



Scaling Artificial Intelligence and Computer Vision for Conservation

Matt Merrifield

CTO

The Nature Conservancy of
California

Our Mission:
To conserve the lands and
waters on which all life depends



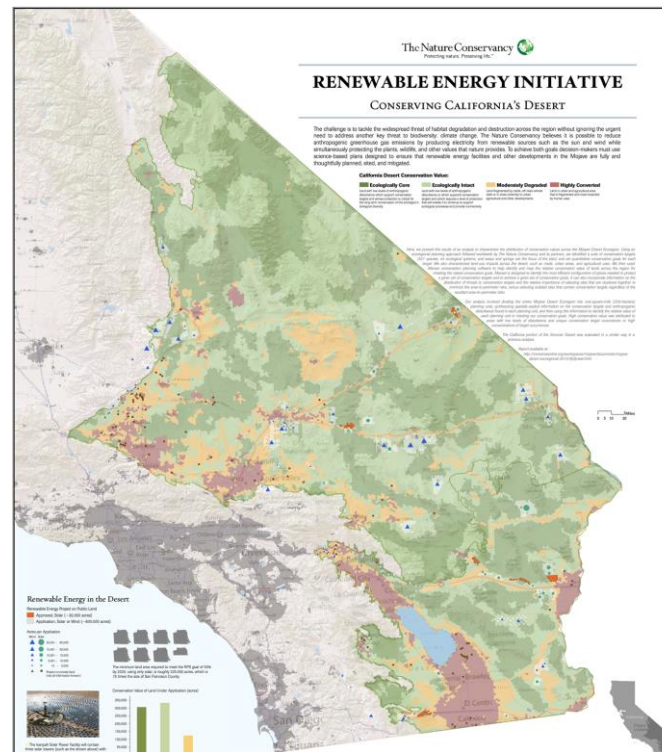
Matt M @mmerrifield · 4/22/14

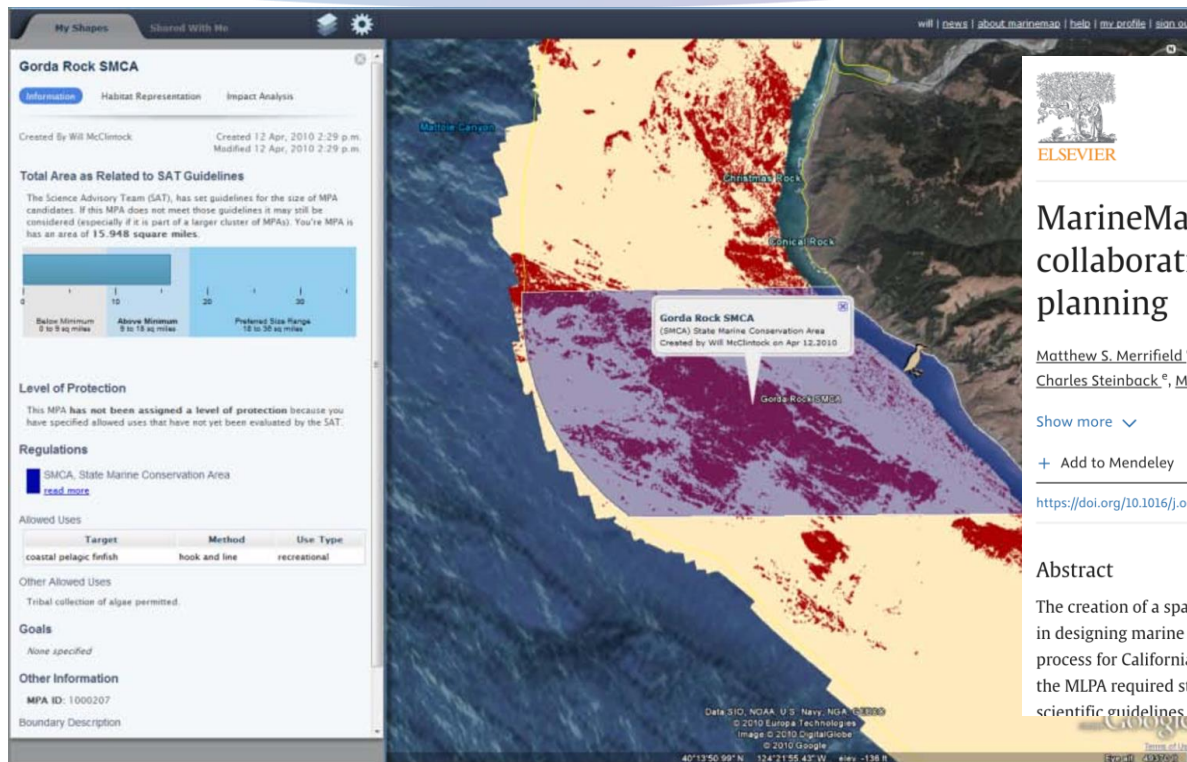


Ok so not technically a selfie but it is me! - Nov 2013 in Monterey Bay - whales were everywhere!
#natureselfie



California Ecoregional Portfolios





MarineMap: A web-based platform for collaborative marine protected area planning

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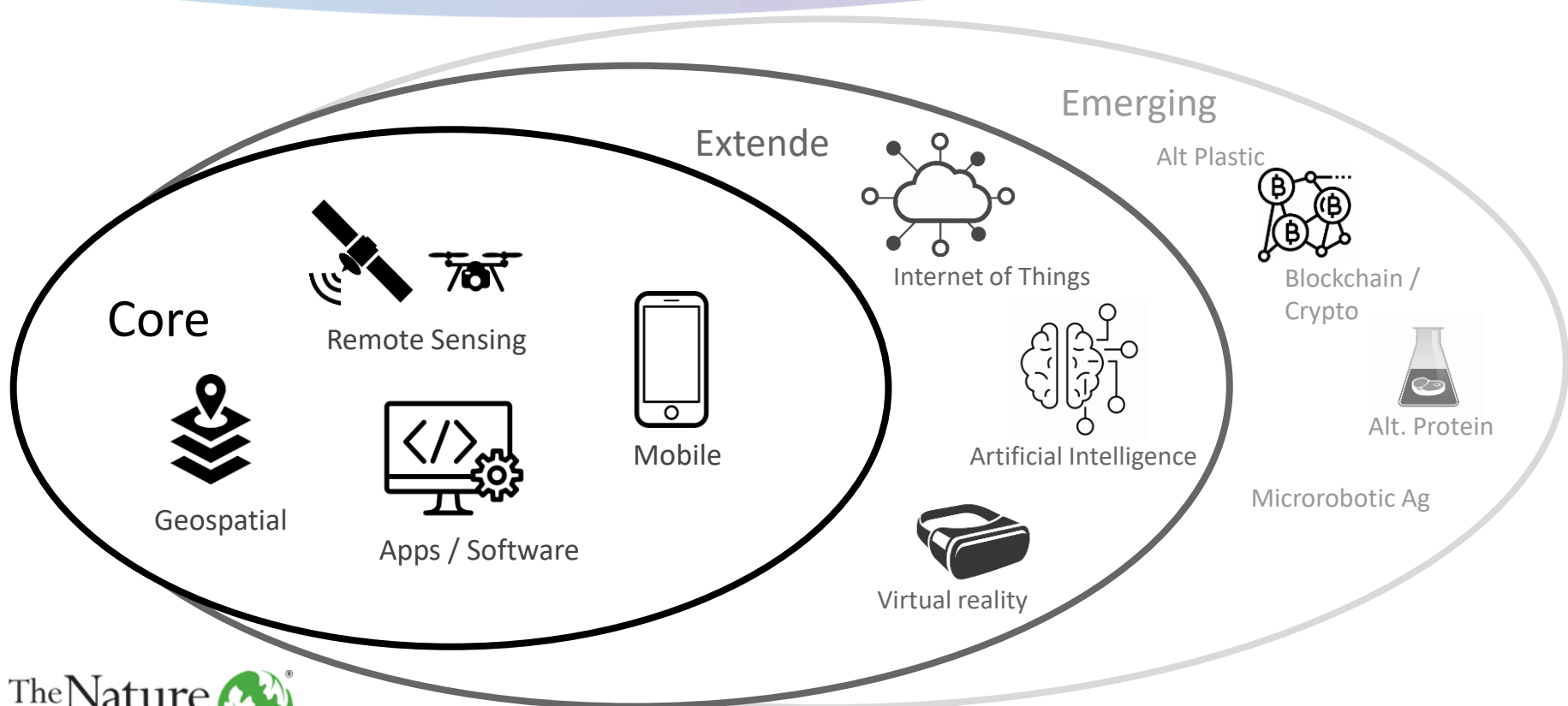
<https://doi.org/10.1016/j.ocecoaman.2012.06.011>

Get rights and content

Abstract

The creation of a spatial decision support system that enabled stakeholder participation in designing marine protected areas (MPAs) was a necessary component of the planning process for California's Marine Life Protection Act (MLPA) Initiative. Implementation of the MLPA required stakeholders to understand and use a complicated set of spatial and scientific guidelines for MPA design that relied heavily on geographic information tools

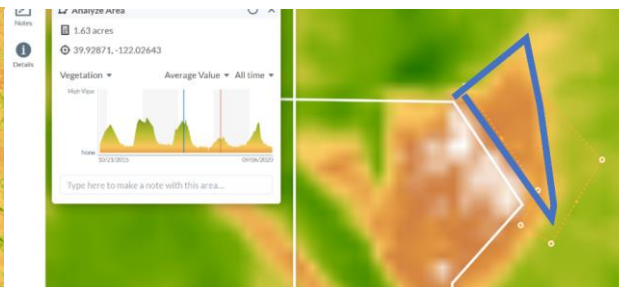
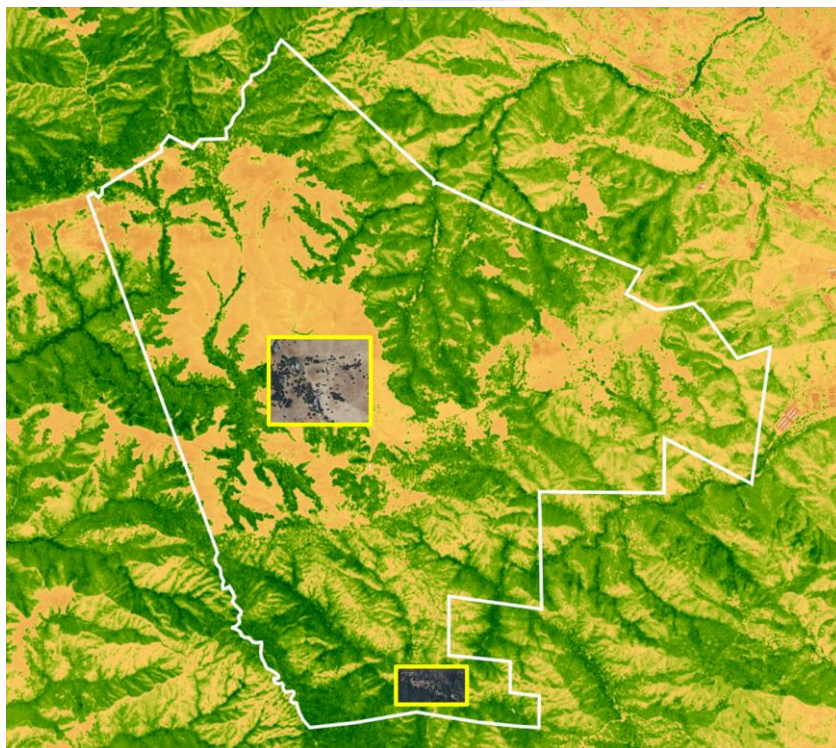
The Conservation Technology Ecosystem





Monitoring TNC Properties From Space

The screenshot shows the Upstream Tech website. At the top left is the Upstream Tech logo. To the right are navigation links for 'Lens', 'HydroForecast', 'Company', and 'Login'. The main content area features a 'Welcome to Lens' heading, followed by the headline 'Monitor, analyze, and report on what matters'. Below this is a sub-headline: 'Harness the power of public and commercial geospatial data, regardless of technical experience, with Lens.' Two buttons are present: 'Book a demo' (green) and 'Sign up today' (orange). To the right of the text is a split-image showing a river valley from two different perspectives. Below the main content is a section titled 'Trusted by organizations all over the world' with logos for the American Forest Foundation, Apple, One Tree Planted, The Nature Conservancy, Trustee's, and the University of Arizona (UAS). The bottom of the screenshot shows a dark banner with a forest image.



Monitoring TNC Properties From Space

- 58% reduction costs associated with monitoring
- 250 land mgmt orgs utilizing
- 80M acres of land monitored

Rats are found on **90% of islands** in the world

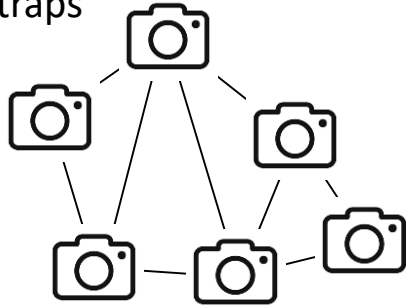
Responsible for **half of the bird and reptile
extinctions** globally

Single pair of rats can theoretically produce
5000 offspring per year

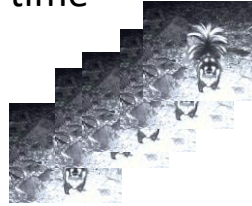




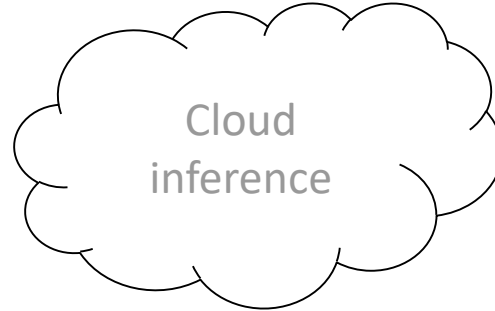
Capture images in the field with a mesh network of camera traps



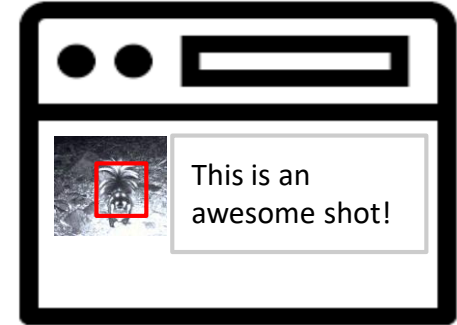
Upload those images to the cloud in real time



Cloud inference to detect and classify animal objects in images



Users can review and annotate captured images via the web



3 - 5 minutes

Solar Powered, Mesh Network of Radio-connected Cameras



Filters x

- ▾ Deployments 27
- ☑ CLEAR SELECTION
- X811494B - no deployments selected >
- X811459F - Walnut drainage, +1 >
- X811488B - Valley Anchorage, +1 >
- X811492D - Centinela, +1 >
- X8114541 - Chapel trail, +2 >
- X8114549 - Taquito cabins, +1 >
- X8114566 - no deployments selected >
- X8114764 - Laguna cliffs, +1 >
- X8114819 - no deployments selected >
- X8114937 - Christy Beach ro..., +1 >
- X8115808 - Navy site, +1 >
- X8115C8C - Fraser Point, +1 >
- X81147FE - Fry's Harbor, +1 >
- X8115CB7 - Prisoner's Magaz..., +1 >
- X8115C8C - Prisoner's Well, +1 >
- X8115C8B - Navy Site replac..., +1 >

▾ Labels 3

- ☑ CLEAR SELECTION
- bird
- lizard
- bat
- animal

3,388 matching images

Labels

-
-
-
-
-
-
-
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-
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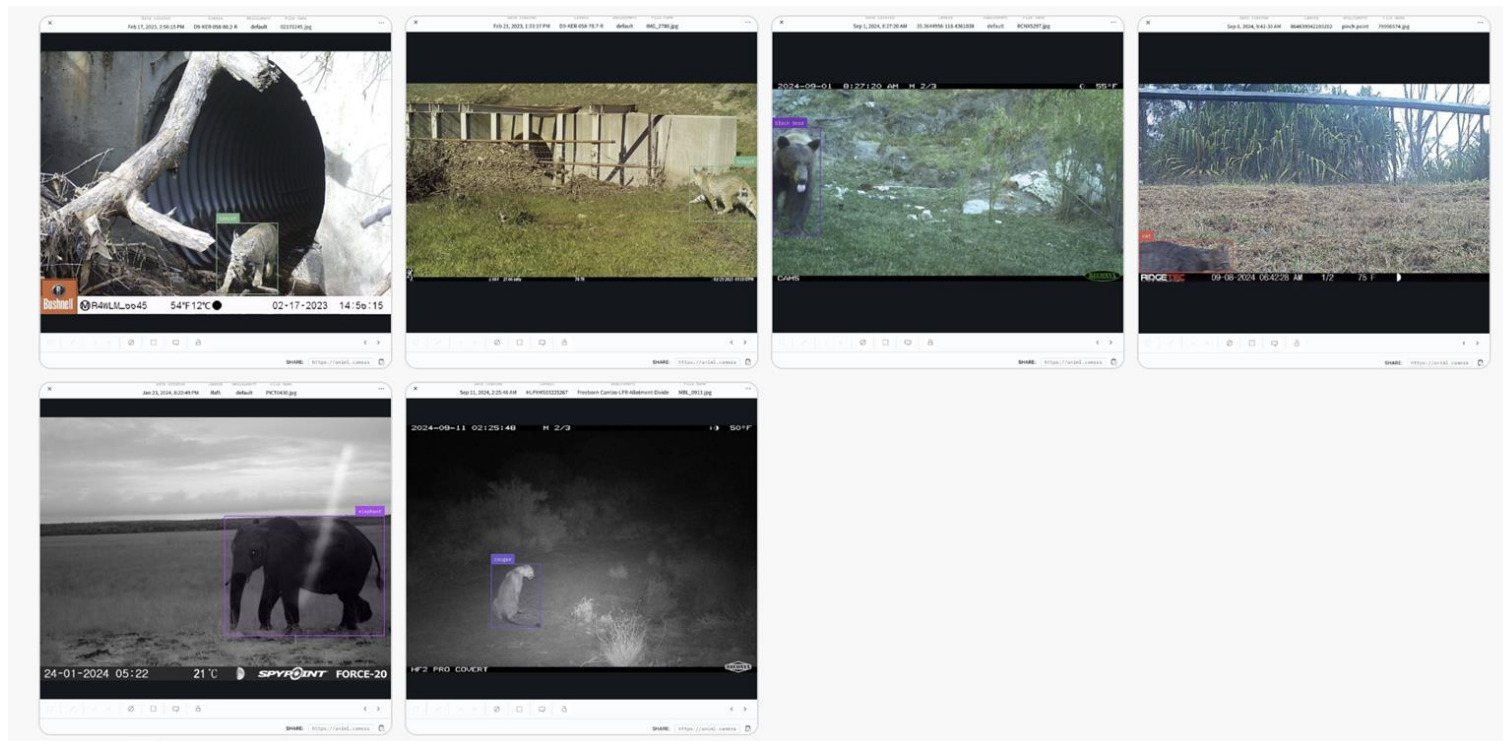
Date created	Camera	Deployment	File name
Jan 2, 2022 01:55:39	X8115CB7	Prisoner's Magazine	p_000629.jpg

HE18 #028
Prisoner's Magazine

1/2/2022 1:55:39 48°F

x MARK EMPTY + ADD OBJECT

15 / 3388 images < >





Thanks!

