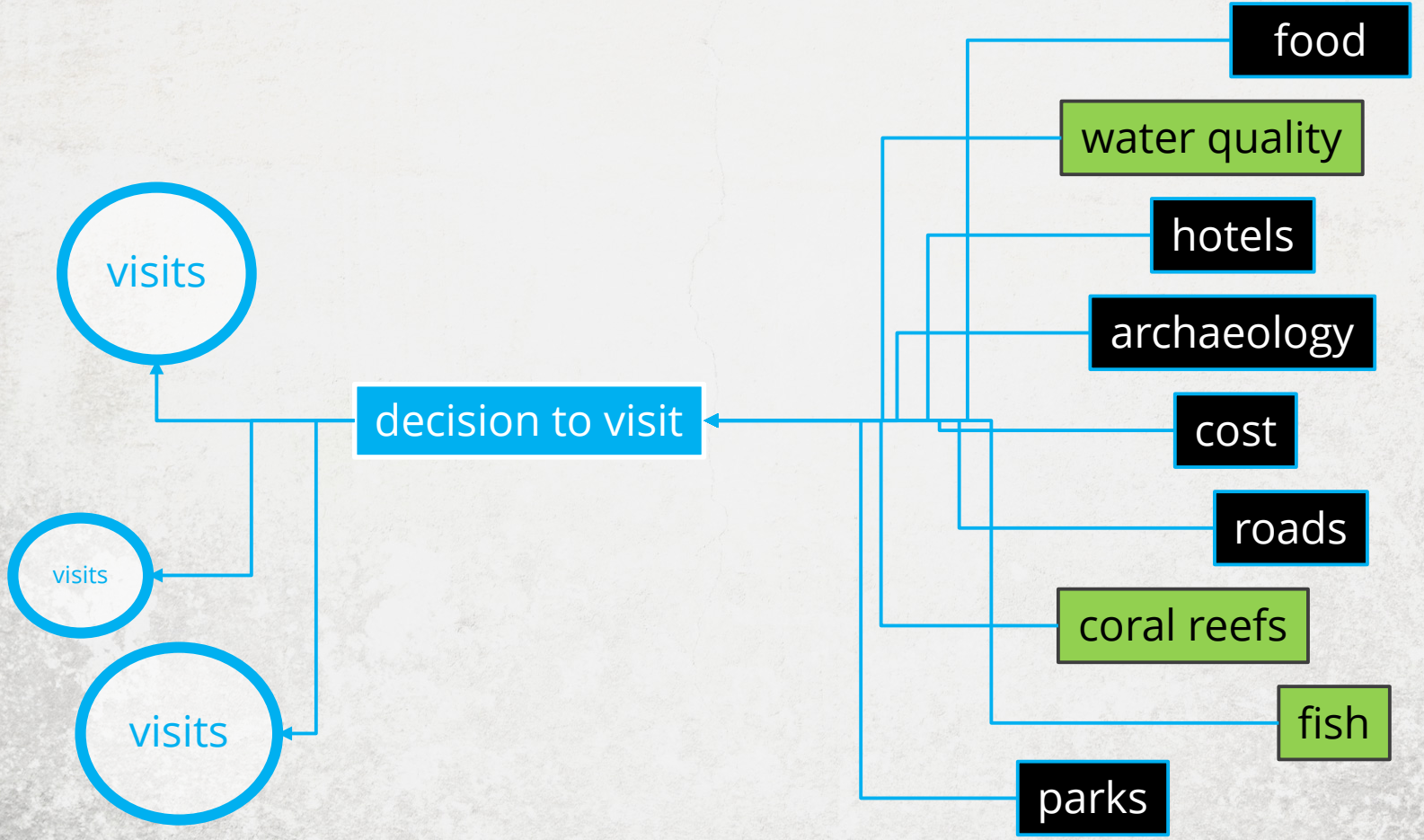
VISITATION

RECREATION AND TOURISM

visitation rate = predictor + predictor + predictor + predictor



TOURISM AND RECREATION
EXAMPLES

natural capital PROJECT

visitation rate = predictor + predictor + predictor + predictor

shellfish collectors = **development** + **water quality** + **abundance** + **area** + **access** + substitute

refuge visitors = **ocean** + **park area** + **income** + population

wildlife viewing = **income** + **population**

park visitors = **water activities** + **park age** + **camping** + **distance to city** + distance to town

park visitors = **distance to city** + **area**

national park visitors = **area** + **fees** + **population** + **substitutes** + income + fame

park visitors = **recreational activities** + **distance to city** + **habitats (#)** + **trails**

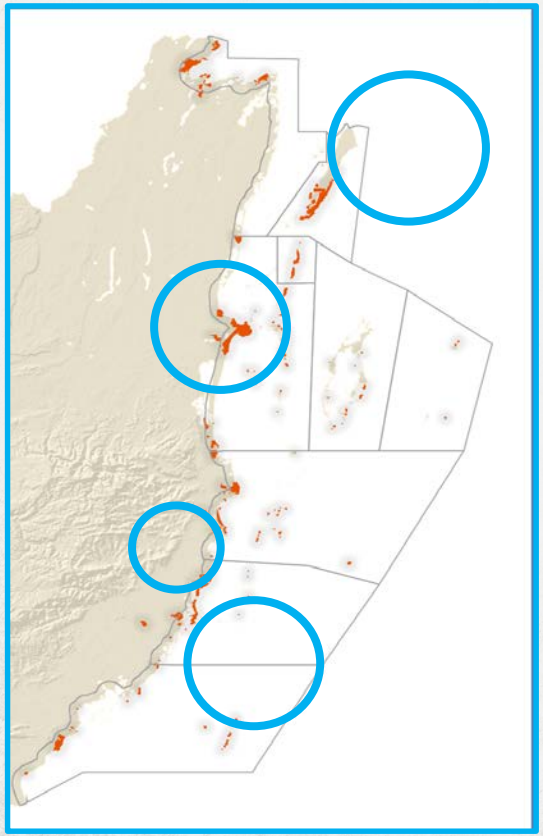
park visitors = **canyons** + **historic sites** + **area** + **population** + boating + wildlife viewing

etc ...

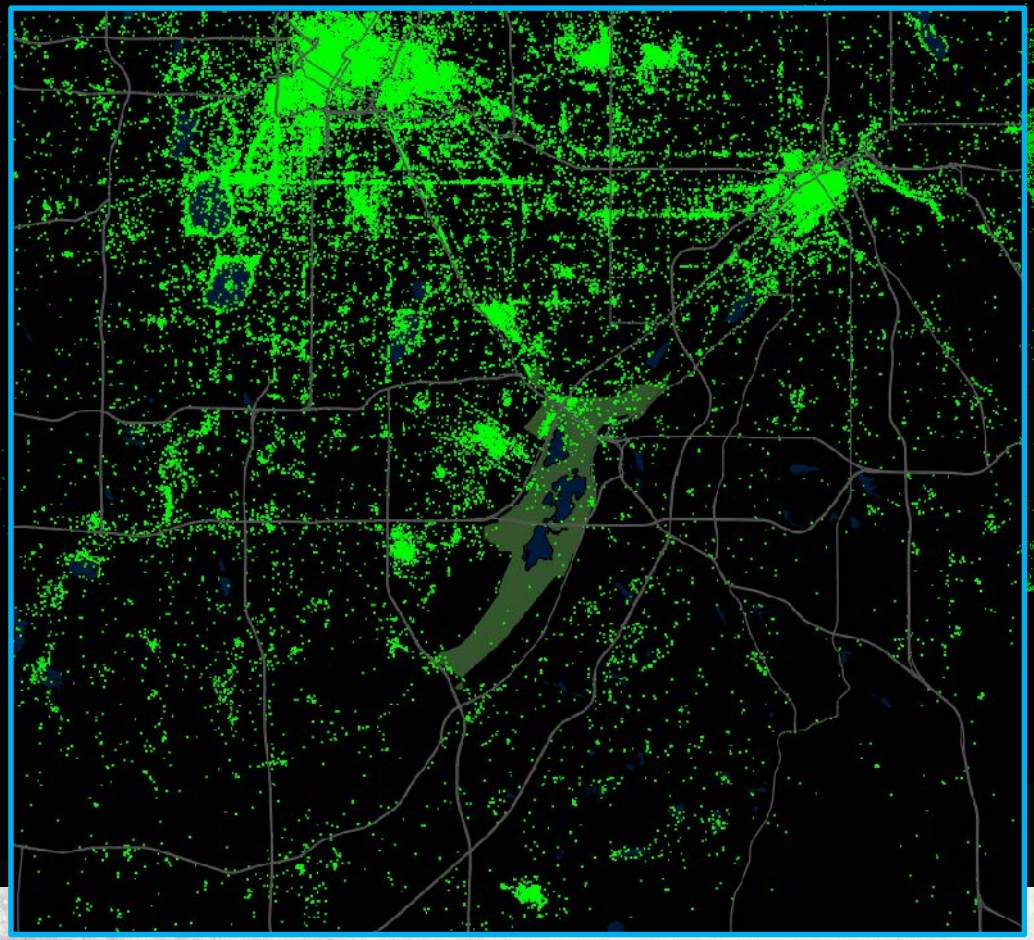
visitation rate = $ß_1$ • predictor + $ß_2$ • predictor + ...

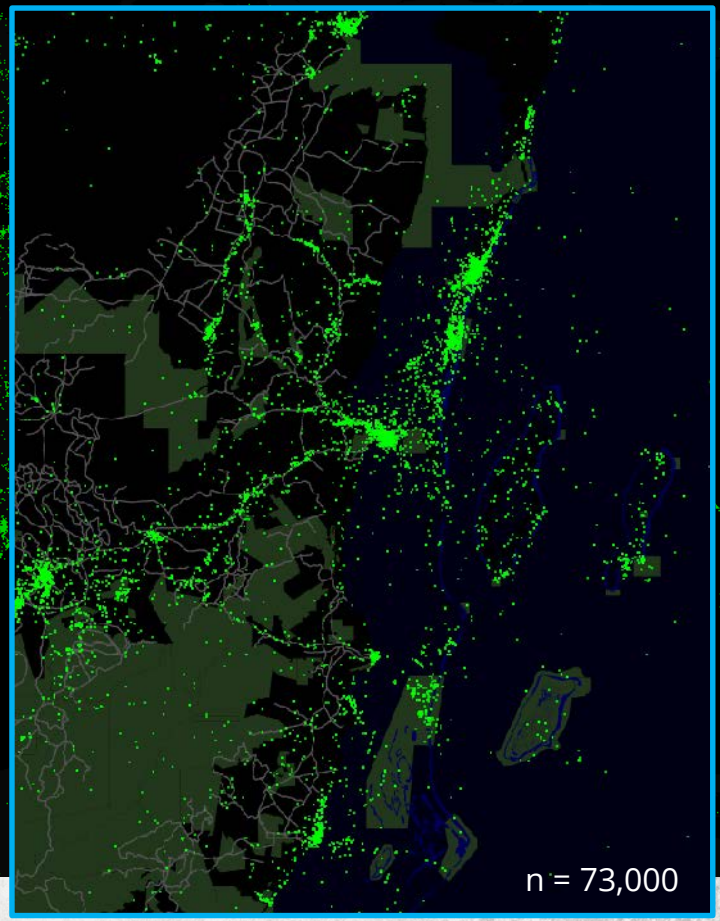
context dependent : each place is different ($ß_i$ values)

RECREATION DECISIONS
INFLUENCE BY THE ENVIRONMENT



flickr photos





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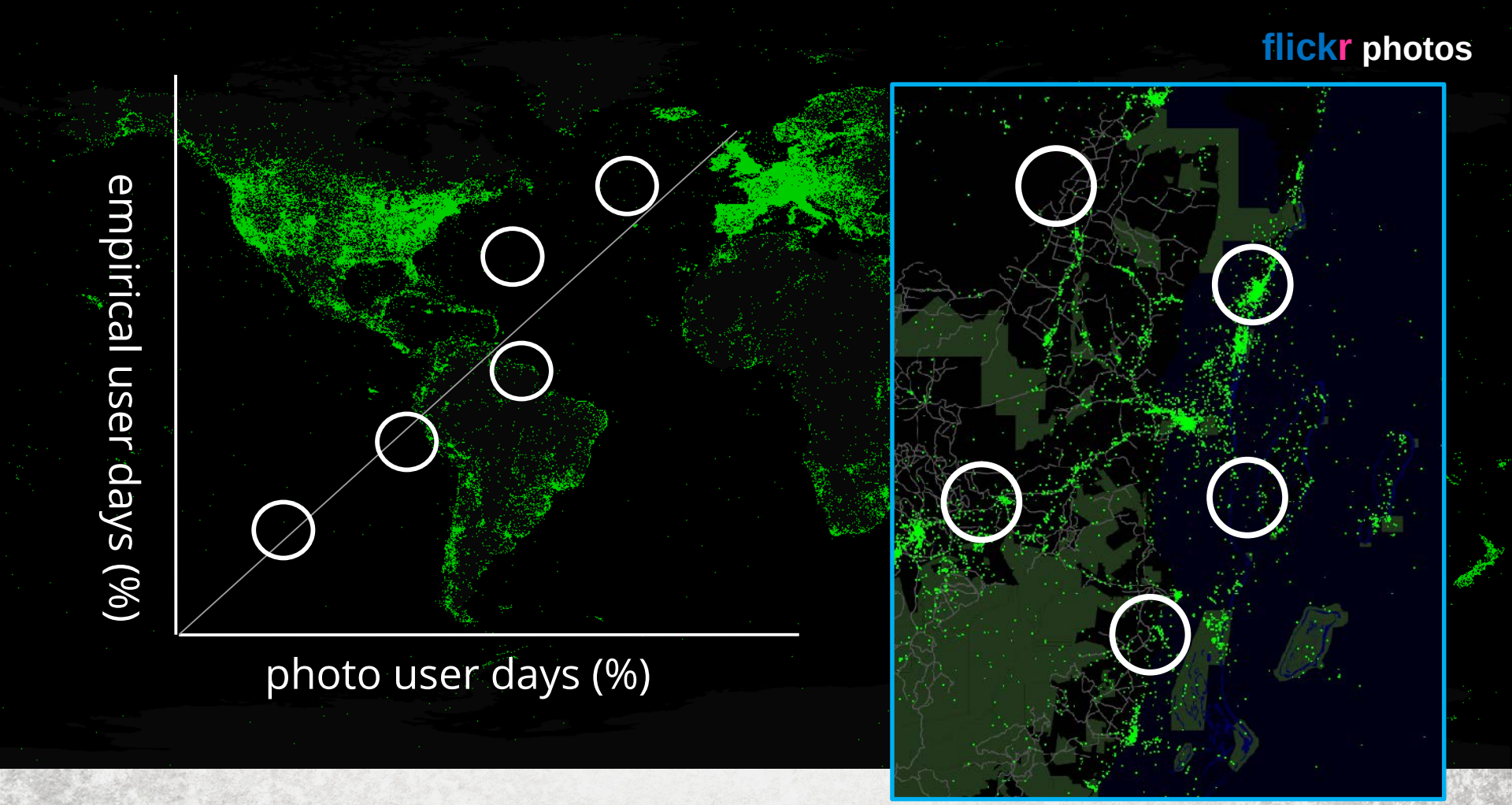

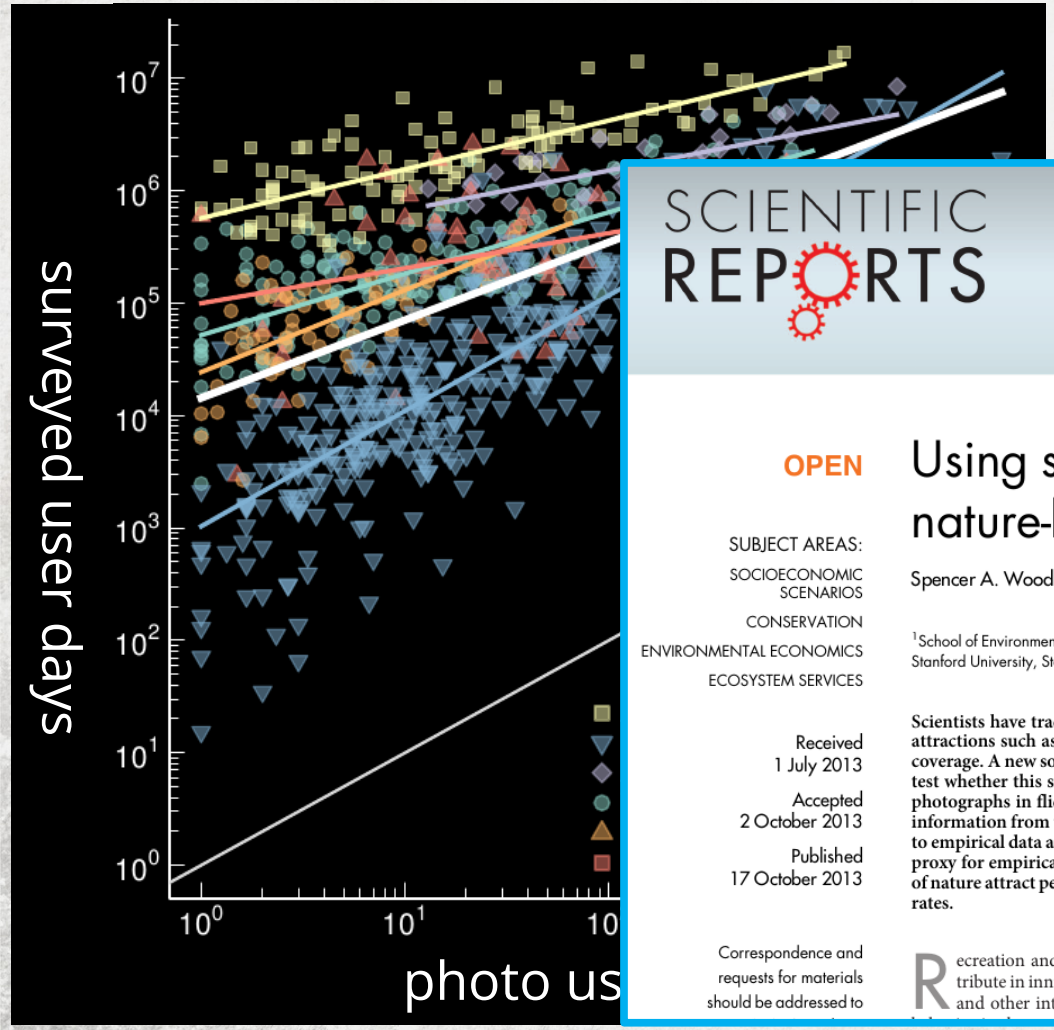

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Using social media to quantify nature-based tourism and recreation

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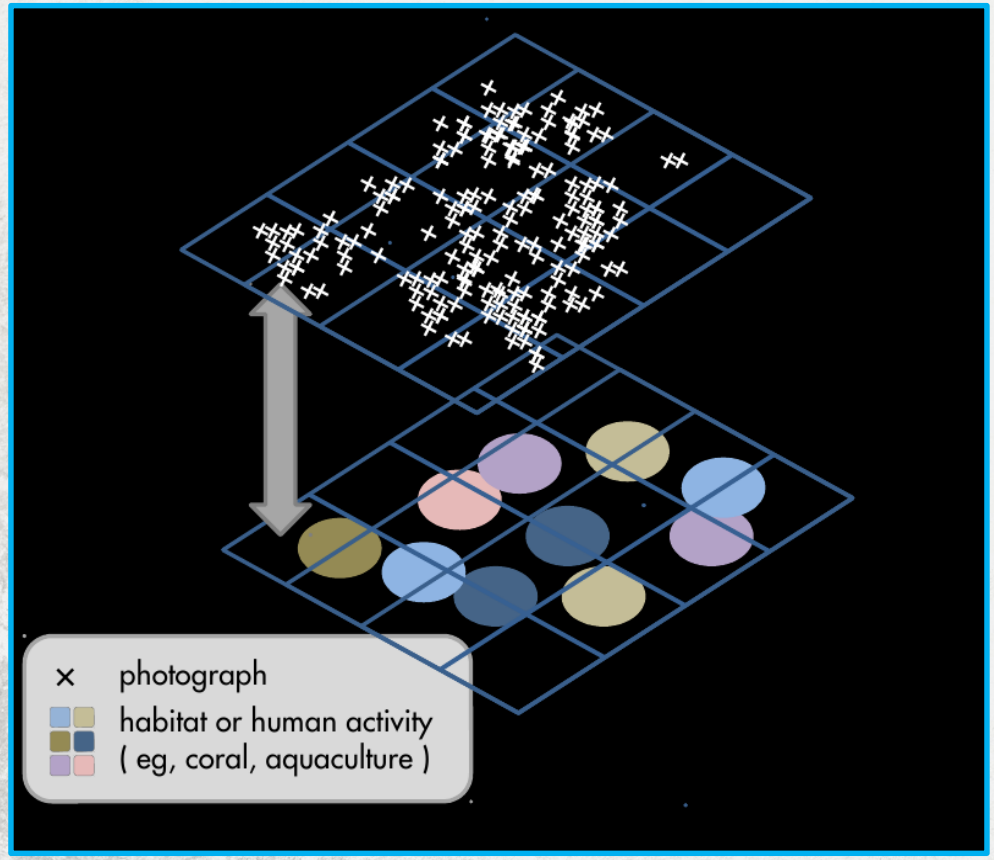
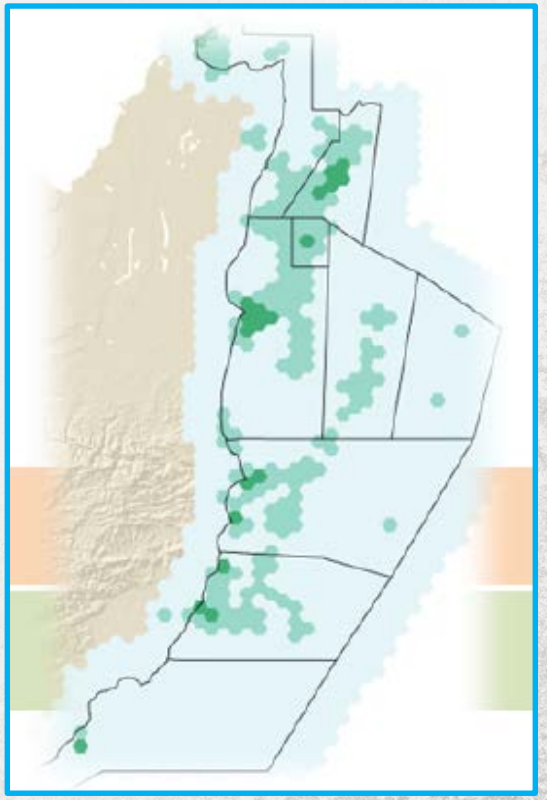
Scientists have traditionally studied recreation in nature by conducting surveys at entrances to major attractions such as national parks. This method is expensive and provides limited spatial and temporal coverage. A new source of information is available from online social media websites such as flickr. Here, we test whether this source of "big data" can be used to approximate visitation rates. We use the locations of photographs in flickr to estimate visitation rates at 836 recreational sites around the world, and use information from the profiles of the photographers to derive travelers' origins. We compare these estimates to empirical data at each site and conclude that the crowd-sourced information can indeed serve as a reliable proxy for empirical visitation rates. This new approach offers opportunities to understand which elements of nature attract people to locations around the globe, and whether changes in ecosystems will alter visitation rates.

Recreation and tourism are important components of many national and local economies and they contribute in innumerable ways to quality of life, sense of place, social connection, physical wellbeing, learning, and other intangibles. Information on patterns of recreation and tourism and the factors that influence

APPLICATION
INVEST RECREATION MODEL

visitation rate = f (habitats and human activities)





ASSUMPTIONS AND LIMITATIONS

- Photographs as a proxy for visitation
- People's preferences do not change over time
- Linear regression versus random utility models
- Monetary value as expenditures versus travel costs