

Citizen Science 2015

The Inaugural Conference of the Citizen Science Association



"Uncle Darwin"

Citizen Science

Citizen Science is a network, or system, based on the exchange of knowledge between the public, the scientists and the world around them.

PETER TANGO AND LEA RUBIN
STAR MEETING
FEBRUARY 27, 2015

Cross-Discipline Themes of the Conference

- ▶ Research on and Evaluation of the Citizen Science Experience
- ▶ Digital Opportunities and Challenges in Citizen Science
- ▶ Best Practices for Designing, Implementing, and Managing Citizen Science Projects and Programs

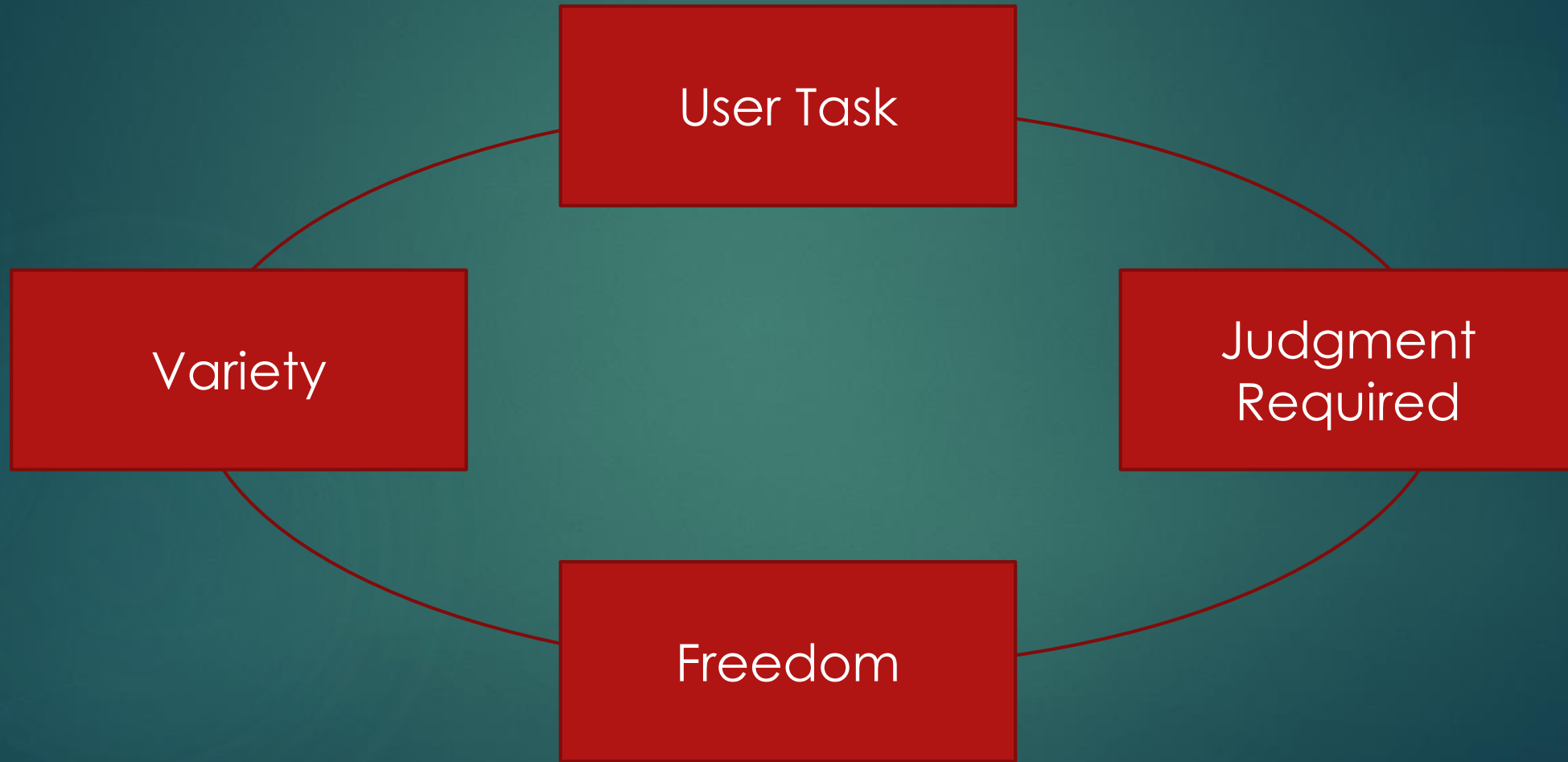


Research on and Evaluation of the Citizen Science Experience

Balancing lowering barriers to participation while maintaining increasing data standards to maintain credibility

- ▶ Carefully crafted and slowly built community is the reality
- ▶ Scaling up project management as program grows – Keeping a “local” feel (local staff/expertise)
- ▶ Multiple mobile platforms ([Project NOAH](#) vs. [iNaturalist](#))
- ▶ Offering multiple training formats (In-person, [YouTube](#)) – “The more you train them the more you can trust their data”
- ▶ Increase Responsibilities of “Super Users” or “MVPs”
- ▶ Data submittals, accessibility and feedback:
 - ▶ Social Media, Radio Interviews, Mini-conferences, Citizen Science days or weeks, Google hangout, Volunteer Interviews

Task – Workflow Design



Volunteer Feedback



“Nothing that is really good or works well comes cheap.”

Rick Barney, e-bird, Cornell Laboratory of Ornithology, Cit Sci 2015.

The eBird logo, featuring the word "eBird" in a green and black serif font.

► *Over 16 million volunteer hours of observations have been logged by observers into e-bird.*

- Started with a \$2M NSF grant.
- E-bird: Annual support is \$2.5M with 25 staff.
- E-bird. Game like. Treasure hunting and reporting each day.
- (Willing to partner with CBP)

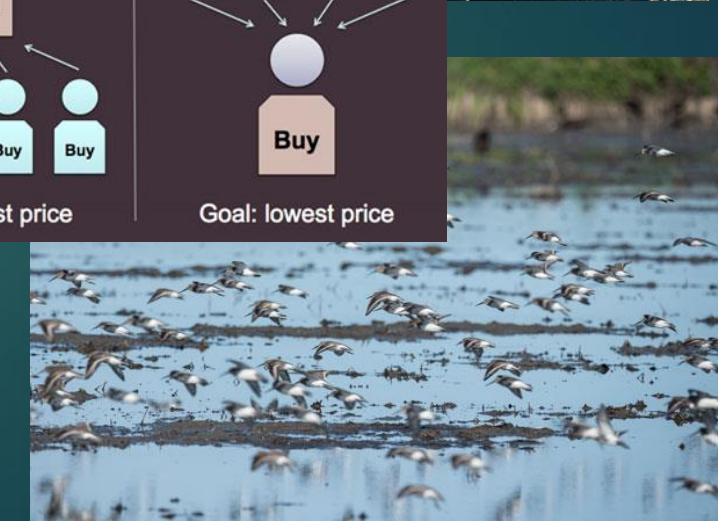
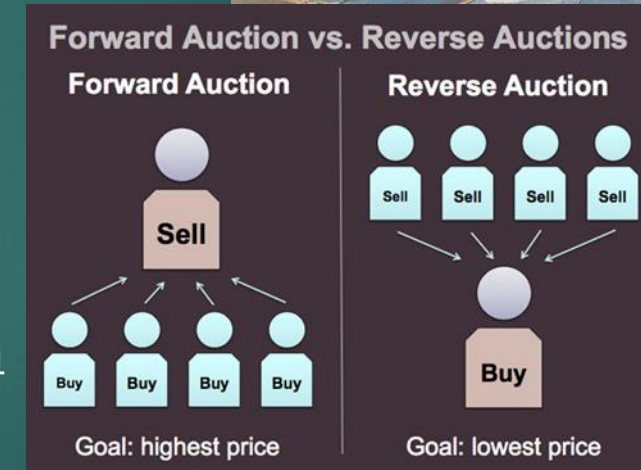
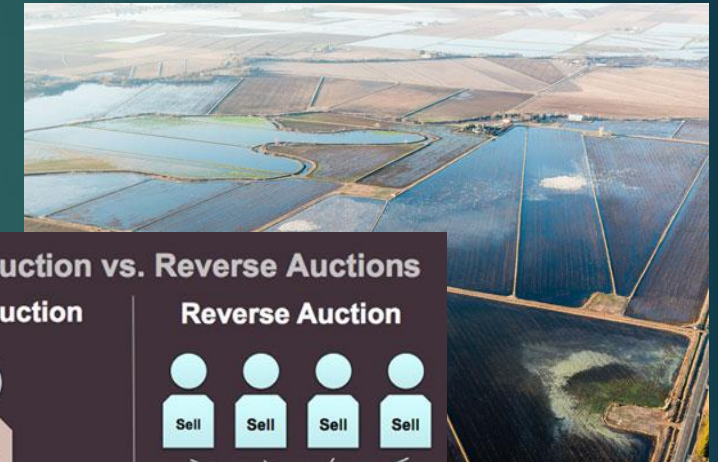



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However, where we spend money, major savings in targeting conservation actions can occur with leveraging citizen science.

► **“Compatible Agriculture”**

- Precision science and reverse auctions on flooding agricultural land at key migration times are based on historical and realtime citizen birding observations with modeling.
- In the pilot, 33 rice farmers in California's Central Valley created nearly 10,000 acres of wetland habitat. The price tag: several hundred thousand dollars total, a tiny fraction of the estimated \$65 – 100 million that permanent protection would have cost.
- See more at: <http://blog.nature.org/science/2014/08/06/birds-birdreturns-innovative-lands-conservation-science/#sthash.PSnmpF1V.dpuf>





Digital Opportunities in Citizen Science

A scene from the movie Iron Man 2 showing Tony Stark (Robert Downey Jr.) and Bruce Banner (Mark Ruffalo) sitting in the sleek, futuristic car of the Iron Man suit. Tony is in the driver's seat, looking forward, while Bruce is in the passenger seat, looking towards the camera with a slight smile. The car is dark and highly reflective, with a glowing red light strip visible on the side.

GET IN CITIZENS

**WE'RE GOING TO
DO SCIENCE.**

A solid red vertical rectangular bar.

Social Media
is key!

Recruitment
&
Data
Campaigns
To hit
Milestones

Gaming for Science

ZOONIVERSE
PENGUIN WATCH

www.zooniverse.org

- The Zooniverse (pattern recognition)– Over 100 papers published using Zooniverse data



Penguin Watch is a citizen science website trying to understand the lives of penguins. We want you to help us mark images taken from nesting sites around Antarctica.

Gaming for Science: Eyewire – Mapping the Neurons of the brain

- ▶ **Why EyeWire?**
- ▶ Solving the mysteries of the brain requires something more powerful than a supercomputer - YOU. Together, we're mapping neural circuits to decipher the mysteries of vision.
- ▶ EyeWire is a game to map the brain from Sebastian Seung's Computational Neuroscience Lab at Princeton. Over 150,000 people from 145 countries play.
- ▶ Competition Schedule: Meme Teams, every other Thurs. Happy Hour Every Friday 2-4 pm US ET.



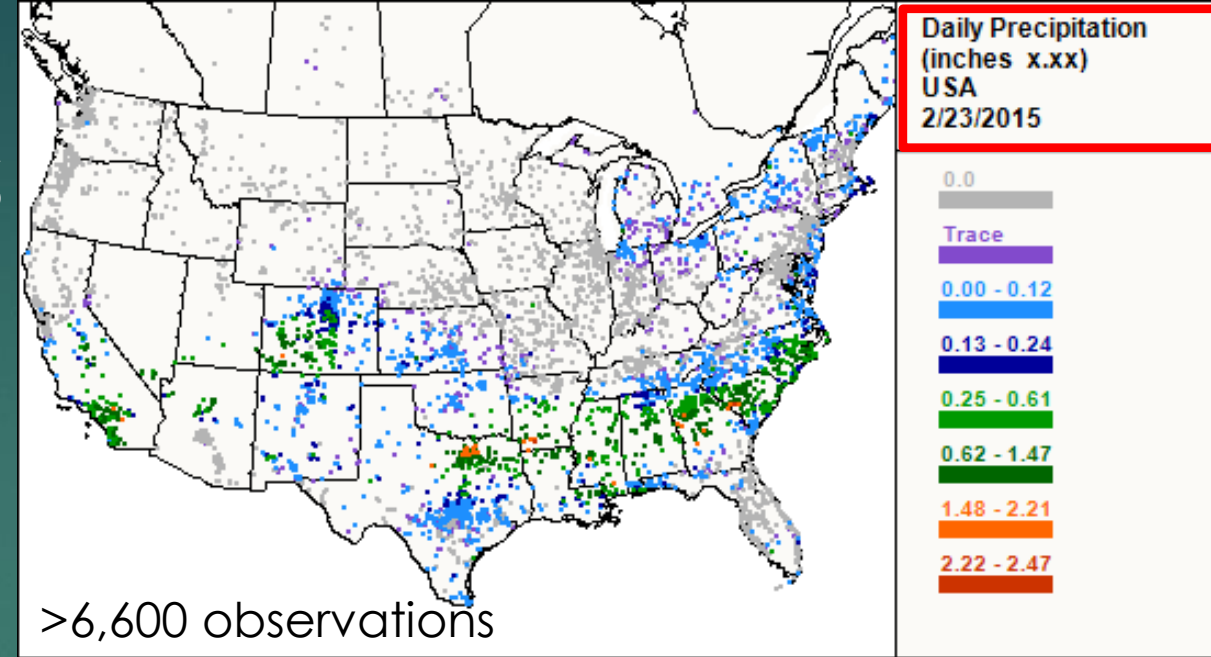
players collectively spend
1,200
hours each day
gaming to map the brain
at EyeWire.org





Best Practices for Designing, Implementing, and Managing Citizen Science Projects and Programs

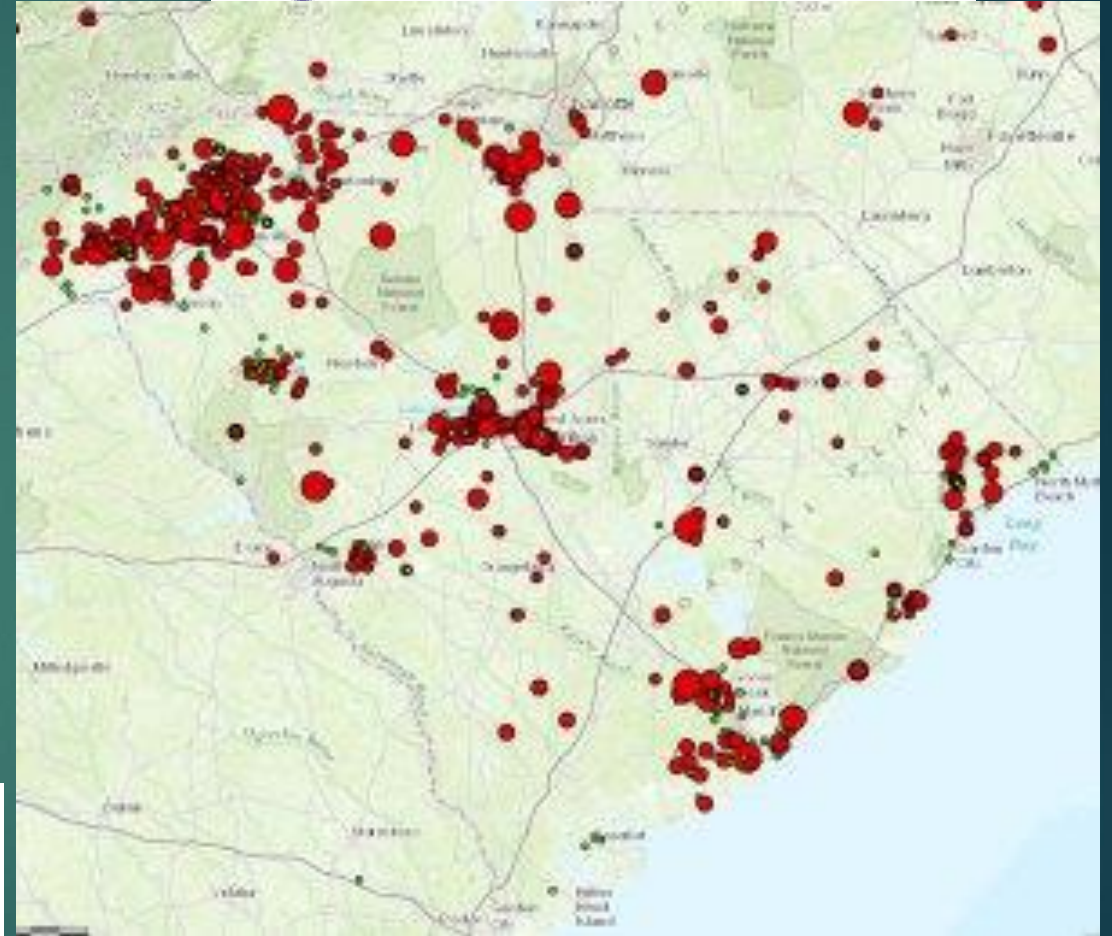
Be prepared for success



- ▶ **CoCoRAHS - Community Collaborative Rain, Hail and Snow Network**
- ▶ Provide accurate high-quality precipitation data for our many end users on a timely basis; 2) increasing the density of precipitation data available throughout the country by encouraging volunteer weather observing; 3) encouraging citizens to have fun participating in meteorological science and heightening their awareness about weather;
- ▶ Started in 1998 in Colorado.
- ▶ Over 14 years, growth to thousands of citizens reporting in daily over 14 years

Be prepared for success

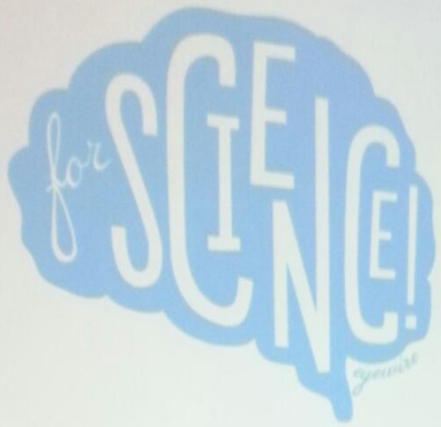
- ▶ Vanishing Firefly Project – In 4 years it grew from one backyard to an *international network of participation!*
- ▶ **The objective** of the Clemson Vanishing Firefly Project is to promote environmental sustainability and stewardship through the participation of local communities in environmental science research.
- ▶ Run by undergraduates of Clemson University



Hey! There's an App for that!
Firefly Counter on the App Store on iTunes - Apple

Summary of Insights

- ▶ Pilot methods – refine it and get it right
- ▶ Keeping a “local” feel
- ▶ Consistent mobile and web platforms
- ▶ Offering multiple training formats
- ▶ Increase Responsibilities of “Super Users” or “MVPs”
- ▶ Keep it fresh (Social Media, Interaction with Citizen Monitors)
- ▶ Nothing worthwhile comes cheap
- ▶ Recruiting and Data campaigns to hit milestones
- ▶ Apps are everywhere
- ▶ Diversity is a challenge
- ▶ Be prepared for success!



CITIZEN SCIENCE

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Conference and Gathering

February 11 & 12

San Jose, California, USA

#CitSci2015

<http://citizenscienceassociation.org/>