

Exploring the participation of young citizen scientists in scientific research: the case of iNaturalist

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INTRODUCTION

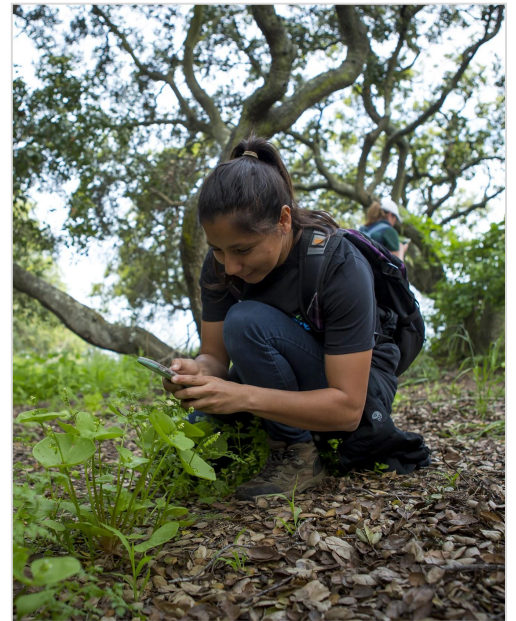
Online Community and Citizen Science projects have broadened options for accessing science and enabled different forms of participation in scientific research for adult and young volunteers. Yet, little is known regarding participation patterns among youth participants. We studied youth engagement at 15 BioBlitz events in the U.S. and U.K, that were led by museum staff at California Academy of Sciences in San Francisco, the Natural History Museum of Los Angeles County, and the Natural History Museum in London.

AIMS OF THIS STUDY

Quantitative approaches were used to investigate the contribution of 183 young volunteers (ages 5-19) who used the iNaturalist platform at one-day field-based events (BioBlitzes) facilitated by Natural History Museums.

We asked the following questions:

- *To what extent do young volunteers who participate in BioBlitzes contribute to iNaturalist, and on what organisms do they predominantly focus?*
- *How does young volunteers' participation behaviour (proportion of active days, duration, systematic participation) relate to their contribution (average daily contribution)?*



How does iNaturalist work?

The simplest way to use iNaturalist (and the way most youth use it) is to make observations using the app:



iNATURALIST

iNaturalist is a global online Community and Citizen Science platform, app, and scientific social network that asks participants to upload pictures or sound files that document the presence of organisms and help identify these observations. After submission, they are openly accessible and can be used to inform biodiversity research or conservation land management practices.

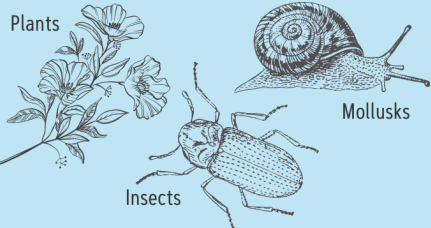
WHAT WE FOUND

The types of organisms that made up the greatest proportion of observations submitted to iNaturalist by youth were plants, insects, and mollusks.

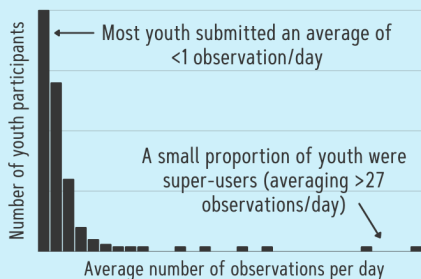
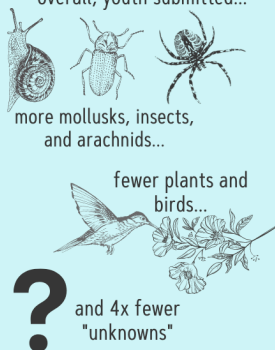
- Compared to all iNaturalist users, young volunteers were more likely to observe molluscs, arachnids, and insects and less likely to observe plants and birds. Youth were also four times less likely to have “unknown” observations (observations without any level of identification at all).
- There was an asymmetrical daily contributing pattern with a large number of participants (n = 81) contributing less than 1 observation daily on average while 12 “super-user” participants contributed beyond average (>27 observations).
- Most youth only had one or two days total that they submitted observations to iNaturalist.
- More active participation days and systematic contribution correlated with a higher number of average observations per day.

FINDINGS

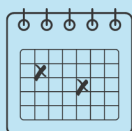
Most commonly-submitted organisms:



Compared to iNaturalist users overall, youth submitted...



The majority of youth had only one or two days total that they contributed to iNaturalist



Youth with more active participation days on iNaturalist and who contribute more systematically tend to have a higher number of average observations per day

RECOMMENDATIONS

- Encouraging young volunteers to contribute more systematically and have more active days is more likely to increase their number of contributions and therefore, to promote a more active and long-term participation.
- If facilitators are hoping to keep youth engaged in using iNaturalist beyond the BioBlitz itself, they should encourage long-term participation, like highlighting the fact that young participants can use iNaturalist no matter the location, including in their own backyards and local green spaces.
- Researchers could explore how museum strategies and platform approaches for reaching and retaining young people may result in different patterns of participation, e.g. museum researchers identifying and commenting on observations, iNaturalist projects focusing on biodiversity in residential green space, or introducing game elements.

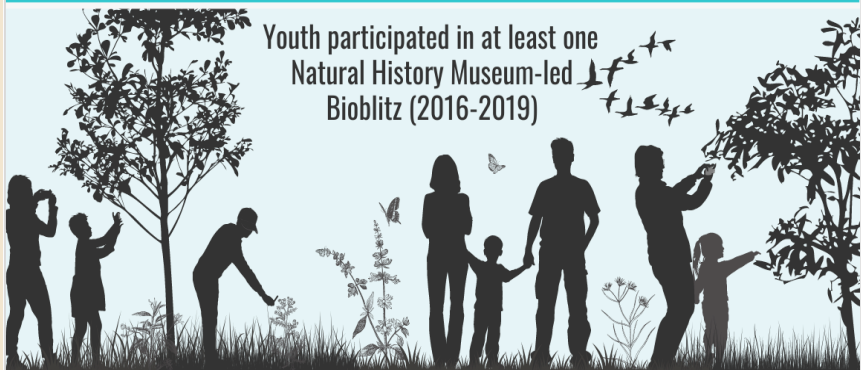
FUNDING AND ABOUT US

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OVERVIEW OF THIS STUDY

Youth participated in at least one Natural History Museum-led BioBlitz (2016-2019)



All observations these youth made up until January 2020 were examined to understand:

- What organisms do youth focus on?
- How much do youth contribute to iNaturalist?
- How does participation behavior relate to contributions?