Online Ethics Center
FOR ENGINEERING AND SCIENCE

Case: Big Data & Conservation Biology

Author(s)

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Description

An amateur birdwatcher contributes to eBird--a citizen science project. When conservation scientists begin tagging owls in the state park near his home and ask his neighbor for permission to conduct research on her property, he wonders whether the value of the knowledge created about endangered species through both studying migration and citizen science projects such as eBird justifies the impact these activities can have on individual birds and species.

Body

Andrei Rublev, a retired art history professor living in New England, enjoys spending his afternoons exploring the New England wilderness and bird watching. Last year, he discovered eBird, a website designed to bring both amateur and professional birders together by gathering information from their observations and providing access to big data resources on bird sightings, locations, and species distribution across the world.

The Cornell Lab of Ornithology and the National Audubon Society, a non-profit environmental organization dedicated to conservation, launched eBird in 2002. Its stated goal is to “maximize the utility and accessibility of the vast numbers of bird

observations made each year by recreational and professional bird watchers" and then to share "these observations with a global network of educators, land managers, ornithologists, and conservation biologists" (ebird.org). In doing so, the project also hopes to aid conservation biologists to "better coordinate national and international conservation efforts with the aid of citizen science data" (Wood *et al.* 2011). Since its inception, there have been numerous scientific publications that have made use of eBird's databanks.

As a conservationist, Andrei was eager to participate in this citizen science project. Last year, he began to record his observations of his bird sightings, including his sightings of the Short-eared Owl (Asio flammeus), which is listed as an endangered species in the state of Massachusetts. He decided to submit those observations to the eBird project late last year.

Andrei owns an extensive plot of land that neighbors a state park as well as another private property of almost 100 acres. He observed these birds on his own property, but quite near his neighbor's land. Andrei is aware of the American Birding Association's Code of Birding Ethics, and knows that he must be careful to acquire explicit permission to explore private property. So, last summer, he made sure to alert his neighbor, Anna, that he often goes birding in the area. Anna expressed enthusiasm about Andrei's hobby and his commitment to conservation and granted him the permission to explore on her property.

Andrei is also aware of the Code of Ethics' mandate to promote the welfare of birds and their environments, especially of species that are listed as threatened, endangered, or of special concern. This mandate includes protecting the birds' natural habitat and not disturbing their nests or feeding sites. The eBird website also cautions birders to consider waiting for the end of the season to record sightings of sensitive species. Following all of these guidelines, Andrei waited until late December to submit records of his sightings.

At that time, he felt proud of his contribution to what he believed was a worthy project. But, last week, he noticed that conservation biologists were working in the state park next to his home. From his brief conversations with one of the scientists, he discovered that they were using biotelemetry tools to try to monitor individual owls in order to get a better understanding of their migratory patterns. These technologies involve tagging individual owls with devices to track their movement and behavior.

Andrei understands the need to acquire reliable data on migratory patterns. However, he read recently that some scientists are doubtful about the reliability or usefulness of these methods, given that there is a risk that these sorts of interventions on the birds and their habitat could cause harm. For that reason, he thinks that these technologies should probably not be used on endangered species. Andrei now feels guilty because he thinks that perhaps his contribution to the eBird database might have led to the scientists' interventions.

In addition, Andrei just received a phone call from Anna, who is now upset with him. Anna explained to him that the scientists visited her home yesterday to ask for permission to conduct research on her property. Anna claims that while she gave Andrei permission to go birding on her property, she did not give him permission to post that information on eBird, or any other open access database. Andrei apologized to Anna and told her he will try to resolve the situation.

Now, eight months after he first started contributing to eBird, Andrei is starting to regret his decision to participate in the project. He still believes that citizen science projects designed to create and manage large sets of data, such as eBird, can be extremely useful in pursuing conservation goals. But, he also thinks these projects require more oversight to deal with the emerging ethical challenges, which are beyond his expertise. Should Andrei continue to contribute to eBird?

Discussion Questions

1. What are some possible tensions between open access databases gathered from citizen science projects and the goals of conservation biology? Are any of these considerations serious enough to provide reasons to limit access to data, or to re-consider how data are collected?
2. eBird includes general guidelines and codes of ethical conduct on their website concerning how to deal with "sensitive" reports, such as those made on private property. However, it is generally up to individuals to decide what information to include with their reports. Should eBird take additional measures to protect information that reveals locations on private property?
3. Most scientists think that technologies, such as biotelemetry tools, are important and useful for monitoring biological and environmental variables and for collecting enough data to make better decisions about conservation

priorities or environmental resource management. Yet, some think that there are additional ethical and epistemological issues to consider when tagging endangered species, which might give reason to limit the use of these technologies. What are some of these ethical and epistemological challenges and how might they be mitigated?

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American Birding Association’s Code of Birding Ethics: http://listing.aba.org/ethics/

Global Biodiversity Information Facility (GBIF): http://www.gbif.org/what-is-gbif

National Audubon Society: http://www.audubon.org

Notes

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Resource Type

Case Study / Scenario

Parent Collection

Big Data in the Life Sciences Collection

Topics

Big Data
Community and Participatory Research
Controversies

Discipline(s)

Ecology and Evolutionary Biology
Life and Environmental Sciences
Research Ethics