Citizen science
Data collection for research and decision making
Citizen science - data collection for research and decision making

Why citizen science?

- It provides vital information to protect species at risk of local extinction.

- It's a powerful scientific initiative in its own right.

- It engages many people in conservation efforts.
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For citizens to take part in science and conservation required:

- dedication

- realistic expectations about the quality of data

- careful planning on what data to gather and how
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Citizen science had grown up. Its potential in contributing to species conservation had come to light.

It could highlight where species were dwindling in ecosystems.

It could help change policy to protect them, especially at the edges of protected areas.

Scientists had identified these as areas where species were suffering.
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Citizen science was also a practical way of engaging everyone.

It showed them the importance of biodiversity and how they could contribute.

Sending out trained scientists to collect large datasets was too expensive.

This was especially true given the immense demand for data and knowledge.

There was another reason for using data collected by citizen scientists. Land managers didn't have time to gather the data needed to cover a vast landscape.
Large scale analyses from satellites did not provide local, small scale data needed. Citizen science filled this gap. It provided data previously unavailable to scientists and land managers. This allowed a whole new community of keen people to become involved. They didn't always know what they were looking at when seeing or hearing species directly at first.
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Many citizen science programmes began to use camera traps, for example.

So citizen scientists could view photographs of species taken from such cameras.

With proper guidance, they could identify even rare species.

This was a quick win for species conservation. Mobile phone apps exploited it. Anyone could take part or upload their own photos of species.
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There were also ways of making data analysis more rigorous.

For example, if three people identified a certain mammal as a rabbit, it was likely a rabbit.

This made citizen data science data more robust and statistically sound.

Scientists used citizen datasets in forecasting species responses to land use scenarios.
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This helped them better understand the impacts of intensive agriculture or other pressures.

They managed forests differently to prevent declines in species from climatic change.

If data was of enough quality, scientific and policymaking communities accepted it.

Citizen science made it possible to create legislation that could protect species.
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It helped increase their populations.

Citizens were key as scientists, land managers and conservationists couldn't be everywhere.

There were some limitations to citizen science.

Citizen scientists would mainly collect data from places where they wanted to go.

Their natural history experience differed widely.
Many citizen scientists preferred to go to areas that were already protected.

Or they went to places where they were more likely to spot wildlife.

Their datasets were often biased towards relatively well-known and studied places.

It took more than merely setting up a camera trap in the garden.

But this also wasn't a bad start, depending on the question the research was trying to answer.
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They could cover more ground in specific areas where we needed specific species data, if they used phones for:

- GPS tracking
- video recording

Depending on how useful the data was, it often filled in gaps and allowed for more rigorous analyses.
Key points for conservation and policy

• Embracing citizen scientists offers the potential to gather a great deal of information. This would otherwise not be collectable.

• Citizen science is useful for targeting conservation approaches.

• When carefully designed, citizen science can reliably inform. It can help with land management and conservation decision-making.

• Using citizen science for data collection often restricts us to places people go, rather than the remote areas that species inhabit.

• As we learn more about the potential for citizen science, there are new questions. Can it identify species that provide specific ecosystem functions to help target conservation?