

🌿 *Jemma Maguire, MSc, AISEP*

CITIZEN SCIENCE AND BIODIVERSITY CONSERVATION

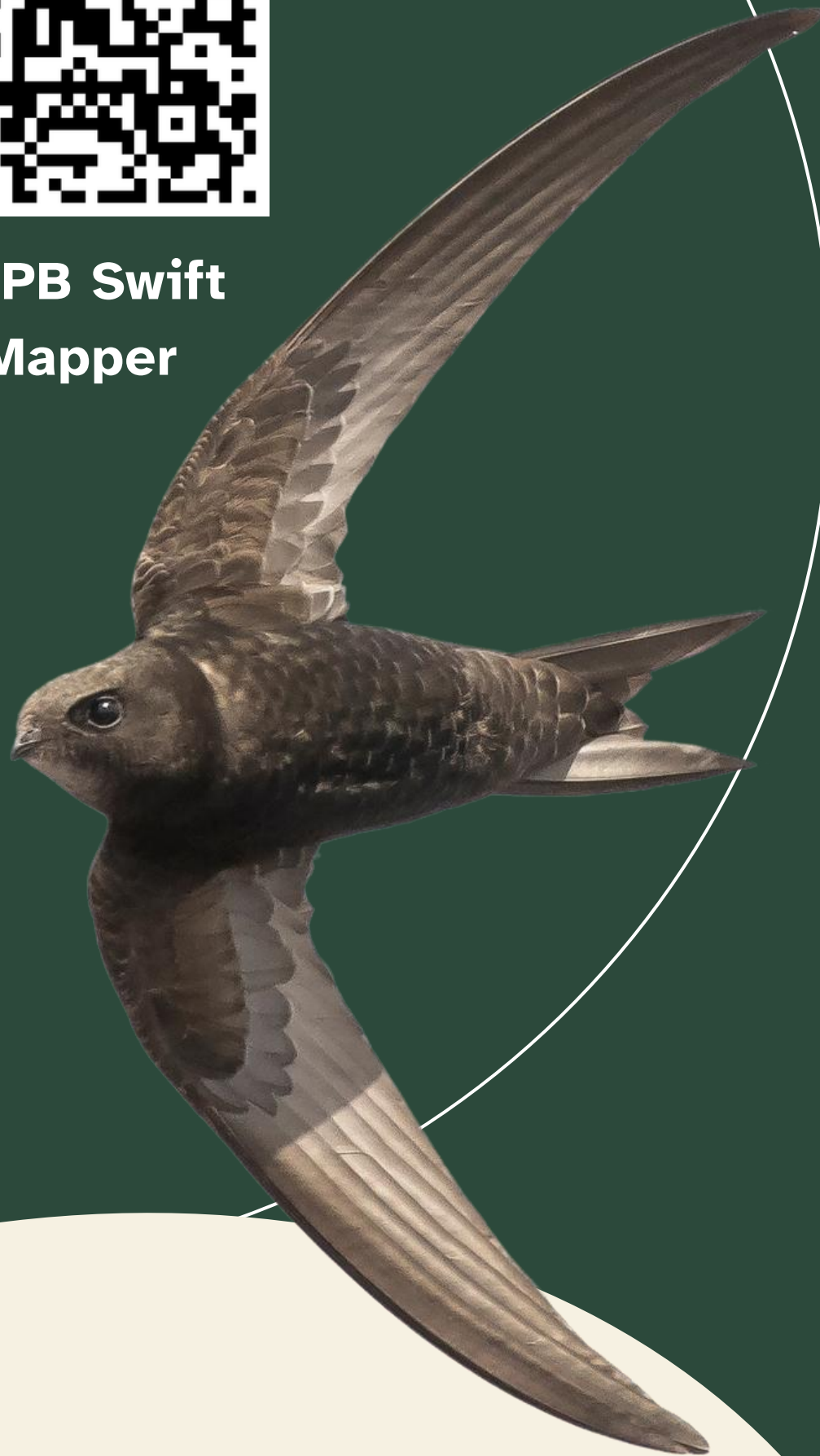


How citizen science can help communities **monitor biodiversity, showcase environmental impact, and contribute to nature recovery.**





RSPB Swift
Mapper



Citizen Science

What is Citizen Science?

- **Public participation** in scientific research, where **volunteers collect, record, and sometimes interpret environmental data.**
- Collaboration between professional scientists and community members, **enhancing the scale and reach of biodiversity monitoring** efforts.
- Often involves **simple, accessible activities** such as species ID, habitat surveys, phenology recording, or using mobile apps to log observations.
- Provides **real-time, place-based data** from **everyday environments:** gardens, parks, streets, school grounds, nature reserves.
- Helps build a **shared understanding of local nature**, increasing **ecological literacy and community stewardship.**



Why is Citizen Science Important?



Hedgehog Street
Big Hedgehog Map

Expands Monitoring Capacity

- Professional ecologists alone cannot monitor every site - citizen science produces **large-scale datasets** across space and time.
- Enables **early detection of declines, invasive species**, and changes linked to **climate impacts**.

High-Quality Long-Term Data

- Many UK biological recording schemes rely on **decades of volunteer-driven** data.
- **Long-term datasets** are essential for **tracking population trends** and informing conservation targets.

Environmental Stewardship

- Participants gain **knowledge and emotional connection** to local wildlife, leading to improved protection and advocacy.
- Builds a **culture of shared responsibility for greenspaces** and strengthens community cohesion.

Community-driven science empowers us to monitor biodiversity, strengthen local action, and respond to the ecological challenges facing our greenspaces.



eBird

What is the Impact?



Helps Addresses the Ecological and Climate Crisis

Citizen-generated data enhances our understanding of **how species and habitats respond** to:

- Warming temperatures
- Phenological shifts
- Urbanisation and land-use change
- Pollution and habitat fragmentation

Amplifies the urgency of the ecological crisis with **community-backed evidence**.

Support Evidence-Based Decision Making

Local authorities, conservation organisations, and land managers **use citizen science** data to:

- **Prioritise habitats** for restoration
- **Direct funding** and resources
- Shape biodiversity strategies and **management plans**
- Demonstrate **environmental outcomes** for policy and reporting

Creates More Inclusive, Accessible Science

- **Reduces barriers** to participation - anyone with curiosity can contribute.
- Helps **diversify perspectives** and bring local knowledge into scientific discussions.
- Encourages **young people** and families to engage in STEM and **nature connection**.

iNaturalist Biodiversity Monitoring

What is iNaturalist?

Free, global **nature-recording app** that allows anyone to document wildlife by **uploading photos or sound recordings**. How it works:

- **Take a photo** of a plant, animal, fungus, or other wild organism.
- **Upload it to the app**, where AI provides an initial identification.
- The **community reviews** and refines the ID, improving accuracy.
- Once confirmed by multiple users, the record becomes **“Research Grade.”**

Value for Citizen Science

- Promotes **accessible participation**: Anyone with a smartphone can contribute, regardless of experience level.
- **Improves species knowledge**: The AI and community feedback help users learn identification skills.
- **Great for events**: Ideal for BioBlitz's, school projects, volunteer groups, and community mapping of wildlife.

City Nature Challenge

The **City Nature Challenge** is a global bioblitz where **cities compete** to record as much wildlife as possible over a **four-day period**, using **iNaturalist** to document and identify species.

It brings communities together to **celebrate urban biodiversity**, generate valuable ecological data, and highlight the importance of nature even in highly built-up areas.





Woodland Trust
Nature's Calendar

Nature's Calendar

Nature's Calendar

Long-running citizen science project run by the **Woodland Trust**, that asks volunteers to **record seasonal events**, such as first flowers, migrating birds, ripe fruits, and leaf changes, to track how **wildlife responds to weather and climate change**.



Effects of weather and climate on wildlife

These observations contribute to one of the **UK's longest biological datasets**, with records dating back to **1736**, helping scientists **understand shifts in phenology** and the impacts of a **warming climate**.



UK Pollinator Monitoring Scheme



UK PoMS Scheme

UK Pollinator Monitoring Scheme (UK PoMS) collects national-scale data on **bees, hoverflies, and other flower-visiting insects**. It uses simple **10-minute Flower-Insect Timed Counts** and more detailed **1 km square surveys** carried out by volunteers.

Data Collection

These surveys provide essential evidence to understand **how pollinator populations are changing** across the UK. The data **support conservation action** and **inform national pollinator strategies** at a time of global insect decline.

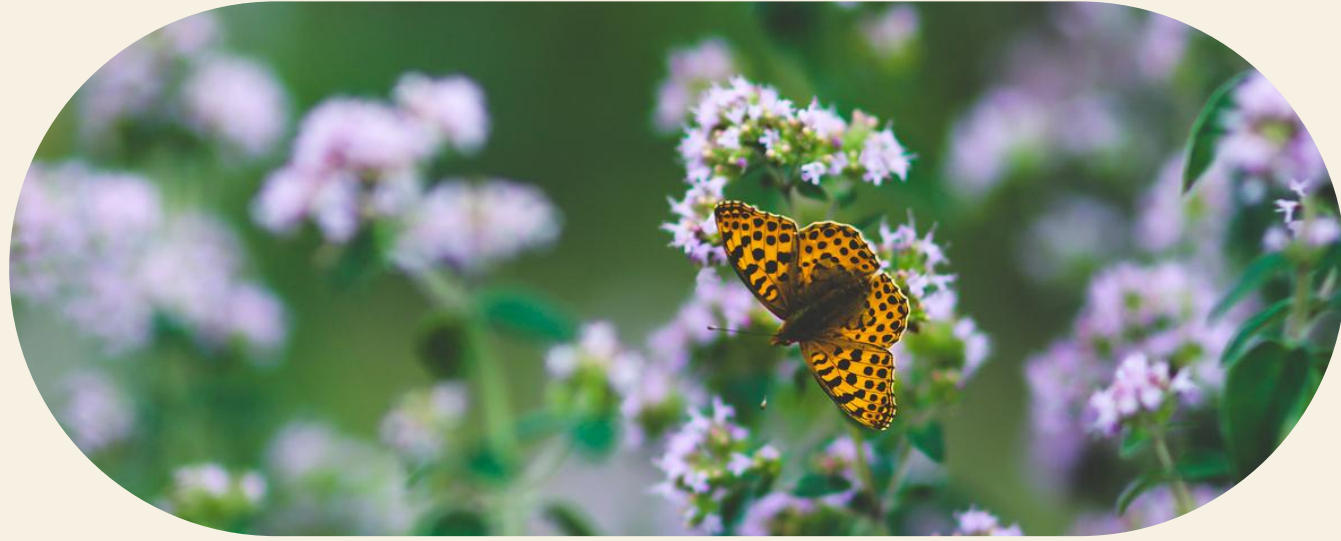
RHS Plants for Pollinators

RHS Plants for Pollinators list is based on evidence that the species attract bees, hoverflies, butterflies and other insects. PoMS data can help **verify how effectively they perform** in real-world settings. Record the number of **insects visiting specific flowers**, monitoring RHS-recommended species across seasons.

Share the Results!

Together, RHS plant guidance and UK PoMS monitoring create a powerful **community-based approach** to **improving habitats** and **supporting declining pollinator populations**.





01

Count Butterflies!

Participants spend just **15 minutes counting butterflies**, providing vital data that helps **track population trends** and detect early signs of wider wildlife decline.

02

Support Climate Impact Monitoring!

Because butterflies respond quickly to **environmental change**, this monitoring acts as an “early warning system” for **ecosystem health**.

03

Improve your Mental Health!

Taking part also benefits people, with studies showing **reduced anxiety** and **increased connection to nature** after completing a count.

Big Butterfly Count

The Big Butterfly Count is a nationwide citizen science survey run by Butterfly Conservation to assess the health of the environment by recording butterflies.



**Big Butterfly
Count**





Bugs Matter



Annual average decline in
insect splats of **19%** across
the UK since the survey
began in 2021.

Why Should you Care?

Why It Matters for East Midlands
in Bloom and Local Greenspaces

- Community volunteers become **ambassadors for nature**, championing **pollinator planting, habitat creation**, and **sustainable gardening**.
- Data collected locally can demonstrate **biodiversity benefits of planting schemes, wildflower meadows, reduced mowing**, and other Bloom initiatives.
- Strengthens the link between **beautiful public spaces** and **ecological health** - not just aesthetics but **measured environmental impact**.





Thank You



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📍 Nottingham City Council