Impactful Insights of Researchers Engaging with Citizen Science

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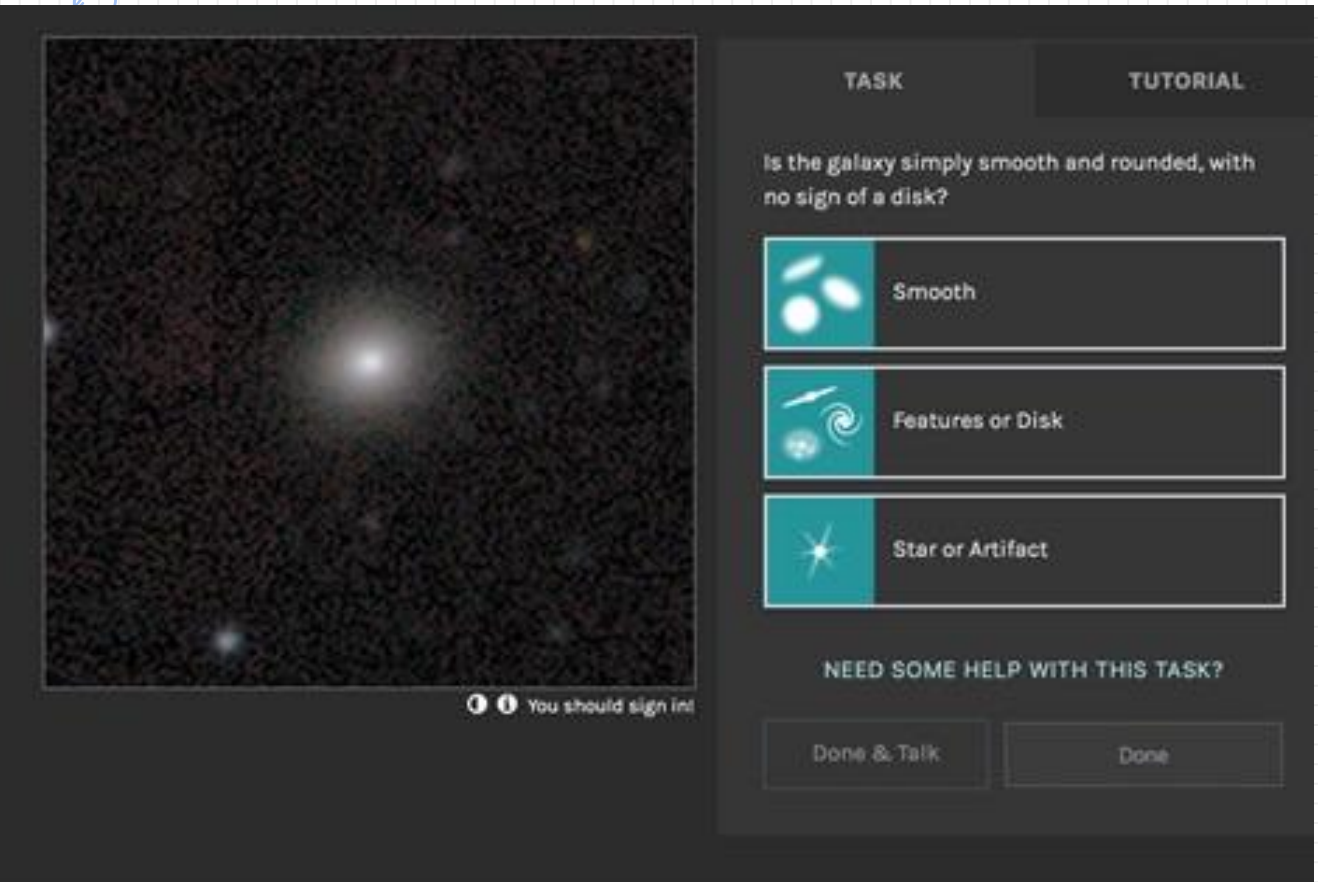
What is Citizen Science?

The practice of public participation and collaboration in scientific research.

GALAXY ZOO

Sloan Digital Sky Survey



2007 – Oxford graduate student

Spent 1 month classifying galaxies for 12 hours/day = 50,000 classifications

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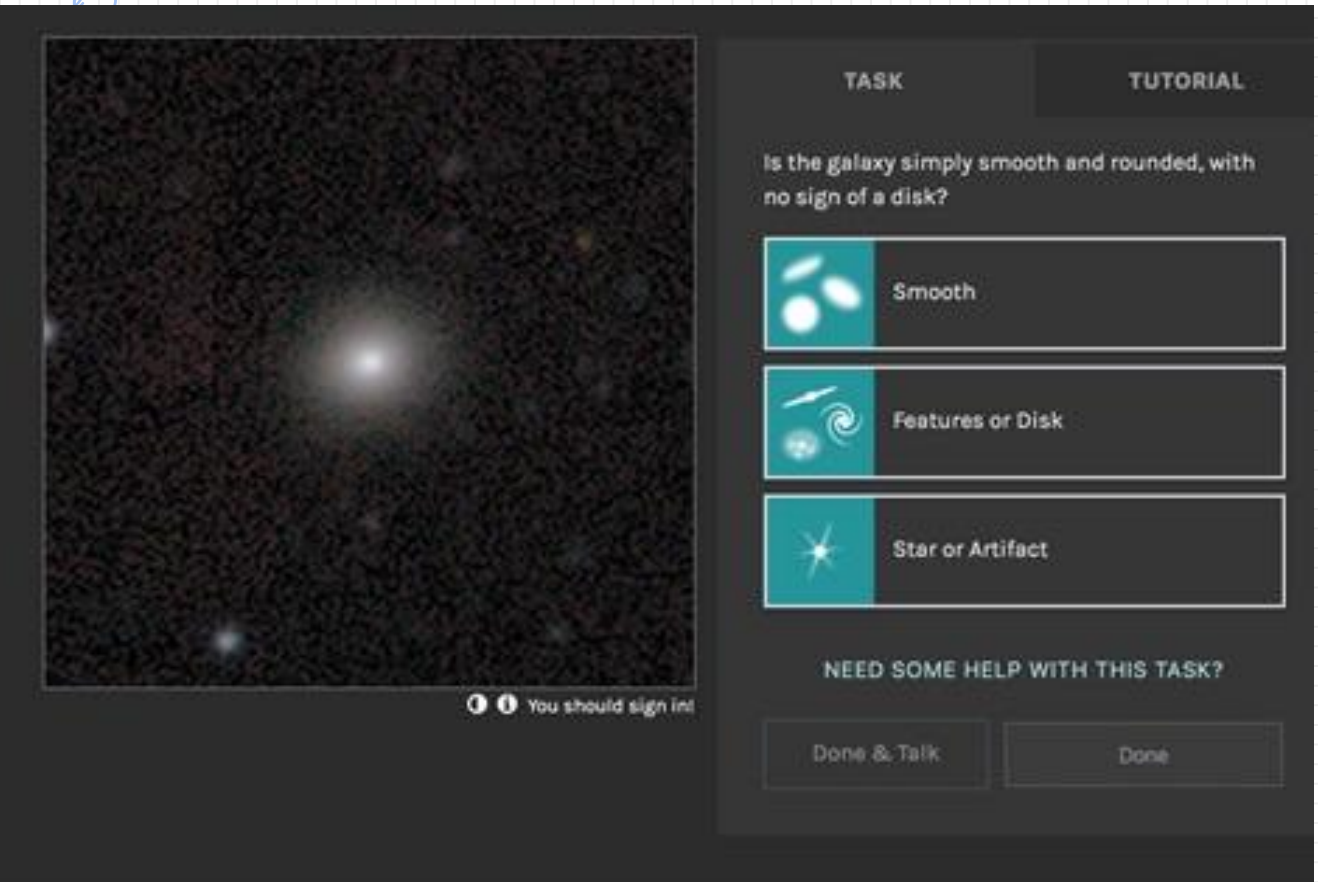


2007 – Oxford graduate student

Spent 1 month classifying galaxies for 12 hours/day = 50,000 classifications

Launched Galaxy Zoo

70,000 classifications/hour the first days

and

50 million the first year

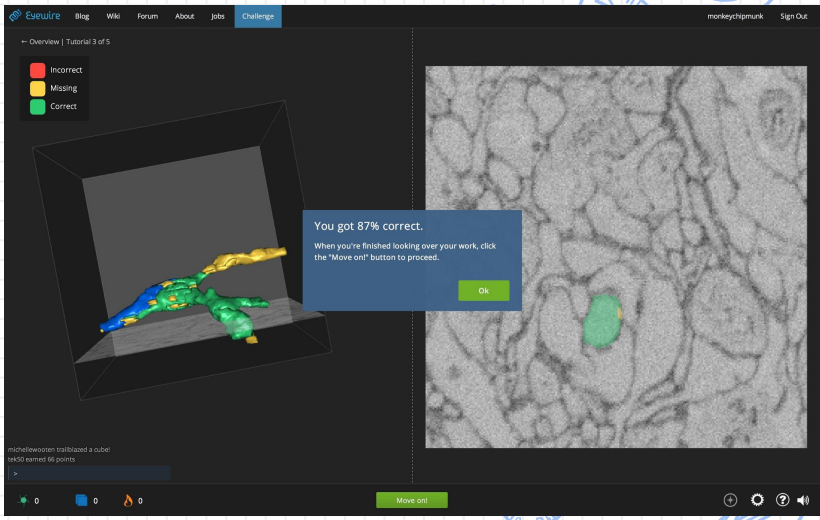
Klesman, A. (2018, Sept 26). Zooniverse: A citizen science success story. Astronomy.

Types of Projects

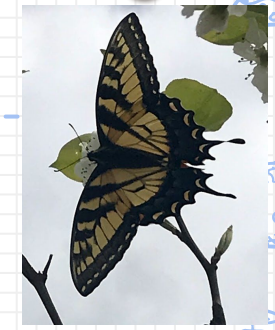
Web-based projects

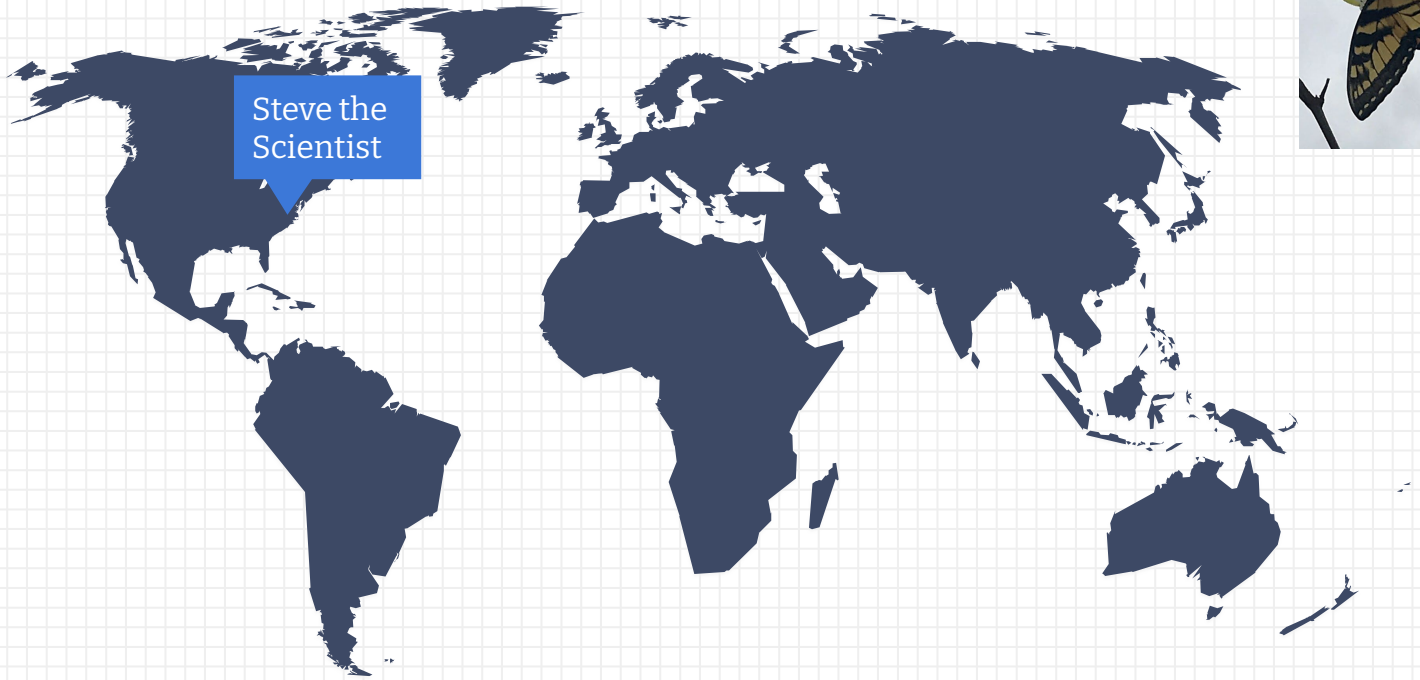
Field-based projects

Games



Why crowd-source biodiversity data?





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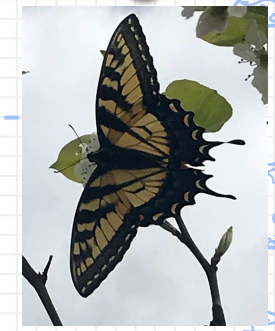

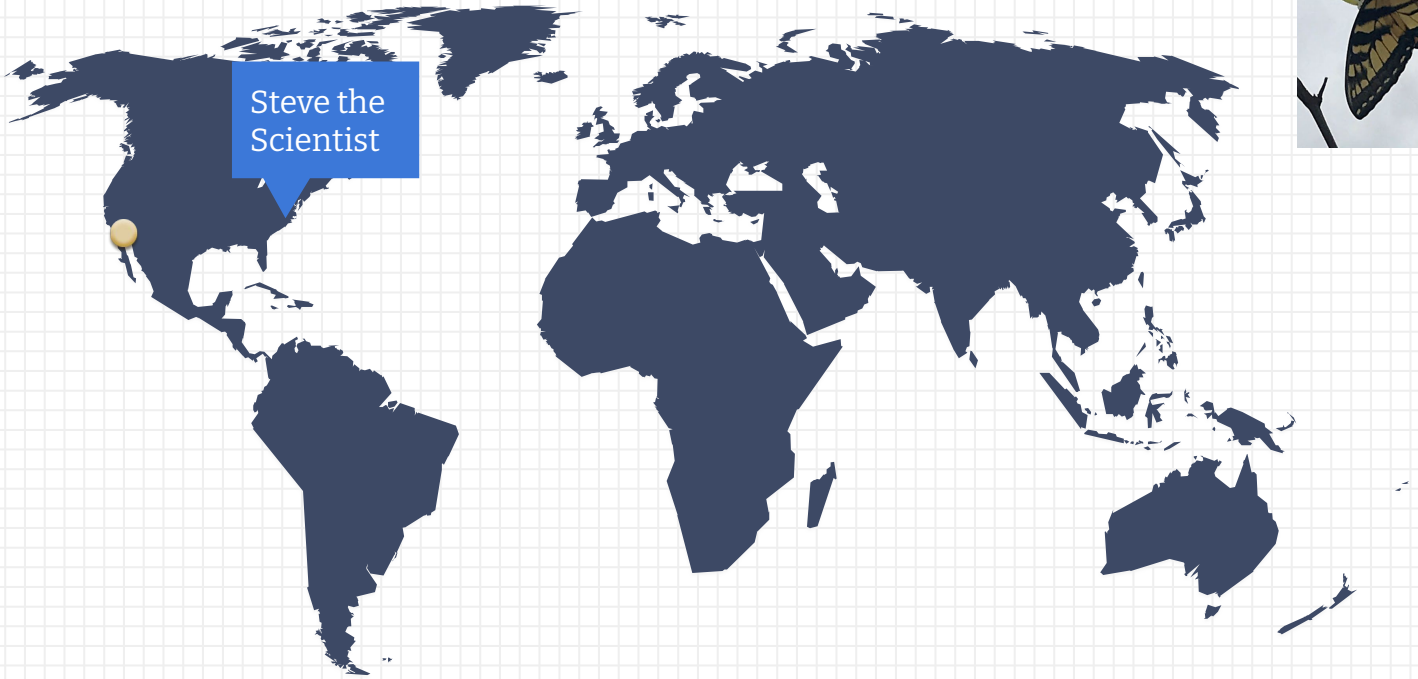

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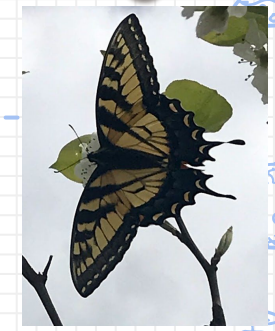
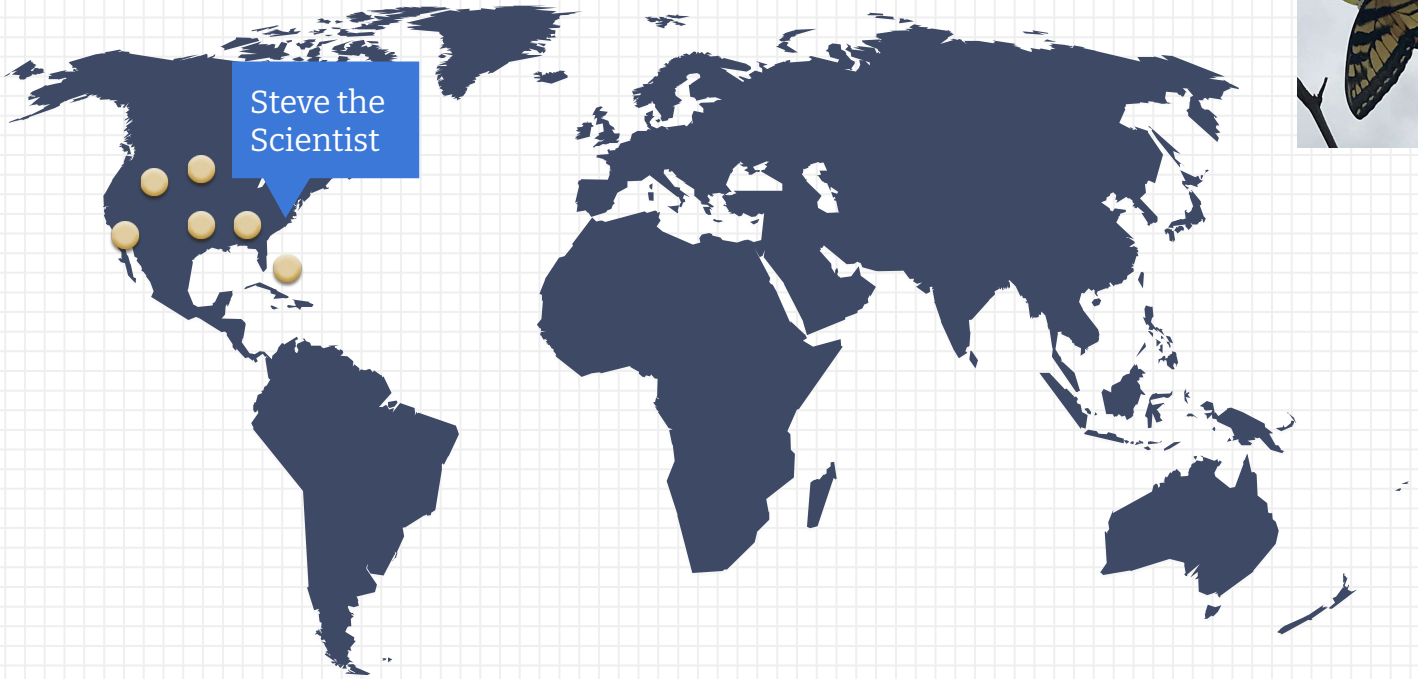
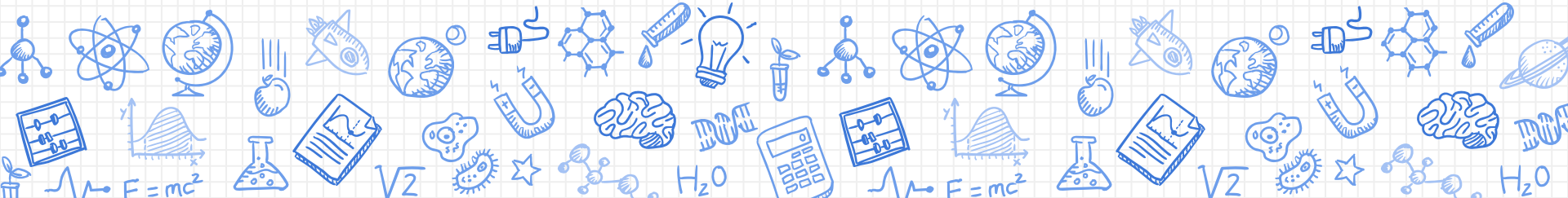




Enter Citizen Science

(In this case using the platform iNaturalist)



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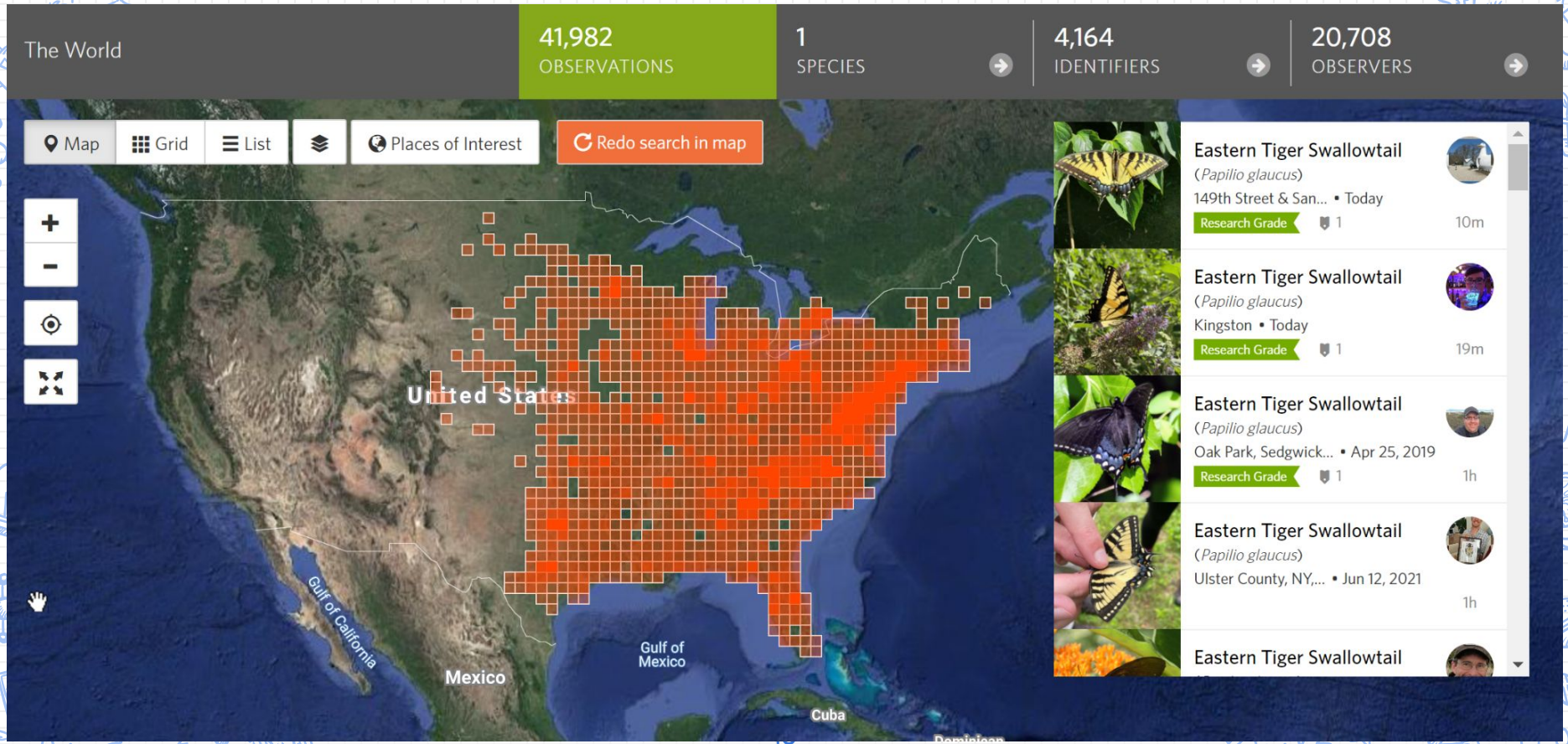


Benefits of crowdsourcing for researchers

- ✘ Can process large amounts of data.
- ✘ Can process data quickly.
- ✘ Can collect large amounts of data.

How accurate is crowdsourced data?

Accuracy of Data

Snapshot Serengeti project

From June 2010 to May 2013

Produced 1.2 million image sets (each image set contained 1–3 images taken in a single burst over approximately 1 s)

Within 3 d of launching the website, volunteers contributed 1 million species classifications and processed an 18-month backlog of images

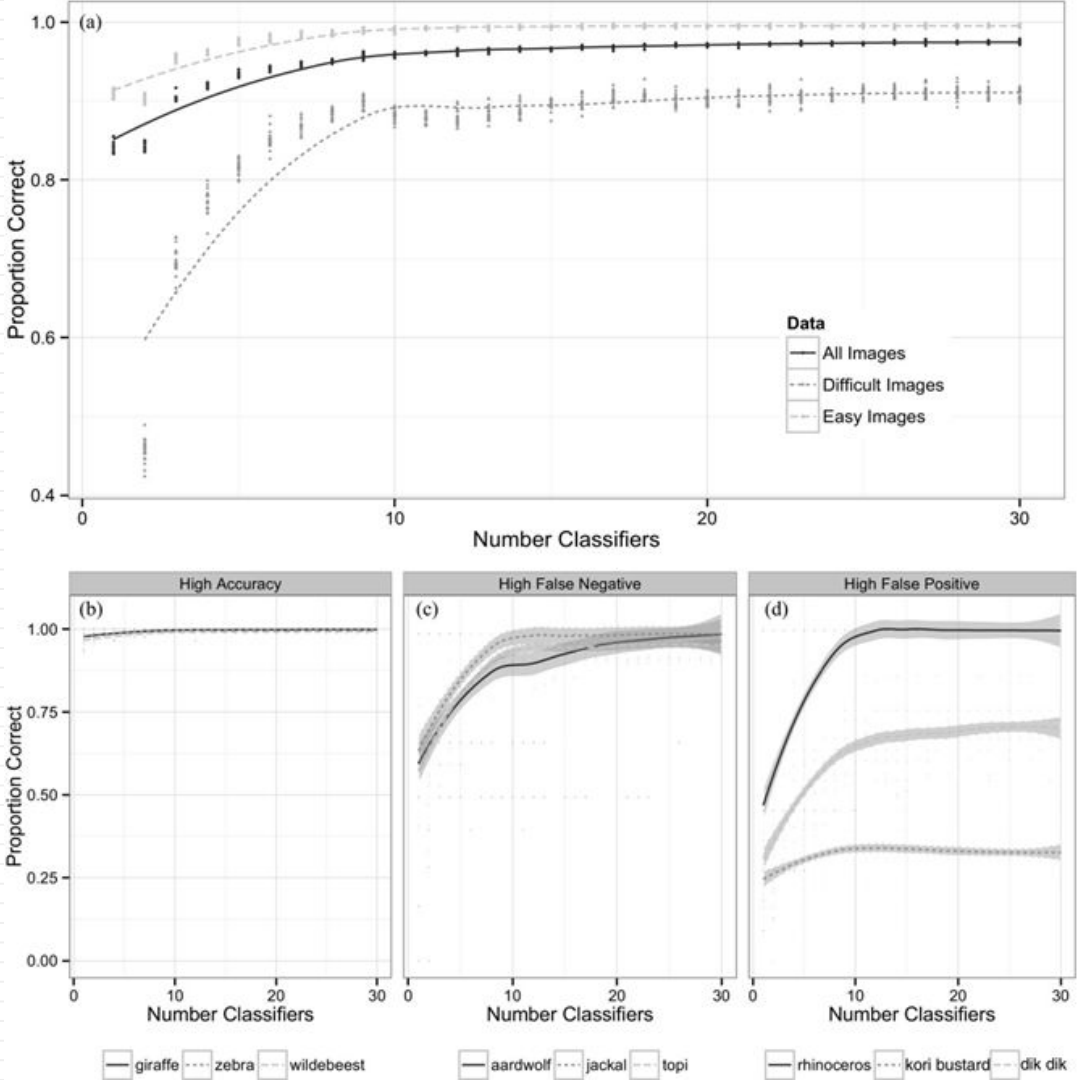
Accuracy of Data

In Snapshot Serengeti, images achieved approximately:

90% accuracy at 5 classifiers,

95% accuracy at 10 classifiers,

approached 98% accuracy after 20 classifiers



Basic steps for planning a project

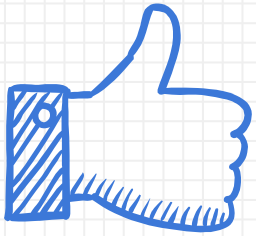
What data do they have?

Tree breeding program

What data do they need?

Species Identification

Cones	Yes
Treated	No
Crown Health	2 - Thinning
Trees Nearby	No trees of this species nearby
hemlockSpecies	Eastern hemlock (Tsuga canadensis)
Tree Diameter	15.99 Inches
Woolly Adelgids	25-49%
Crown Classification	Overtopped. This tree's crown is entirely below other trees nearby.
Habitat	Roadside, urban, suburban, or park
Coordinates	41.21881943, -72.98781967000001



THANKS!

Any questions?

You can find me at

- megancarlton@uncg.edu
- Learn about enforcing data literacy skills using citizen science at my presentation at SLA 2021

Credits

Karlin, M., & De La Paz, G. (2015). Using Camera-Trap Technology to Improve Undergraduate Education and Citizen Science Contributions in Wildlife Research. The Southwestern Naturalist, 60(2), 171-179. https://search.proquest.com/docview/1778690402?accountid=14604

Swanson, A., Kosmala, M., Lintott, C. and Packer, C. (2016), A generalized approach for producing, quantifying, and validating citizen science data from wildlife images. Conservation Biology, 30: 520–531. doi:10.1111/cobi.12695

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Special thanks to all the people who made and released these awesome resources for free:

- ✘ Presentation template by SlidesCarnival
- ✘ Photographs by Unsplash

Citizen Science Resources

iNaturalist https://inaturalist.org/

SciStarter https://scistarter.org/

Zooniverse https://www.zooniverse.org/

CitizenScience.gov https://www.citizenscience.gov/

eBird -The Cornell Lab of Ornithology https://www.ebird.org

EPA and other federal resources
https://www.epa.gov/citizen-science/resources-citizen-science-projects

Arizona State University Citizen Science LibGuide https://libguides.asu.edu/citizenscience