

Better (Citizen) Science With Household Surveys

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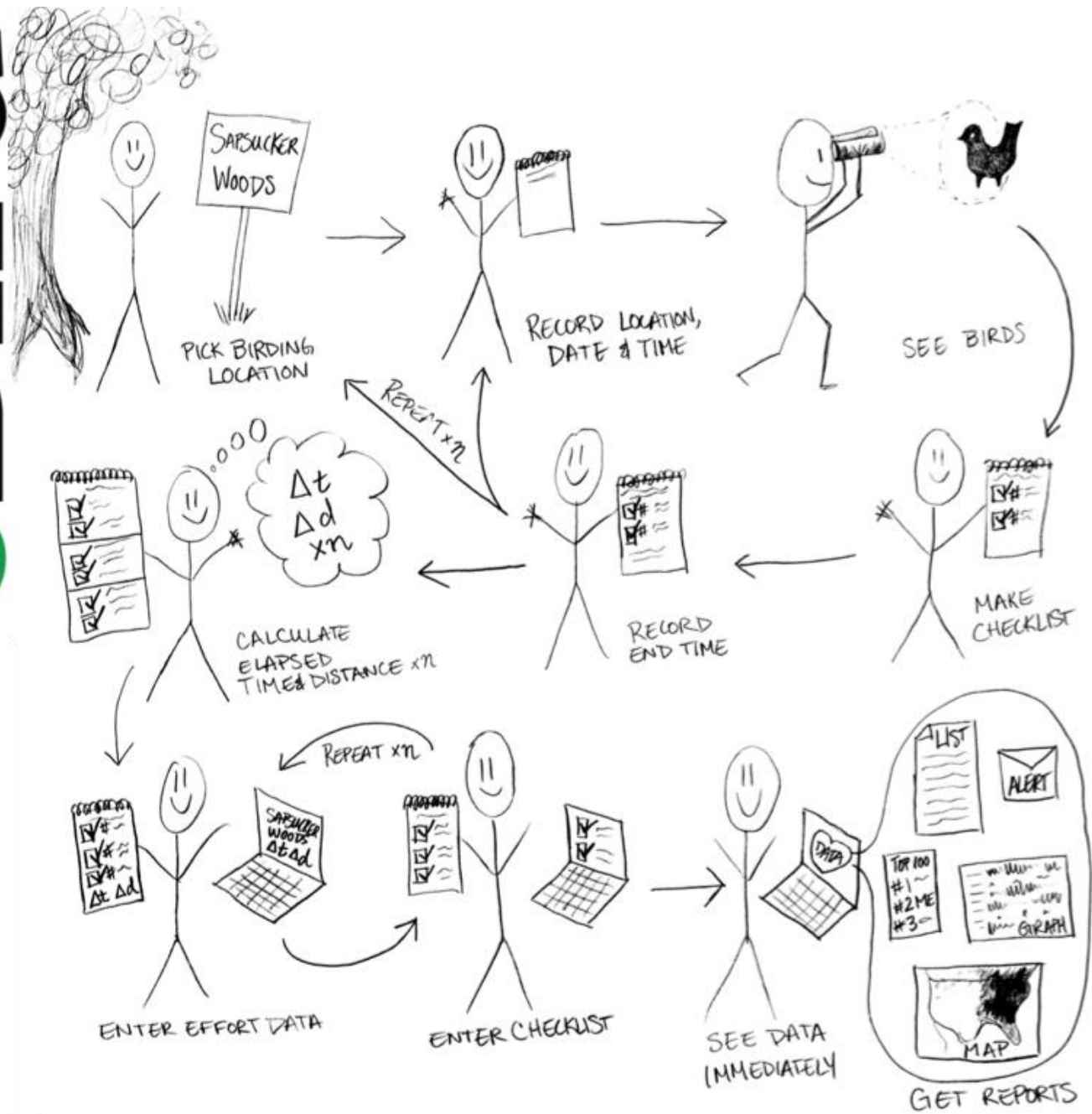
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What is citizen science?

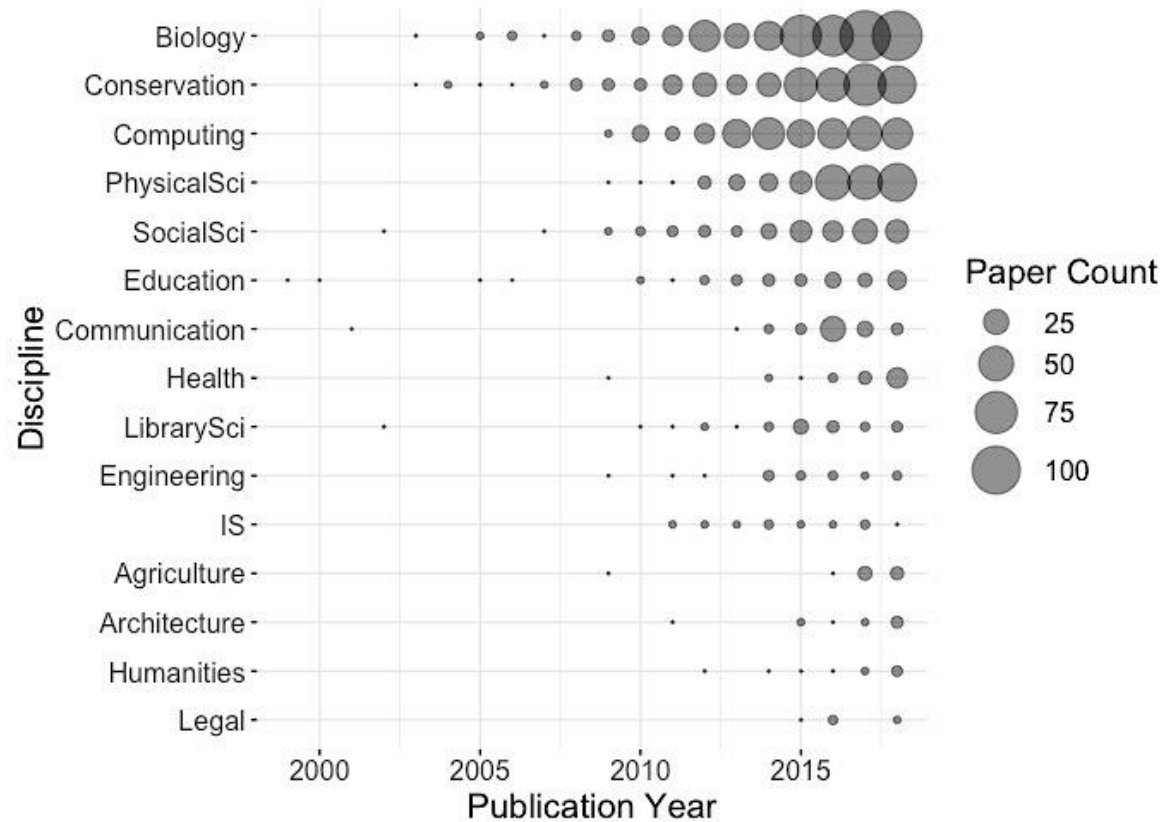
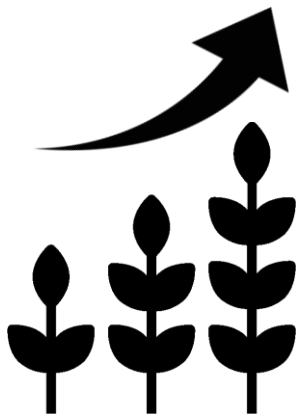


Bird e



Outcomes & Growth

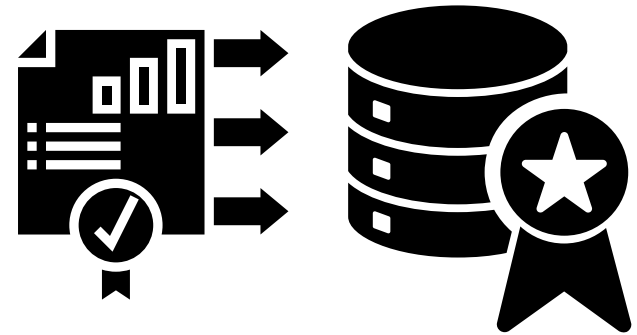
- Novel science
- New discoveries
- STEM learning
- Social capital
- Community action
- Improved policy



Lukyanenko, R., Wiggins, A., & Rosser, H. (2019). Citizen Science as an Information Quality Frontier. *Information Systems Frontiers*, (2019), 1–23. DOI: <https://doi.org/10.1007/s10796-019-09915-z>.

(Data Quality) Challenges

- Data & quality are contextual
 - “Fitness for intended purpose”
 - Uncertainty about contributors & process fidelity

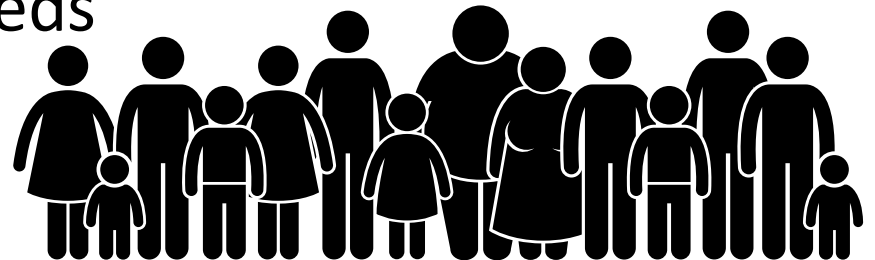
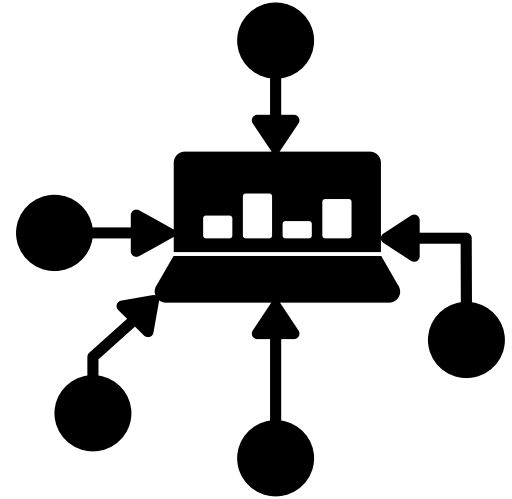


- Primary concern: biases
 - People collect data where they live
 - Uneven sampling & participation demographics
 - Impacts who can benefit & what data really represent



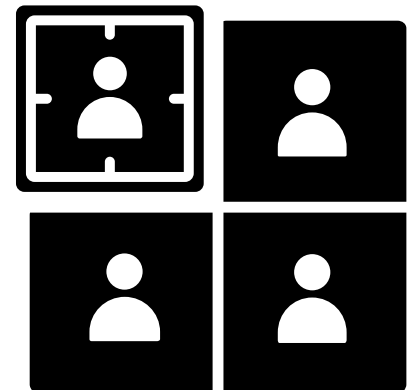
Opportunities for Integration

- Science: put data into context
 - Help identify biases for validation
 - Stronger results through modeling, targeted data collection, better interpretation
- People: expand access to STEM experiences
 - Places where community-driven science can serve multiple stakeholder needs
 - Barriers to participation



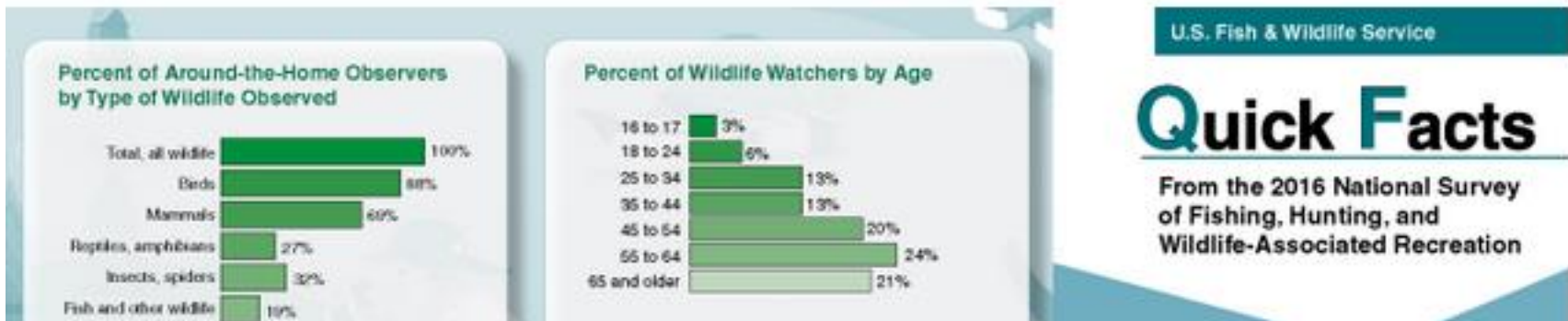
Example: American Time Use Survey

- Data include...
 - Education levels, volunteerism, types of leisure activities, demographics
- Can help contextualize any (US) citizen science data set: *whose voices are missing?*
 - Most project demographics skew white, urban, older, wealthier, more educated
- Can support targeted recruitment
 - People with compatible hobbies, education, etc.



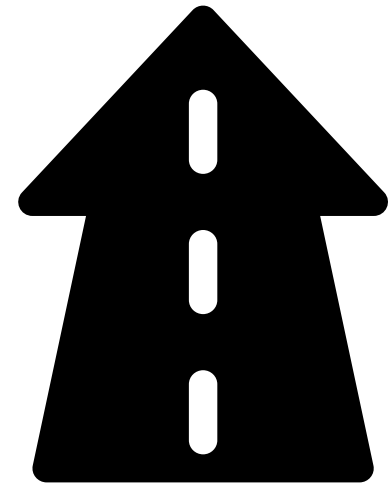
Example: National Survey of Fishing, Hunting, And Wildlife-Associated Recreation

- Further context for ecology-focused projects
 - How much of “wildlife watching” population is doing citizen science?
- Understand biases in what gets reported
 - Triangulate across citizen science biodiversity data to estimate over/under-reporting



Charting a Path Forward

- Potential vs actual: underexplored
 - Lack of awareness of data and applications hinders adoption
- Initial steps
 - Guides to introduce relevant data
 - Collaborative analyses to show value of data integration
- Field-level research
 - Identify data sources to support studies of global participation trends



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