosystem services and how these changes will affect people in the region. We are also developing new tools and approaches to determine how impacts of development can be mitigated through restoration and protection. In collaboration with The Nature Conservancy and the Colombian Ministry of Environment, we are developing a specialized software tool to help the Ministry in planning for future development projects. We hope this is a first step in creating a tool that can be used in environmental impact assessments and mitigation efforts anywhere.

Incorporating Ecosystem Services into Environmental Impact Assessments

ACCOUNTING FOR PEOPLE IN PERMITTING & MITIGATION

Nearly 200 countries require the completion of an environmental impact assessment for development projects, and of these, one-third also require mitigation to offset environmental degradation. By incorporating ecosystem services into environmental impact assessments, we can quantify the services being lost, and to whom, so they can be mitigated accordingly. This [approach](#) can also help us understand the impacts of development on human wellbeing and social equity. Including ecosystem services in impact assessments and mitigation processes already is required by a growing number of lending institutions, including the International Finance Corporation and the World Bank. Such approaches can help countries and organizations reduce risk to project success and avoid unintended negative consequences from development.

While most countries require mitigation to offset environmental degradation that results from development, none requires an explicit accounting of people in these efforts. Scientists at NatCap have developed a new approach to mitigation that identifies ecosystem service 'winners' and 'losers'. We are developing a new tool that draws on InVEST that can map the flows of ecosystem services to different populations--such as indigenous and urban communities--and how those services might change under various mitigation options. Addressing mitigation in this manner avoids the creation of social injustice that occurs when ecosystem services like clean drinking water or recreational opportunities are restored to some people but not others. This approach is a promising foundation for future mitigation policy that places a premium on human well-being.



which models are available in which platform.

[Sign up](#) to receive the latest information on InVEST and participate in our online user community.

InVEST Trainings

Vermont - NatCap & InVEST Training

June 12-14

[More information](#)

Sold out

Bali - InVEST and Sub-Global Assessment (SGA) Network Training Workshop

Aug. 30 - Sep. 1st

[More information](#)

[Register](#)

UK- InVEST Training

October 14-18

Wallingford, England

[More information](#)

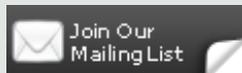
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The NatCap approach to impact assessment and mitigation can help people:

- Plan development to avoid and minimize ecosystem service losses
- Quantify impacts of development and mitigation activities on people, including consequences for social equity
- Design mitigation to efficiently offset ecosystem service losses
- Determine the potential to reach no net loss of ecosystem services with mitigation
- Reduce risk of unintended environmental consequences from development

Mining in Colombia

IMPACTS OF COAL MINING

As the government of Colombia prepares to grant new mining concessions, it also requires mitigation of environmental impacts on people from development. Working with the Ministry of Environment and The Nature Conservancy, NatCap evaluated [the impacts of new and proposed coal mine permits](#) on drinking water quality regulation services in the Cesar Department, a region in Colombia. We also assessed the potential to mitigate negative impacts to specific groups of people by protecting or restoring previously identified priority conservation areas. Our analyses showed where mitigation was likely to offset the impacts of mine expansion, and for which mines full mitigation is not likely to be possible. This initial analysis is being adapted into a general decision support tool for the Ministry of the Environment for use in evaluating biodiversity and ecosystem service impacts on people for about a hundred permitting projects each year using a standard approach.



Road Construction in Peru

A ROAD THROUGH THE AMAZON

Construction of the Pucallpa-Cruzeiro do Sul road between Peru and Brazil would increase local access to international markets, improving livelihood opportunities for many people. The road is also likely to increase deforestation and other environmental impacts in this biologically and culturally sensitive region of the Amazon. NatCap worked with The Nature Conservancy to determine how these changes could impact ecosystem services for local communities in Peru, [including water quality regulation and carbon storage](#). We used InVEST and new models to determine the most effective locations for mitigation reforestation and protection efforts. Although these mitigation activities could potentially offset much of the ecosystem service losses associated with road construction, our results reveal that it is not possible to offset the impacts to all people, and that indigenous communities are likely to bear a disproportionate burden of development. Our approach is now being used to compare the impacts of possible routes for power transmission lines in Peru and the potential for mitigation.



Offshore Wind Energy Model

A NEW InVEST MODEL

The newest addition to our InVEST software suite is the [offshore wind energy model](#). This model can be used to help site offshore wind power facilities by maximizing the economic value of wind power that can be generated while minimizing conflicts with other ocean uses. The model estimates the electricity generation potential of offshore wind power and the value of constructing and operating a wind energy facility in specific locations within a region.



NatCap has run the wind energy model for the entire New England coast in order to identify areas that would be the highest value for wind power. Used in conjunction with InVEST's aesthetic quality model and publicly available information on fishing areas, [we can locate areas of the New England seascape that would be most profitable for wind power](#), while limiting the impact of the wind turbine array on fishing and scenic views from shore. The new wind energy model and applications are similar to those we've developed with our [wave energy model](#) on the [west coast of Vancouver Island](#).

Recent Publications

[Impact of climate extremes on hydrological ecosystem services in a heavily humanized Mediterranean basin](#)

M. Terrado, V. Acuña, D. Ennaanay, H. Tallis and S. Sabatera
Ecological Indicators, In Press

[Tapped out: how can cities secure their water future?](#)

Brian D. Richter, David Abelb, Emily Bacha, Kate Brauman, Stavros Calos, Alex Cohn, Carlos Disla, Sarah Friedlander O'Brien, David Hodges, Scott Kaiser, Maria Loughran, Cristina Mestre, Melissa Reardon and Emma Siegfried
Water Policy 15 (2013) 335-363

[Conservation status and effects of harvest on an endemic multi-purpose cycad, *Cycas circinalis* L., Western Ghats, India](#)

Vansana Krishnamurthy, Lisa Mandle, Tamara Ticktin, R. Ganesan, C.S. Saneesh and Anita Varghese
Tropical Ecology 54(3): 309-320, 2013

[Moderate land use shifts plant diversity from overstory to understory and contributes to biotic homogenization in a seasonally dry tropical ecosystem](#)

Lisa Mandle and Tamara Ticktin
Biological Conservation, Volume 158, February 2013, Pages 326-333

*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.

