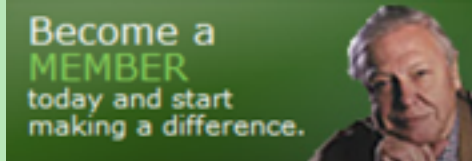


HOW MANY COMMAS?



An article by Tony Rackham

There is one particular sunny glade in our garden which seems to appeal to male comma butterflies as a good place to guard. Each Spring and each Summer one will usually take up position in it and will fly at any butterfly which passes over. If the newcomer is not a comma there will be a quick twirl together and the comma will return to its position.

If the other butterfly is a comma however there will be a lot more twirling. The two of them may well disappear - and sometimes one will come back. Presumably what happens depends on what sex the new one is and whether any encounter is successful.

I had assumed that the glade became part of the occupying male comma's territory for some weeks. In fact it is rather amazing how season after season a comma will turn up here - each one even settling on the same plant as the previous occupant.

This Spring I took photos of the first occupant on 3 different days. To my surprise I found I had photos of 3 different commas. I decided to investigate what was happening.

The Glade



Our garden is about 0.5 hectares (1.75 acres). Some of it is actual garden but most of it is maintained to encourage wildlife. There is a copse and the glade favoured by the commas is outside this copse on its south-west corner. To the south of the glade is a fairly high hedge which gives shelter but lets the sun in. The area is always sheltered and sunny.

To the west is an open area with such flowers as cowslips, forget-me-nots, spotted orchids, daffodils and corky-fruited water-dropwort in the Spring and early Summer. Later there are the plants which attract the summer butterflies - such as knapweed, hemp agrimony, fleabane, ox-eye daisy and wild perennial sweet pea. This makes the site ideal for the comma's guardian activity as butterflies of different species fly over the glade on their way round the copse, to and from the flowers.

Around the garden speckled woods behave in a similar way but, whereas there are 6 or 7 sunny spots where you may find a speckled wood on guard, there is only the one where you would find a comma.

Method of observation

In many butterfly studies researchers catch butterflies and mark them with paint. There were two reasons why I decided against this :

1. I feel actually catching animals to study them ought to be a last resort - and only then if the research is necessary to maintain or improve their situation;
2. I was trying to study a behaviour which might easily be altered by such an intrusion.

The method had to be completely unobtrusive. The butterfly should not react to the observer if at all possible.

Photography

The amazing advances in digital photography have also made photographing butterflies so much easier - particularly large ones. We have abandoned our SLRs in favour of Micro four-thirds cameras. These are small and light but have interchangeable lenses. In particular we have a long-focus lens with the 35mm equivalent of 400-600mm in focal length. By increasing the sensitivity (or ISO number) this gives a really sharp picture hand-held in good light. It will focus near enough to take an object 10cm wide at a distance of 2metres. This is ideal for a comma, which has a wingspan up to 5cm.

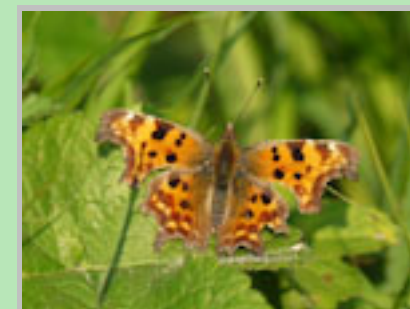
The method used was as follows :

Observe the glade from the shade of the hedge for a few minutes to check if there is a comma guarding it. If there is wait until it is in a good position for photography. They usually fly up every two or three minutes - either in response to an intruder or just to check the

territory. Then choose a route which allows you to approach without walking across its vision but finishing up for a photograph face on to it. Take one picture at about 4 metres and then more as you approach it. Check that they are sharp before you retreat.

On a hot day the comma may have its wings shut. In this case you have to slowly put up a hat or a branch until the butterfly is shaded. It reacts by opening its wings and you have to get your picture quickly before it shuts them again.

At the height of summer, with the sun overhead, they may perch quite high up with wings pointed upward. In this situation a close approach is easier without disturbance and so a shorter, macro, lens was used.



Recognition



Fortunately you don't need spots of paint to tell one comma from another. Each one is so different from the next one. Their markings are all different shapes, sizes and colours. The strange irregular indentations around the edge of their wings are all different as well. If you can get reasonable photographs of the same wing of a comma on two occasions, you can tell if they are the same specimen or not.

Why this is so is not clear. After all any two pearl bordered fritillaries have almost identical markings. In fact there is one spot on the edge of the inner wing which will tell you if you have a Pearl Bordered or a Small Pearl Bordered according to just how near the edge of the wing it is. The difference is less than a millimetre. Perhaps Fritillaries need precise markings because it is difficult to tell the species apart, whereas there is not another species very like a comma - not in



whereas there is not another species very like a comma - not in Britain anyway. Or perhaps because of their social interaction commas need to be able to work out who is who.

Findings

I took photos of nearly every comma seen in the glade - on 30 occasions in all. These photos proved to be of 25 different butterflies. 5 were photographed twice on different days and none at all were seen on more than two days. The rest were only known to have been there once. For the 5 which appeared twice the dates were as follows :

- Comma 3 - 9th & 24th April (15 days apart);
- Comma 6 - 28th & 30th April (2 days);
- Comma 15 - 11th & 28th July (17 days);
- Comma 19 - 23rd & 27th July (4 days);
- Comma 25 - 22nd & 24th August (2 days).



Of course there were a number which were not recorded :-

1. On 4 days a comma was seen in the glade but was not photographed - 3 of these did not settle at all and one was high in a tree where it could not be photographed.
2. Commas were only seen this year from March to September. Of the 214 days in these 7 months we were away or out for most of the day on 82 of them and so only checked for commas on just over 60% of them.
3. I definitely did not sit watching the glade all day so I'm sure I missed some when we were there.

Presumably the real number of different male commas which guarded the glade this year was a good deal greater than the 25 photographed and some of them could have been there for a second or even a third time. Unless the recording can be automated in some way it is difficult to see how more observation could have been achieved.

Table of Commas photographed

Male commas photographed in the glade are named Comma1, Comma2 etc. in order of appearance.

Times are given to show that the butterflies were only there during the afternoon - the glade was checked at other times but none appeared. The sun is on the area in summer from about 10.00 to 19.00.

Date	Time	Known as	Comment
25/03	16.01	Comma1	
08/04	18.10	Comma2	
09/04	15.57	Comma3	
22/04	16.38	Comma4	
23/04	17.40	Comma5	
24/04	16.00	Comma3	
28/04	16.17	Comma6	\Comma6 followed by
30/04	16.19	Comma7	/Comma7 straight away
30/04	16.28	Comma6	
02/05	15.15	Comma8	
03/05	15.00	Comma9	
02/06	15.15	Comma10	
21/06	15.03	Comma11	
29/06	15.56	Comma12	\Comma 12 flew off
29/06	16.50	Comma13	/Comma 13 came later
11/07	15.37	Comma14	\Commas 14,15,16
11/07	16.14	Comma15	one after another
11/07	18.10	Comma16	/
14/07	18.53	Comma17	

15/07	16.32	Comma18	
23/07	16.52	Comma19	
27/07	16.22	Comma19	
28/07	14.27	Comma15	
30/07	15.54	Comma20	\Commas 20,21 there
30/07	15.58	Comma21	/together 2m apart
31/07	16.43	Comma22	
02/08	17.32	Comma23	Perched on my shirt
03/08	17.12	Comma24	
22/08	15.03	Comma25	
24/08	16.30	Comma25	

Conclusions :

While so far there is only one season's data to go on it does appear that :

1. Male commas do not have a territory which they defend over a long period. Not only did they hardly ever return but on 4 occasions two or more of them used the same glade in one day. On one day 3 commas used it and on another there were 2 in it at the same time. On at least 2 occasions a resident intercepted an intruding male and the one which returned to the glade was the intruder, not the defender.
2. There are a lot more commas than you might think. This year I recorded seeing 50 commas in our garden altogether. Previously I would have thought this represented about half a dozen individuals which we saw again and again. Now I am confident they are mainly different and there were far more than this.



There is a lot more to find out.

1. At least 25 male commas have chosen the same place to guard this year. Often they used the same plant as a perch. There must be a very precise set of criteria by which a comma decides that a site is suitable to guard. Can we work out what these are and locate suitable sites - or even create them - for further study?
2. Do male commas only guard a glade like this once or twice in their lives or do they use other glades over a wide area?
3. Do they have a territory at all or do they just wander?

Large-scale images of Commas 1 to 6 can be seen [here...](#)

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