

NORTH AMERICAN BUTTERFLY ASSOCIATION

4 Delaware Road, Morristown, NJ 07960 tel. 973-285-0907 fax 973-285-0936

www.naba.org

Suggestions for Improving Observations on NABA Butterfly Counts

At some point in time, most count participants encounter questions about how to provide the most accurate observations from their butterfly counts. Two of the most common—how to identify unusual/uncertain species and how to estimate large numbers of butterflies—are addressed in the following document. By placing special emphasis on these two aspects of the count process, the overall accuracy of butterfly observations reported will improve.

So that all count participants are aware of the desirability of photos for accurate identification and have resources available should they need to estimate large numbers of butterflies, we ask that you make them aware of these issues, and that you provide each field party on your count with a copy of the following suggestions and examples. If you have further questions about either of the topics below, or if you would like to offer suggestions, please contact the Count Report editor, Sharon Wander (wander@naba.org), for more information.

Our thanks to everyone for helping to improve the Count Report!

Photographing unusual or uncertain butterfly species during a count

Whether butterfly count participants are new or experienced, butterflies in the field can be sometimes be tricky to identify. When a species is unusual—or especially if the species identification is not 100% certain—participants are strongly encouraged to document the sighting with photographs.

A photograph is the best way to confirm, as well as share with others, a species that is rare, significantly out of range or habitat, or flying at an unusual date. And if someone observes a butterfly that they're not quite sure of, the NABA staff will be happy to check the photo and possibly help with the ID.

If we can definitely ID a butterfly reported only as, for example, "Skipper sp.," it may increase the species total for your count. With the proliferation of digital cameras, it



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should not be too great a problem to ask that at least one person in every party be prepared to take photos.

Estimating large numbers of butterflies during a count

Sometimes you'll encounter large numbers of butterflies unexpectedly (for example, a migration of Snouts or Painted Ladies), or you may know that in your count circle there's likelihood of observing high numbers of a given species (for example, European Skipper). In such situations, participants sometimes report numbers as low as 1 for the species in question, either because they have no idea how to estimate the real number, or because they don't think that anyone will believe a really large number. But it's possible to report a much more realistic figure if you are prepared in advance!

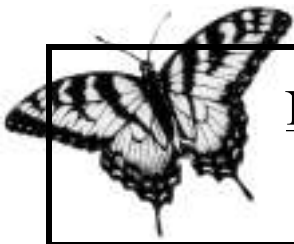
Remember that scientific researchers utilize the Butterfly Count data, and when they see a number that obviously must be an estimate, they need to know how that number was arrived at so they can decide whether to use it in their analysis. To help out, we've listed below a few methods that your fellow compilers have used recently, and that have been published in the Count Report. Participants on your count may be able to use one of these methods directly, adapt one for a particular situation, or be inspired to come up with their own method. It might be helpful for one person in each party to carry a clicker to count numbers.

1. Estimating butterflies concentrated along linear features

One count observed very large numbers of butterflies puddling along forest roads. The numbers were estimated by counting butterflies along 20-ft. lengths of road at numerous random points, and then extrapolating the average number and species distribution from these counts to the road mileage actually covered. Counts made at certain discrete locations such as hunters' camps were added to the total.

2. Estimating butterflies concentrated in an area of uniform habitat

A large number of Sachems was estimated within a single area of about an acre. By directly counting in a number of 100-sq.-ft. (10-ft. x 10-ft.) blocks, a conservative average number of 35 Sachems per block was obtained. After walking the entire area observing the Sachems and determining that their density was similar throughout, this average number was multiplied by the 400 blocks that made up the entire area (an acre is approximately 400 ft. by 100 ft.).



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3. Combination of 1 & 2 above

An estimated count for European Skipper was arrived at by (a) counting numbers of this species in several paced-off sections of gravel road to derive an average number per foot, then multiplying this figure by the length in feet of road covered and observed to have similar numbers; (b) counting the numbers in several 6 x 6 ft quadrats within a field to arrive at an average, then pacing off the area of the field observed to be occupied by the skippers and extrapolating from the average for 36 sq. ft.; and (c) adding these two numbers. The compiler believed the total to be accurate within +/-20%.

4. Estimating butterflies concentrated on certain plants

Another count found immense numbers of butterflies nectaring at a certain species of flowering shrub, and used the following method to estimate certain abundant species (all other species were directly counted): In the beginning, every Large Orange Sulphur, Lyside Sulphur, American Snout, and Queen was counted, on about a dozen *Eupatorium odoratum* plants (large, medium, and small) to derive a reasonable average number of each of the 4 species for each size of plant. For subsequent plants observed, that average was used unless the plant was unusually small, in which case individuals were counted directly. All plants were populated with butterflies similarly in number and ratio, so the figures were considered to be modestly accurate for those 4 species.

On another count, numbers of European Skippers were estimated by multiplying 5 groups of milkweed with 40 plants each by an estimated 10 skippers per plant. Butterflies were observed on all of the plants.

5. Estimating butterflies in flight

For an immense migration of Painted Ladies, an estimated count was made from one observation point. The estimation was based on a minimum of 600 butterflies/minute (counted with clickers) crossing a 50-ft.-wide transect. The width of the total transect crossed by the butterflies was at least 1000 ft., and the observers watched for 10 minutes, yielding a figure of 120,000. The observers (correctly) did NOT extrapolate to a longer time period when they were not observing, even though the butterflies were still flying then, but they verbally explained in their Field Notes that millions of butterflies were probably present.



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As explained in the online and paper count form instructions, it is extremely important that, however you make your estimate; you do it only for butterflies that you **ACTUALLY SEE**. You can directly count, or reasonably estimate, the numbers of a species that you see in a sample area or sample period of time. But you may extrapolate those numbers **ONLY** to other similar areas or time periods where or when you are actually observing what appear to be similar numbers of butterflies. You should never extrapolate your sample to areas or time periods that you do not cover in the field. And please be sure to explain your method of estimation in the Field Notes section of the count form.

Please do not hesitate to report estimates of unusually large numbers of butterflies as long as you can provide a reasonable explanation of how you made the estimate. It is very important to document these large numbers, and NABA very much wants to include such information in the Butterfly Count database.