



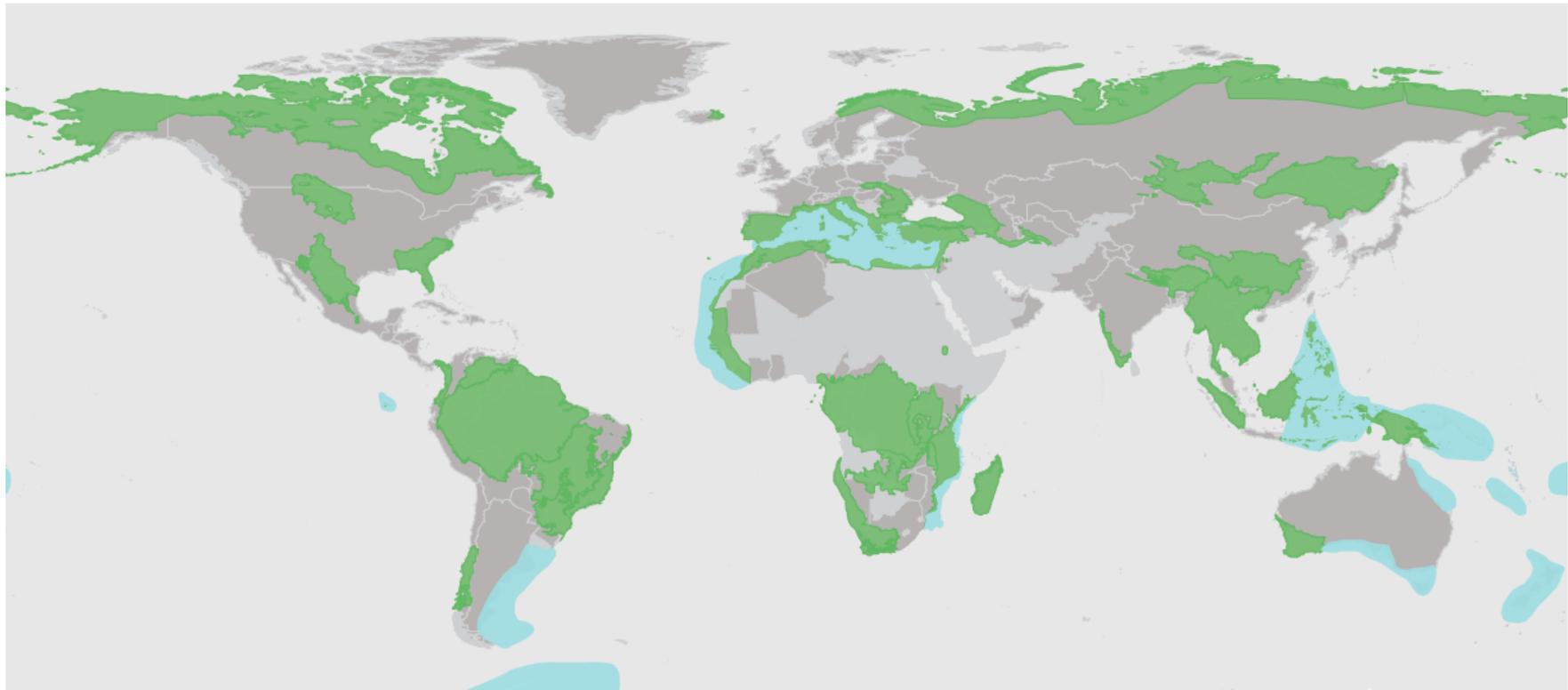
# Frontier Space Technology for Wildlife Conservation

Samuel Harper – Head, Global Business Systems – WWF International



# The World Wide Fund for Nature (WWF)

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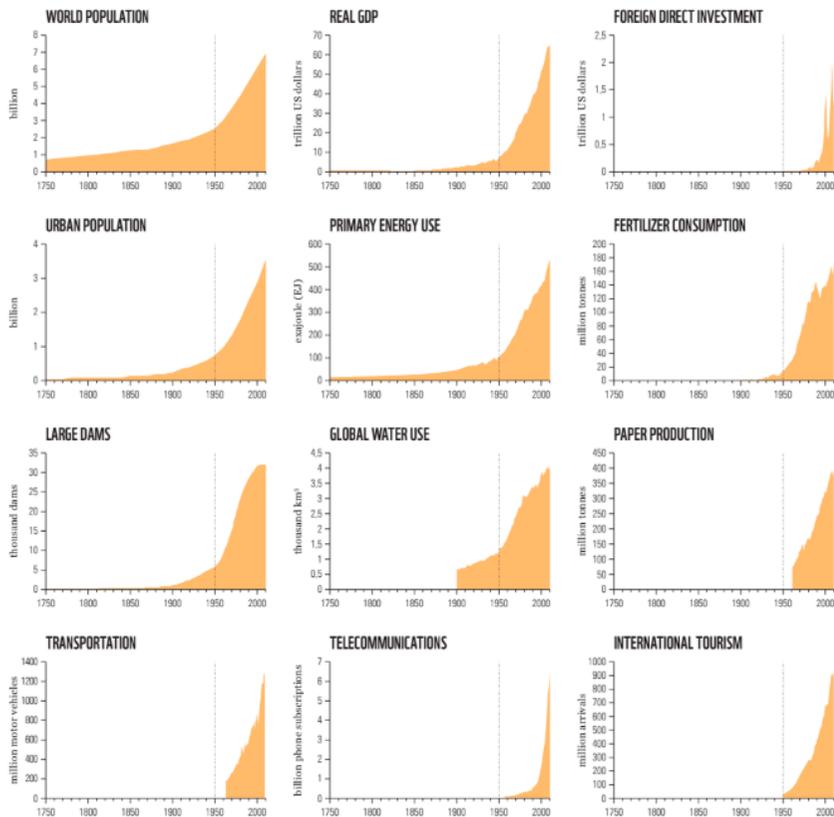


>5000 staff; >100 Countries; action at every  
level

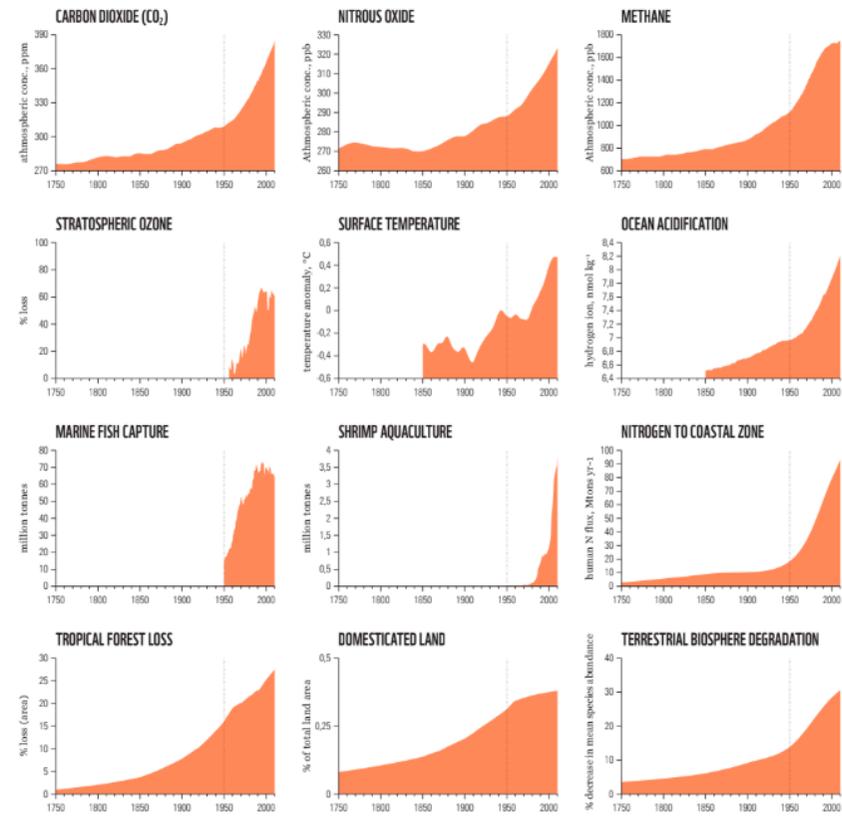


# WWF Living Planet Report - 2018

## SOCIO-ECONOMIC TRENDS



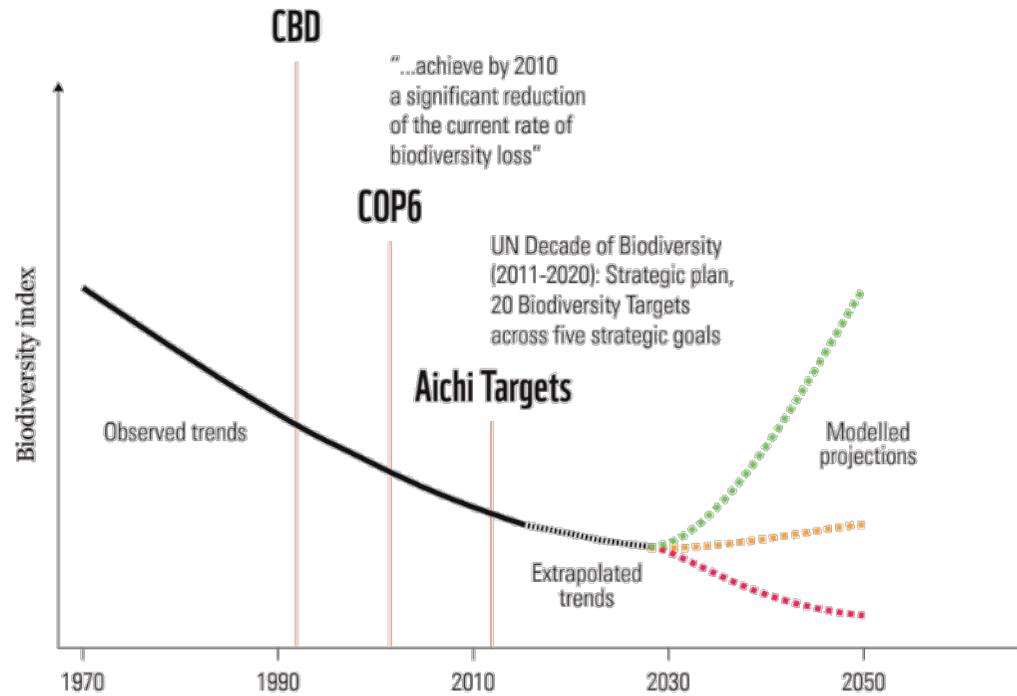
## EARTH SYSTEM TRENDS





# Bending the curve

"Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity; Integrate [...] the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies"





# Operational Wildlife Counts From Space?

Overcoming space, time constraints

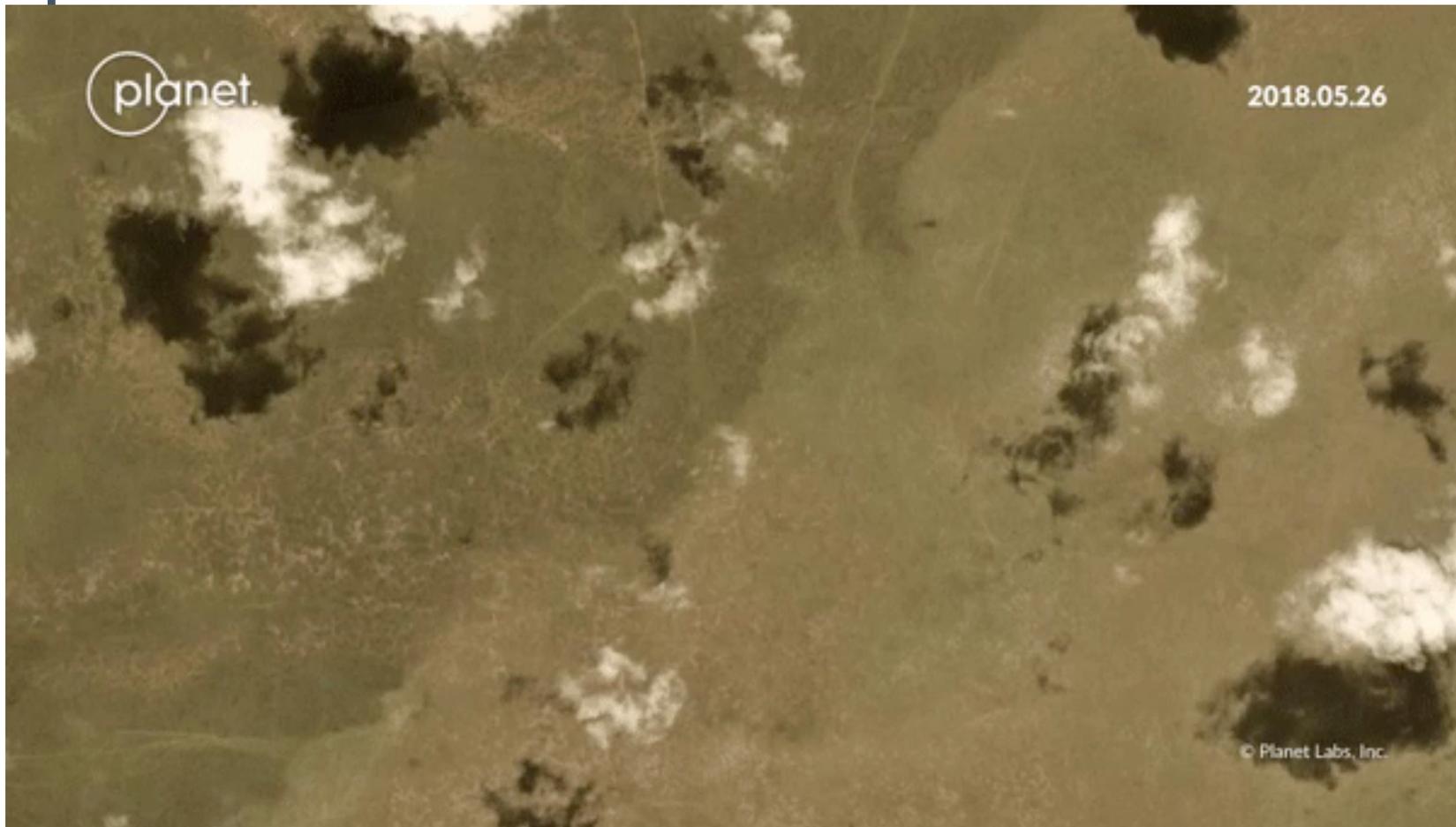
- Higher resolution
- More frequent
- More affordable





# Impacts of Wildlife Movements from Space

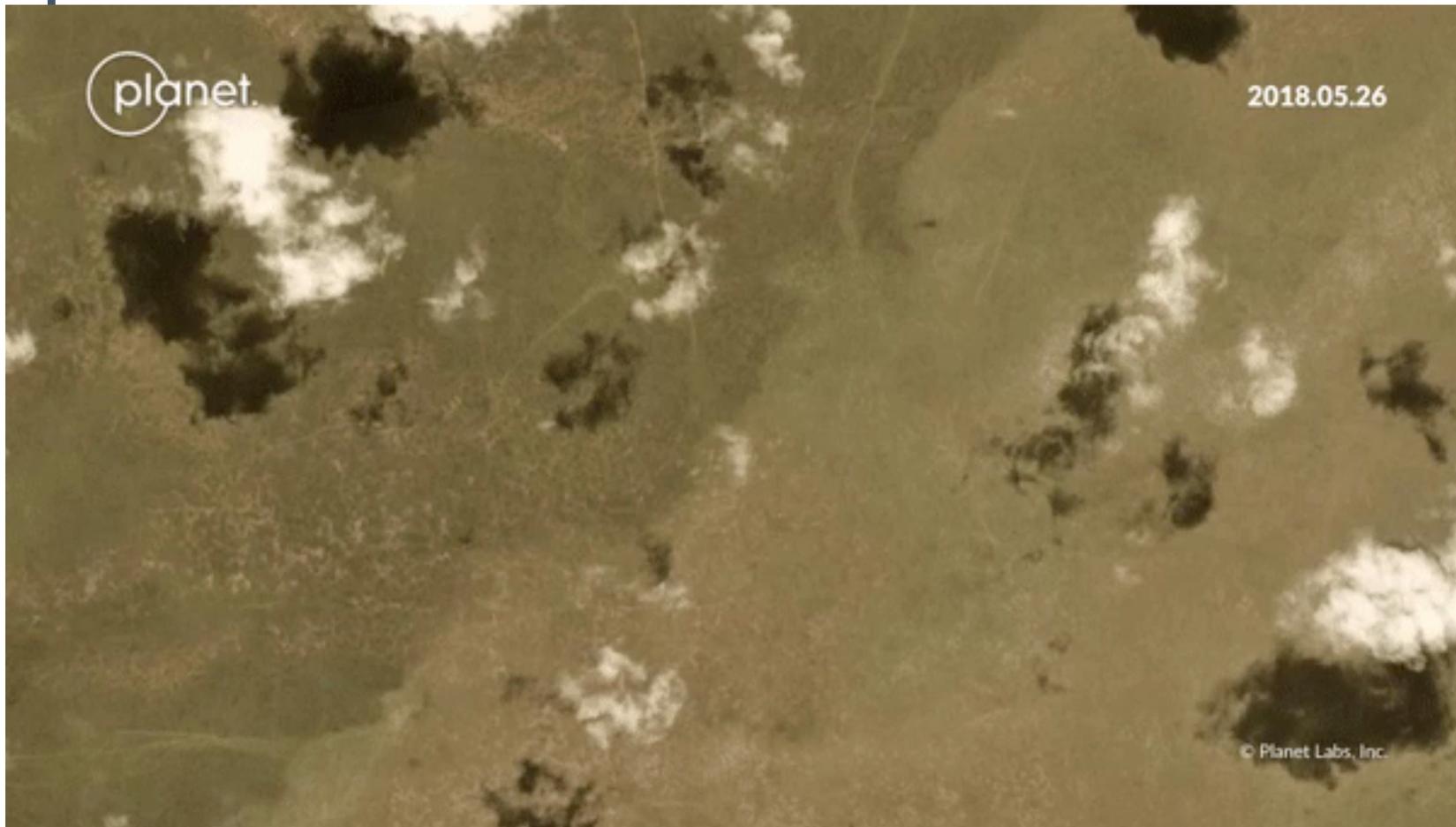
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# Impacts of Wildlife Movements from Space

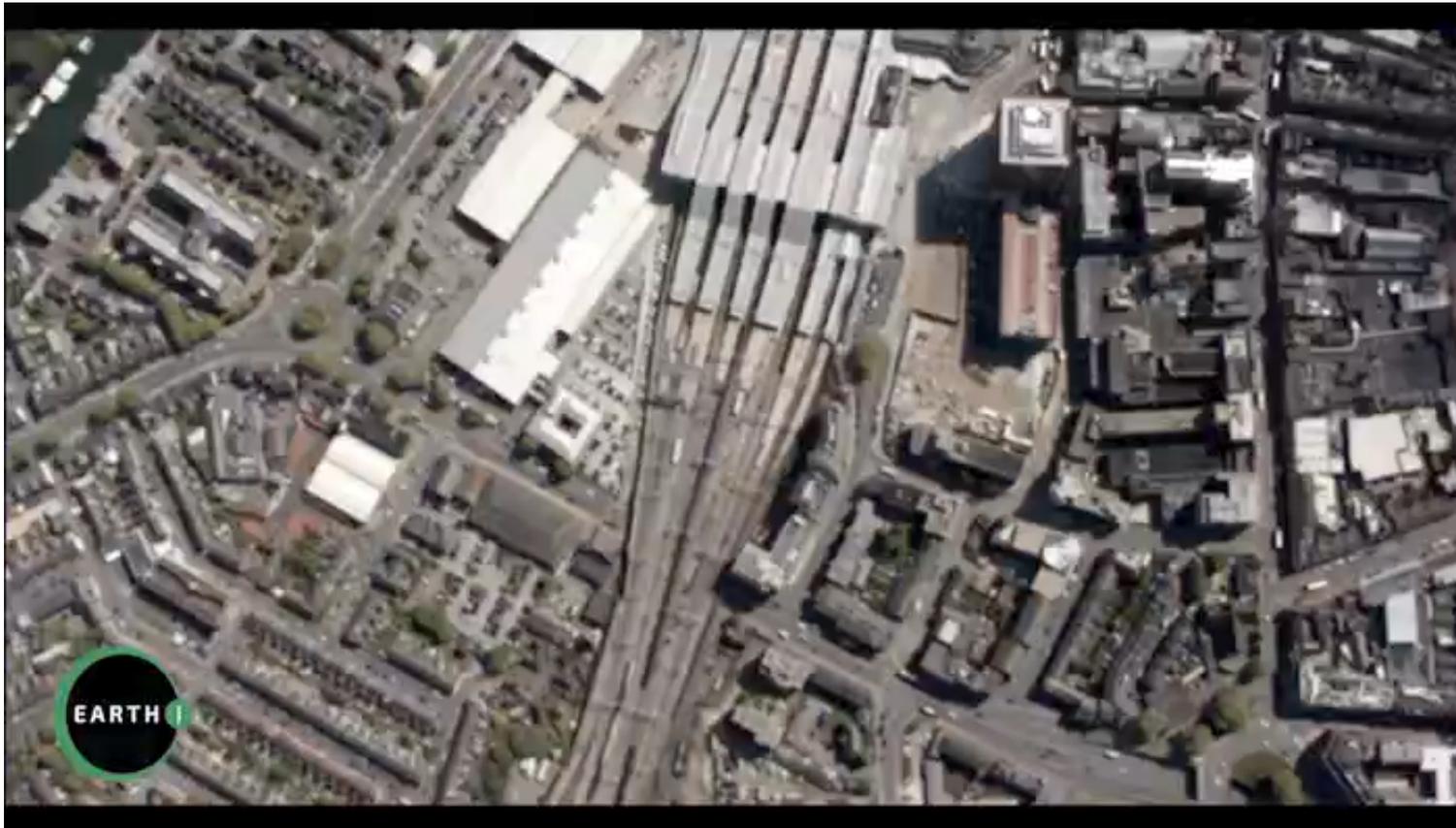
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# Remote Sensing in 4-D: space video

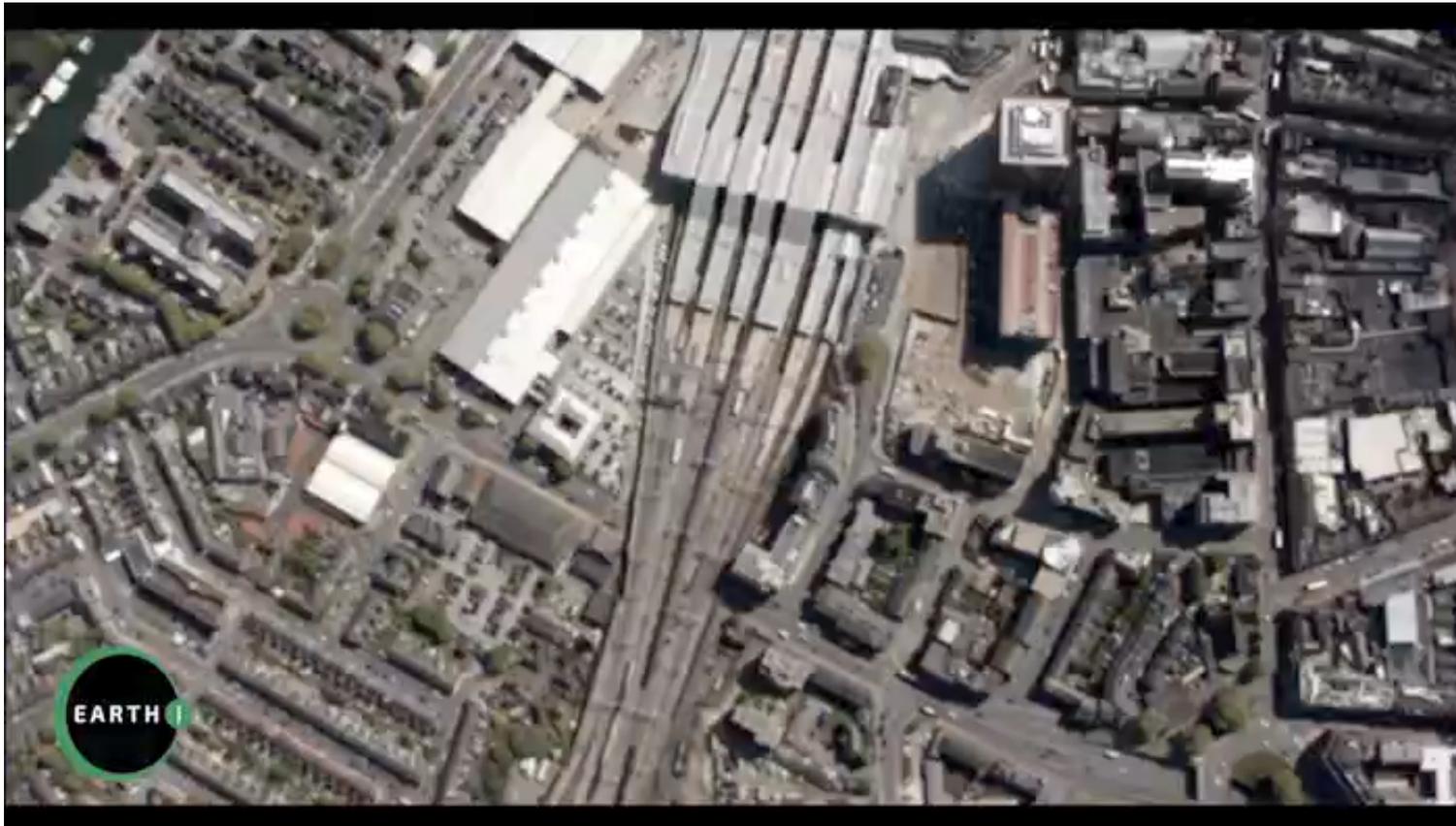
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# Remote Sensing in 4-D: space video

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# Artificial Intelligence Applications

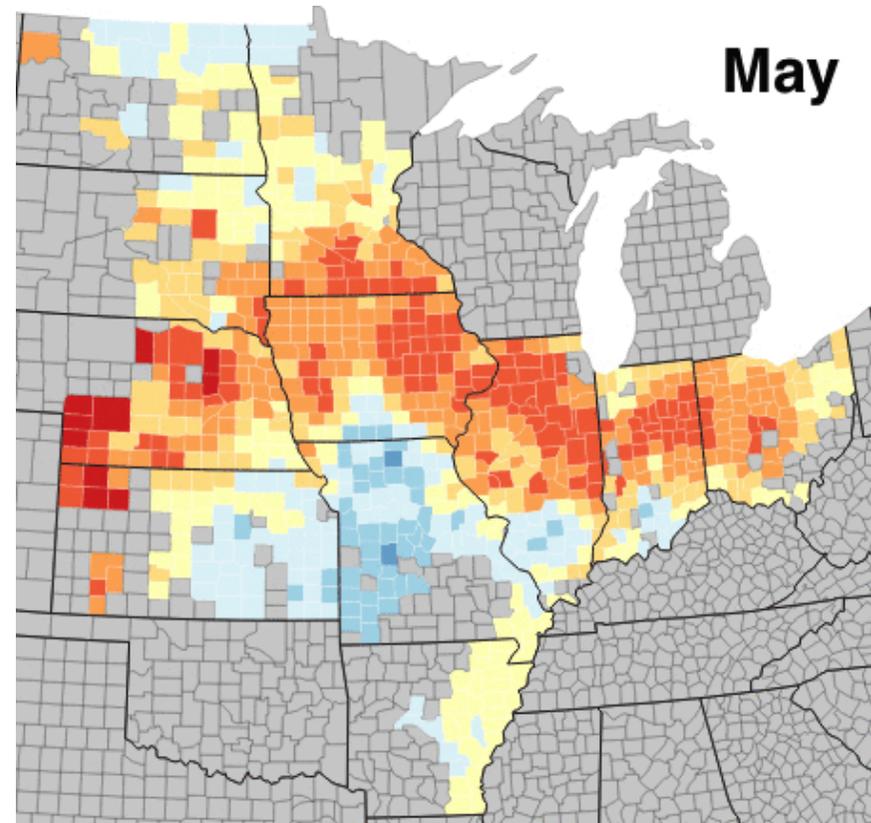
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## General Questions

- What will happen next, and where?
- Why is this happening here?
- Where should we invest our limited resources?

## Specific questions

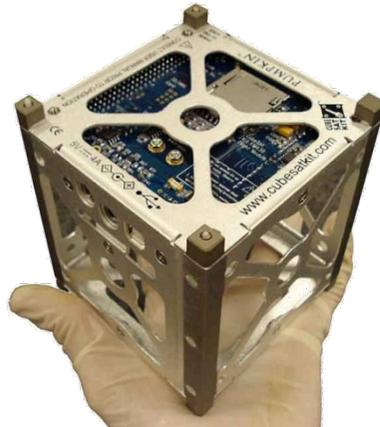
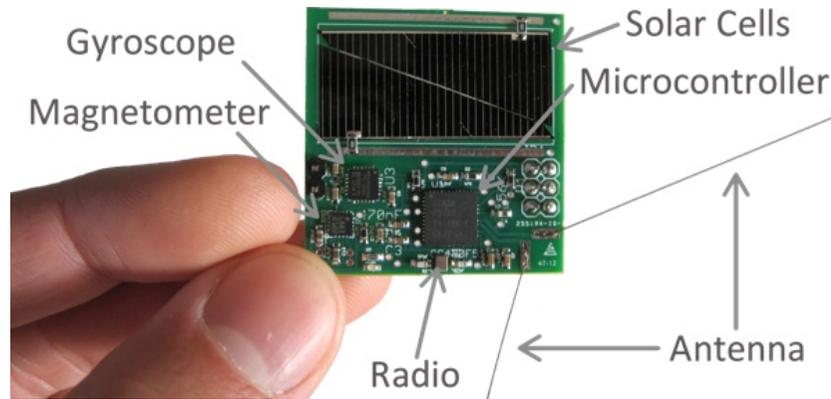
- Where will wildlife go under scenario x,y,z?
- Predictions of poverty, crop yields
- Human-wildlife conflicts and anti-poaching resources



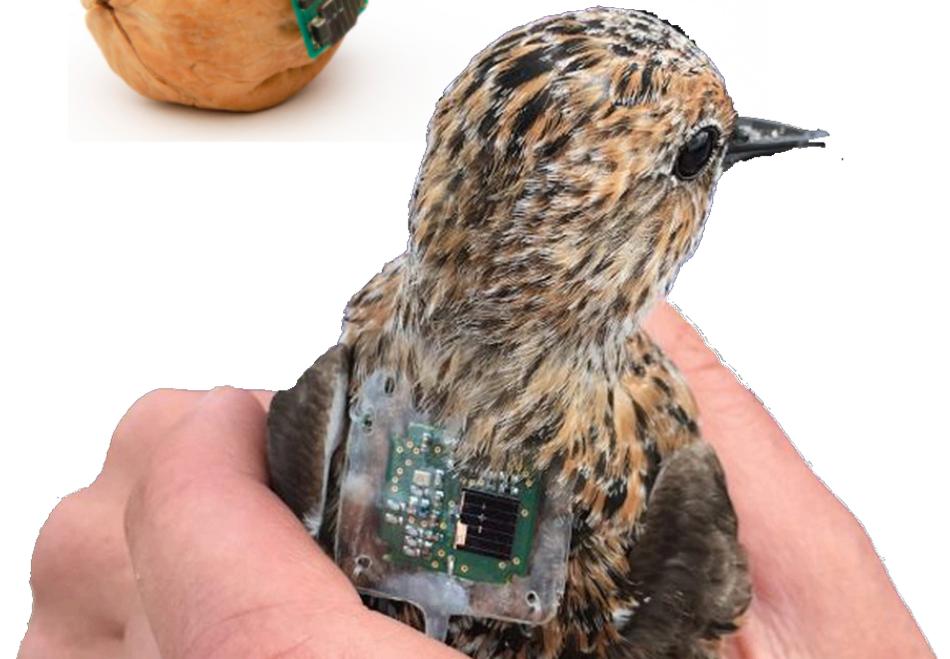
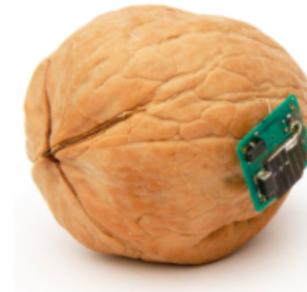


# New technology to fight wildlife crime

## Tiny Satellites!

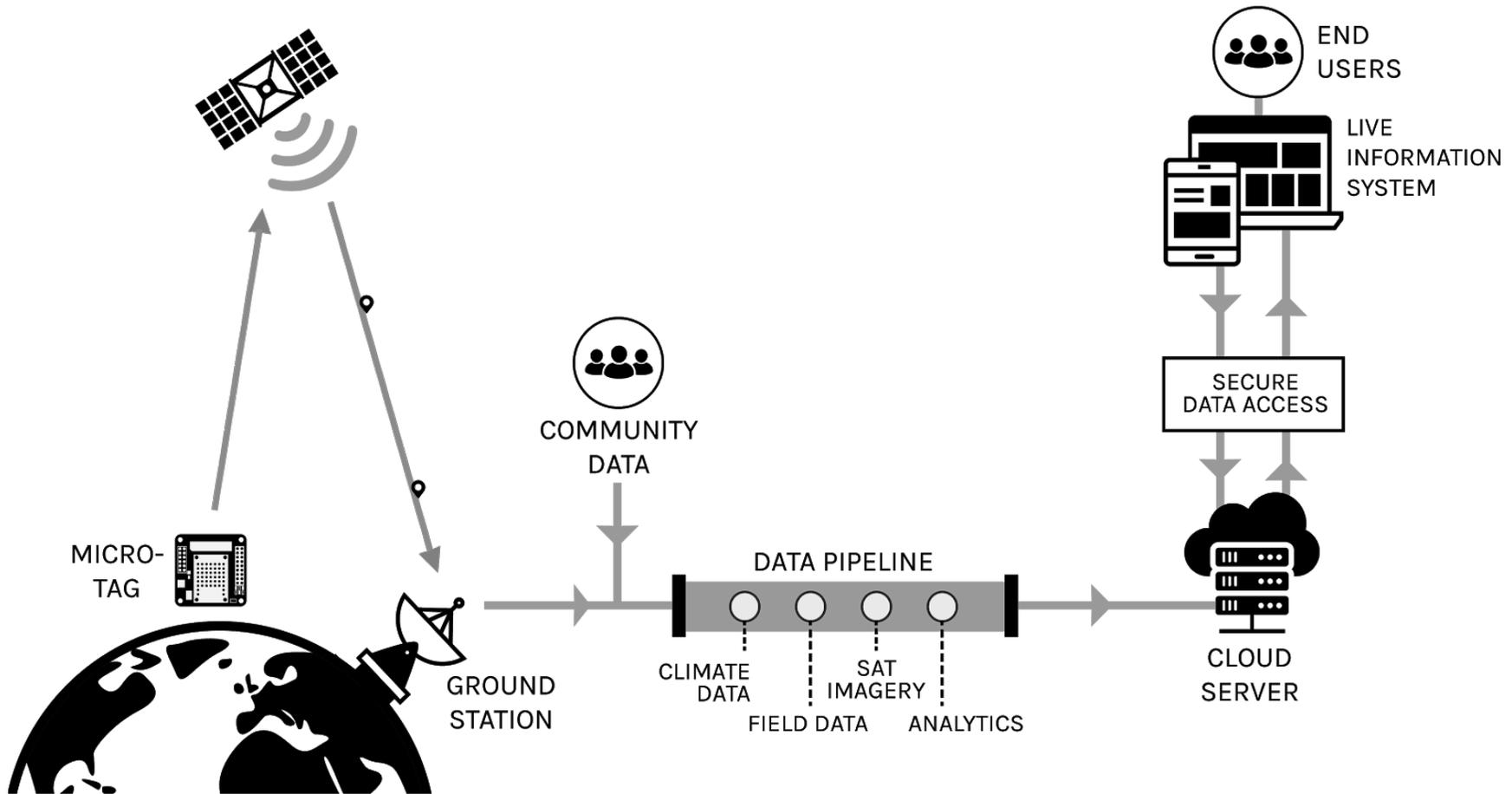


## Tiny Trackers!





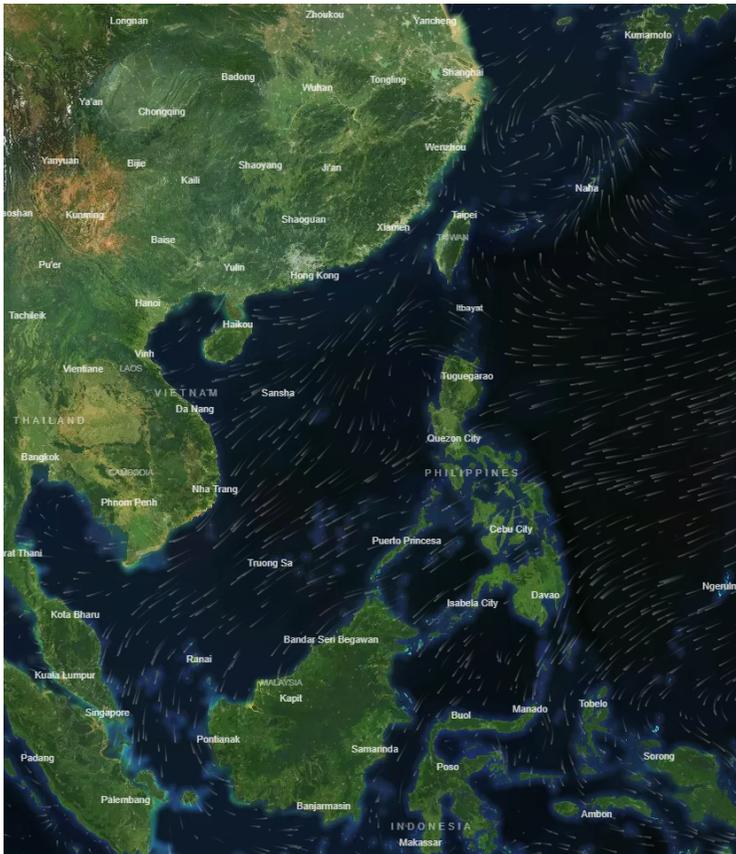
# PandaSat: Nano-Tags & Nano-Satellites





# PandaSat for Oceans

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Affordable tracking technology for plastics and marine debris

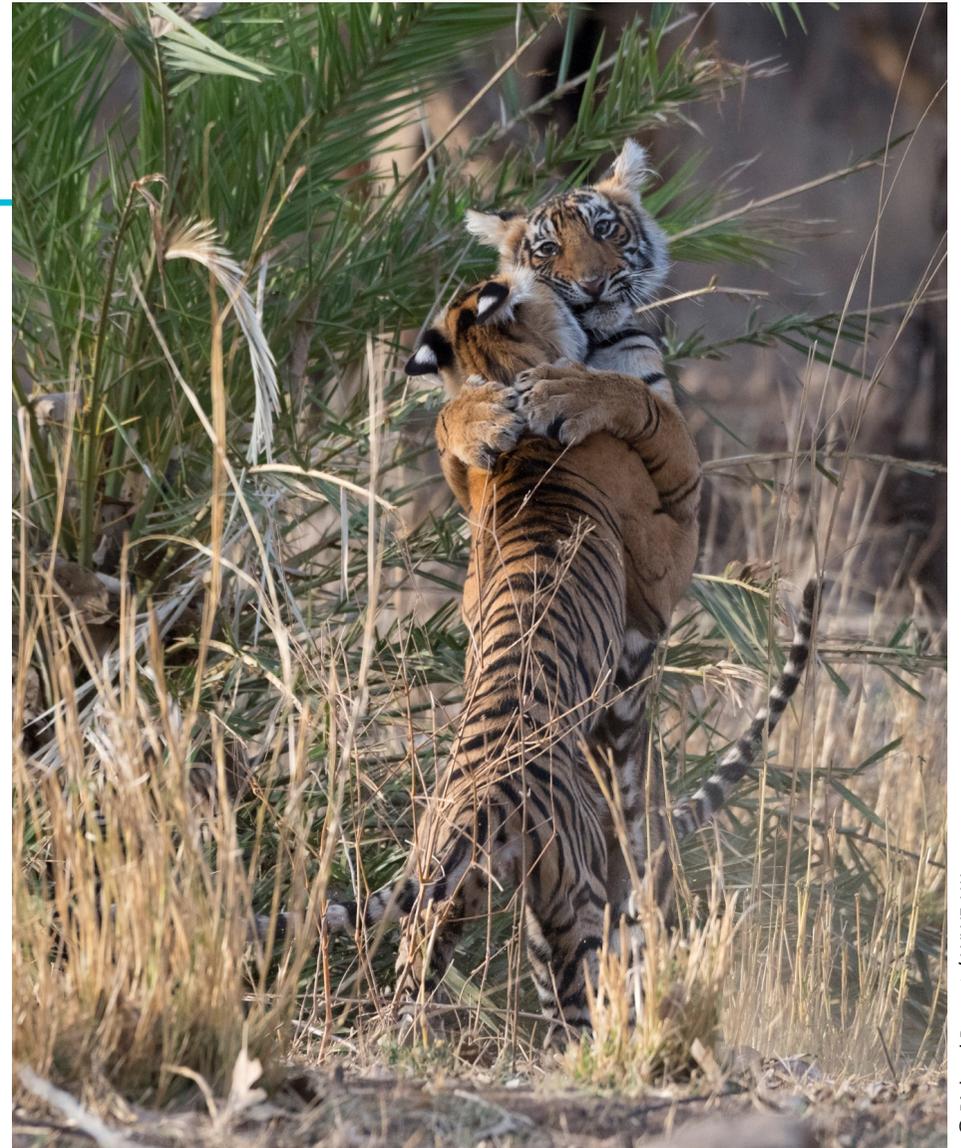
- Plastic tracking
  - identifying the paths from river mouths
- Deployable technology for fishing nets
  - Alerts and tracking to monitor and prevent ghost gear
- Marketable space for sustainability
  - Seafood sourcing
- Ship and fishing monitoring



# In Summary

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- We are always looking for new technologies and applications to test and activate
- We have a network of offices and boots on the ground
- We have an integrated online mapping system: GLOBIL to distribute and access spatial data
- Our projects provide real-world applications



OFFICES IN  
OVER 100  
COUNTRIES

FIRST-HAND  
KNOWLEDGE

APES

IN-HOUSE  
WILDLIFE  
EXPERTS

PARTNERSHIPS WITH  
LEADING  
INNOVATORS

PROVEN  
SCIENCE AND  
CONSERVATION TRACK  
RECORD

GLOBAL  
REACH AND  
MOBILIZATION

COMMITMENT TO  
CONSERVATION AND  
SUSTAINABILITY

