



URBAN NATURE PLANS +

**Citizen Science: Counting
butterflies in urban areas**





Counting butterflies

This short brief is about why and how to count butterflies in urban areas through Citizen Science.

Key messages:

1. **Butterflies are bioindicators:** Counting butterflies reveals the ecological health and biodiversity of urban green spaces.
2. **Urban habitats matter:** Parks, gardens, and green patches provide crucial habitats for butterflies.
3. **Citizen involvement is powerful:** Residents of all ages can contribute through Citizen Science, expanding data collection and fostering engagement.
4. **Standardized methods ensure reliable data:** Transects and 15-minute counts provide accessible, repeatable, and comparable ways to monitor butterflies.
5. **Timing and conditions are critical:** Counts should be done during the butterfly season on warm, sunny, and windless days to ensure accurate and comparable observations.



I. Why count butterflies in urban areas?

Butterflies are more than beautiful insects – they are sensitive indicators of biodiversity and environmental health. Because they respond quickly to changes in habitat quality and climate, monitoring butterflies provides valuable insights into the state of urban nature.

Urban areas are not just built spaces; they also host a rich variety of plants and animals. Parks, gardens, flower strips, and even tree patches can serve as important habitats for butterflies. By counting butterflies, cities gain knowledge about the ecological quality of their green spaces and can use this information to improve management practices.

In addition to ecological insights, butterfly monitoring also offers important social benefits. While monitoring can be conducted by trained experts, it can equally take the form of Citizen Science, where residents of all ages can contribute their own observations using standardized methods. This broadens the data base, creates a sense of ownership, and actively involves people in protecting urban nature.



Photo: Guy Pe'er.

For citizens, participation is an accessible way to learn about biodiversity through direct, hands-on experience. People learn to identify species, develop a deeper understanding of ecological relationships, and become ambassadors for green space protection.

For cities, Citizen Science brings two main advantages: first, it helps gather large amounts of data across many sites, which would be impossible through professional surveys alone; second, it strengthens community involvement. Schools, families, neighborhood groups, and volunteers can all contribute, turning biodiversity monitoring into a shared responsibility. This builds environmental awareness, fosters local pride, and enhances the city's image as a green and livable place.

In this way, butterfly monitoring combines ecological research with environmental education, while fostering stronger links between municipalities and their citizens.



2. How to count butterflies in urban areas?

There are two widely used approaches for butterfly monitoring in cities: **transects** and **15-minute counts**. Both methods follow standardized protocols, ensuring that data are consistent and comparable across sites and observers. Transects are especially suitable for people who regularly walk the same route, such as in parks or during daily routines (e.g. while walking the dog), and who can commit to repeated monitoring over time. The 15-minute count is more flexible: it can be used for systematic observation of a fixed site, but also for occasional counts across different locations. 15-minute counts are especially suitable for sampling smaller areas such as gardens or backyards, and ideal for surveying species that are hard to detect (e.g. arboreal species) or that occur in more remote locations. Together, these methods provide complementary tools for reliable data collection while remaining accessible to both experts and citizen scientists.

2.1. Method 1: Transects

Transects are fixed walking routes through a green space along which observers systematically count all butterflies seen within a set distance. By walking the same route under similar conditions at regular intervals (ideally every week during the butterfly season), participants collect consistent, comparable data over time. This method helps track changes in butterfly populations and is especially useful for long-term monitoring.

- Select a fixed route, ideally 1 km long,
- Divide the transect into sections that are either equal in length (e.g. 50-100m) or that correspond to different habitat types (such as a forest or paved path) and land uses (or management activity).
- Walk the route at a steady and constant speed.
- Record all butterflies seen within an imaginary box (2.5m each side and 5m in front and above you).
- Take pictures, especially when in doubt about the species.
- Conduct counts regularly (e.g., weekly or biweekly) to track seasonal changes.
- Enter observations into a citizen science platform (e.g. the European Butterfly Monitoring Scheme - eBMS) or log sheet to contribute data to the project.

2.2. Method 2: 15-minute counts

The 15-minute count is a flexible, standardized method where participants record butterflies in a defined area for exactly 15 minutes. It can be used either to repeatedly monitor the same site or to compare different sites across a city.

- Choose a location such as a park, garden, backyard, flower strip, cemetery or riverside.



- The survey area should ideally be 20 x 25 m. It can be adjusted to 10 x 50 m or 5 x 100 m if the green area is narrow.
- Walk slowly around the site for 15 minutes (also back and forth).
- Observe and record all butterflies seen in the area.
- Avoid double-counting the same individuals.
- Use an ID guide or app to help with identification.
- Take pictures, especially when in doubt about the species.
- Conduct counts regularly (ideally weekly or as often as possible, at least three times per season) to track seasonal changes.
- Submit results through citizen science platforms (e.g. [VielFalterGarten](#)) or project forms.

This method is short, accessible, and systematic, making it suitable for both beginners and experienced observers, while generating robust data for urban biodiversity monitoring.

General considerations:

What you need: A notebook, reporting sheet or digital app (e.g. [VielFalterGarten](#), [ButterflyCount](#)) for recording, a butterfly identification guide or app, and optionally a camera or binoculars.

Reporting the data: The collected data can be entered into simple reporting forms or citizen science platforms. Projects like [VielFalterGarten](#) provide templates and guidance to ensure results are comparable and useful for science.

3. When to count butterflies in urban areas?

Butterfly monitoring is done during the butterfly season. In Western and Central Eastern Europe, this typically extends from beginning of April until end of September. In Southern Europe, the season may begin as early as February or March, while in northern regions and mountainous areas it is usually limited to the period between May and August (fig. 1).

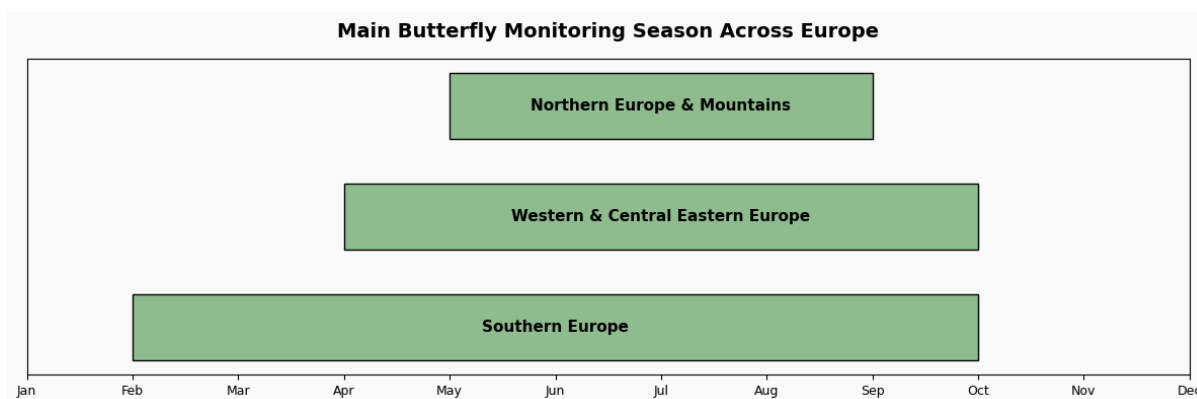


Fig. 1 Main butterfly monitoring season across Europe.



To make standardised counts of adult butterflies, the weather conditions must be suitable for butterfly activity.

Time: Between 10:00 and 17:00, when butterflies are most active.

Temperature: Choose warm, sunny days, preferably with little or no wind. Temperatures should be above 13°C on sunny days, 17°C on cloudy days.

In general, the best times to count are when the weather is nice and pleasant and the butterflies are active!

4. Links and Additional Resources

The [VielFalterGarten](#) project offers materials, background information, and best practices for engaging urban residents in butterfly monitoring.

The [European Butterfly Monitoring Scheme \(eBMS\)](#) provides a comprehensive collection of standardized methods and data. The eBMS brings together national butterfly monitoring programs across Europe and offers extensive data for biodiversity assessment and conservation planning



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