

**BUTTERFLY SURVEY
of
TOMMY THE MILLER'S FIELD
BERWICK UPON TWEED
April to September 2010**



Wall by Iain Cowe.

**by
Berwick Wildlife Group**

A Report on the 2010 Butterfly Survey

| <u>Index</u> | <u>Page</u> |
|--|-------------|
| 1) <u>Acknowledgements</u> | 3 |
| 2) <u>Introduction</u> | 4 |
| 3) <u>Method</u> | 6 |
| 4) <u>Summary of Observations</u> | 7 |
| i. <u>Graphs – By Weeks</u> | 9 |
| ii. <u>Graphs – By Section</u> | 10 |
| 5) <u>Weather</u> | 11 |
| 6) <u>Comparison between the 2006 - 2010 Observations.</u> | 13 |
| 7) <u>Evaluation.</u> | 15 |
| 8) <u>Species Graphs</u> | 18 |
| 9) <u>References</u> | 25 |
| 10) <u>Appendix 1 Details of survey area as supplied to BC</u> | 26 |
| 11) <u>Appendix 2 Links to details of butterfly species</u> | 28 |

A Report on the 2010 Butterfly Survey

Acknowledgements

The work grew out of the interest of Elizabeth Bamford who contacted Butterfly Conservation, gained permission from the field owners, organised the volunteers and, together with Fiona Aungier, laid out the transect and undertook an initial habitat survey.

The following members of the Group took part in the fieldwork:
Fiona and Maurice Aungier, Stephen Block, Maurice McNeely, Aileen Miller, Jenny Prince, Neil Rye, Enid Turnbull, Gill Young.

Credit should go to all who took part in the survey, as in places the field is very steep, with uneven footing, and the undergrowth and nettles later in the year made walking the transect extremely difficult. Despite this, apart from weeks 1, 5 and 26 when the weather was not suitable, a count was completed for all the other weeks of the survey.

Fiona Aungier undertook fieldwork when commitments prevented regular group members from participating, carried out the habitat survey and drew the maps. John Rae transferred the results to the database and tabulated and analysed them. Fiona and John wrote this report. Malcolm Hutcheson provided the information on weather.

Finally we would like to thank Mr and Mrs MacPherson, Castle Hills Farm, the owners of the land, who readily gave permission for the survey to go ahead.

Picture 1 – View across Tommy the Miller’s field towards the Royal Border Railway Bridge.



A Report on the 2010 Butterfly Survey

Introduction

Between the beginning of April and the end of September 2010 volunteers from Berwick Wildlife Group undertook their fifth butterfly survey of Tommy the Miller's field in Berwick. (See Berwick Wildlife Group's website for a report on the 2006 to 2009 surveys)

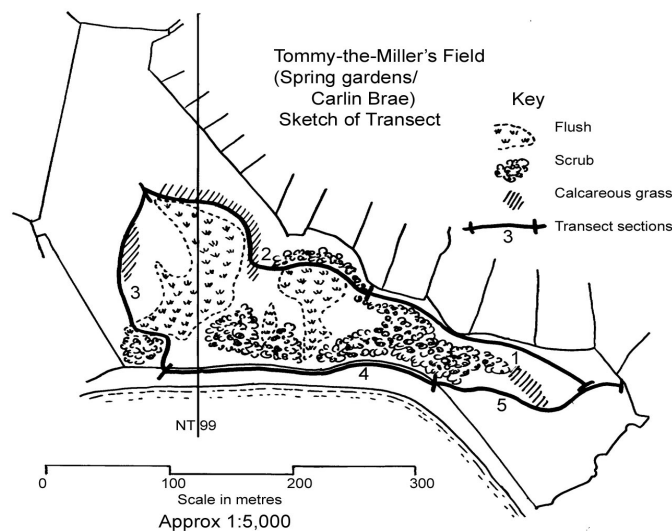
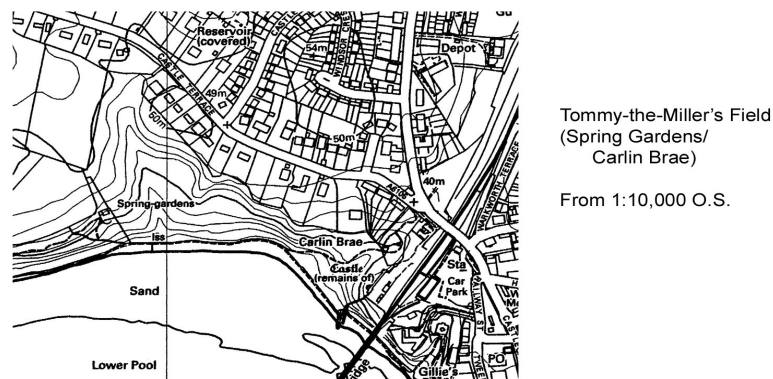
<http://www.berwickwildlifegroup.org.uk/Local%20Wildlife.html>

As in previous years, the purpose of this survey was to gather observations of butterfly species and numbers for inclusion in the databases of both Butterfly Conservation and the National Biodiversity Network.

A total of 951 butterflies of 14 species were observed over the 26 week period in 2010.

| <u>Year</u> | <u>Total Number of butterflies observed</u> | <u>Number of species</u> |
|-------------|---|--------------------------|
| 2010 | 951 | 14 |
| 2009 | 999 | 14 |
| 2008 | 811 | 14 |
| 2007 | 829 | 12 |
| 2006 | 1472 | 13 |

Maps 1 & 2: an overview of Tommy the Miller's field and detail of the transect.



A Report on the 2010 Butterfly Survey

The field is situated on the north shore of the River Tweed, just upstream of the Royal Border Railway Bridge, and below Castle Terrace. It is south facing, is sheltered from north winds and is exposed to the sun throughout the day. Much of the ground underfoot has been pitted by the hooves of grazing cattle. Some grazing took place over the period of the survey. The habitat consists of dry, semi-improved grass and scrubland, with wet flushes on a steep south-facing slope.

Looking at the various sections of the transect walked:

Section 1

This Section crosses steep terrain, patches of more open grassland among hawthorn scrub, with nettles and thistles prominent in places, and some privet hedging. Mainly Small White, Large White, Green-veined White, Ringlet, Meadow Brown, Peacock, Small Copper, Wall, Small Tortoiseshell and Painted Lady were recorded from here.

Section 2

Section two leads past a rush-dominated marsh, bounded on its northern edge by a bluff covered in grasses, knapweed, scabious, harebells and yarrow. Green-veined White predominated in the wetter area, while the dry banks held good numbers of Small White, Meadow Brown, Ringlet, Peacock, Large White and Small Tortoiseshell among others.

Section 3

The third section runs across a small grassy headland, the wind always playing a part in the number of butterflies recorded here. Grasses, sorrel, thistles and yarrow were plentiful, and Small Coppers were seen here well into September sipping nectar from yarrow heads in the warm sun. Large numbers of Common Blue, Small White, Painted Lady, Small Copper, Small Tortoiseshell, Peacock, Wall, Brown, Ringlet and Orange Tip were seen here.

Section 4

'The New Road', a footpath along the bank of the Tweed, makes section four; a sheltered sunny section but often disturbed by walkers. Small White was predominant here together with Large White, Green-veined White, Ringlet, Peacock, Painted Lady and Orange Tip.

Section 5

The final section runs through Tommy the Miller's Field again, from the Tweed back up to the top. Throughout the summer the grasses, knapweed and thistles proliferate. Small White were most numerous with Ringlet, Green-veined White, Small Tortoiseshell, Peacock, Meadow Brown, Small Copper, Common Blue, Wall and Orange Tip also seen here.

A Report on the 2010 Butterfly Survey

Method

Butterfly transects are a way of measuring changes in the abundance and variety of butterflies present at a site from year to year.

The method adopted for this survey follows that laid down by the Butterfly Conservation.

Full (all species) transects are labour intensive and require a commitment to carry out weekly recording throughout the six months of the survey, corresponding with most butterflies' flight period in the UK.

Establishing the transect.

- The transect was identified in 2006 by Elizabeth and Fiona, and consists of a route 1025m in length that gives a fair representation of the habitats and other features present in the field.
- This transect was 'fixed' so the same route could be followed each week, and also each year, so comparisons can be made.
- It was subdivided into 5 sections, approximately equal in length, with each section representing a change in habitat or management type.

When to record.

- Recording took place once a week from April 1st to the end of September.
- Transect counts were ideally made between 10:45 and 15:45 hours.
- Transect walks were only carried out in warm (13 °C or more) bright weather. Windspeed 4 or below on Beaufort scale in exposed place.
- The minimum criteria were 17°C if overcast, or 13°C if at least 60% sunshine.

How to record.

- To aid species identification each group had a "Guide to the Butterflies of Britain" produced by the Field Studies Council.
- The transect was walked at a slow, steady pace counting all butterflies seen within a fixed distance of 2.5m either side of the transect line and 5m ahead.
- The same route along the transect was followed each time.
- Before starting, record was taken of Week No., Date and Recorders and, both before and after walking the transect, the Time, Temperature and Wind speed. % Sun was recorded at the end of each section of the transect.
- The transect was walked recording numbers of the various species of butterfly seen on that section of the transect.

After the transect had been walked the observations were given to Fiona, who entered them into a standard Excel document, one for each week's survey, and John transferred this to the main database.

A Report on the 2010 Butterfly Survey

OBSERVATIONS Summary of Observations

By Date

| Date | Week | Large White | Small White | Green-veined White | Orange Tip | Small Copper | Common Blue | Red Admiral | Painted Lady | Common Tortoiseshell | Peacock | Comma | Wall | Meadow Brown | Ringlet | Total Adult |
|-------------|------|-------------|-------------|--------------------|------------|--------------|-------------|-------------|--------------|----------------------|---------|-------|------|--------------|---------|-------------|
| 5-Apr | 1 | | | | | | | | | | | | | | | |
| 10-Apr | 2 | | 1 | | | | | | | 4 | 1 | | | | | 6 |
| 16-Apr | 3 | | | | | | | | | 3 | 1 | | | | | 4 |
| 26-Apr | 4 | | 2 | | | | | | | | | | | | | 2 |
| 5-May | 5 | | | | | | | | | | | | | | | |
| 7-May | 6 | 1 | 2 | | 2 | | | | | 1 | | | | | | 6 |
| 15-May | 7 | 1 | 6 | 3 | 6 | | | | | 1 | 2 | | | | | 19 |
| 21-May | 8 | | 15 | | 10 | 2 | | | | | | | 1 | | | 28 |
| 28-May | 9 | | 1 | | 2 | 2 | | | | | | | | | | 5 |
| 4-Jun | 10 | 3 | 9 | 13 | 3 | 1 | | | | | | | 1 | | | 30 |
| 14-Jun | 11 | | 19 | 2 | | 2 | 3 | | | 2 | | | 2 | | | 30 |
| 21-Jun | 12 | 2 | 4 | | 1 | | 16 | | | | | | | | | 26 |
| 25-Jun | 13 | 2 | 6 | | | | 24 | | | 1 | | | | 3 | | 55 |
| 3-Jul | 14 | 2 | 2 | | | | 14 | | | 8 | | | | 8 | 14 | 83 |
| 12-Jul | 15 | 10 | 2 | 1 | | 1 | 1 | | | 13 | | | | 26 | 31 | 70 |
| 19-Jul | 16 | 2 | 16 | 4 | | 3 | 3 | | | | | | | 34 | 8 | 75 |
| 23-Jul | 17 | 3 | 6 | 17 | | 9 | | | 1 | 5 | | | | 40 | 6 | 68 |
| 30-Jul | 18 | 15 | 4 | 11 | | | 1 | | | | | | | 26 | 2 | 68 |
| 8-Aug | 19 | 5 | 37 | 68 | | 22 | | | | | | | | 17 | | 48 |
| 15-Aug | 20 | 31 | 24 | 34 | | 6 | | | | 1 | | 1 | 8 | 28 | | 169 |
| 23-Aug | 21 | 15 | | 11 | | 1 | | | | | 3 | | 3 | 3 | | 102 |
| 27-Aug | 22 | 4 | 9 | 3 | | 3 | | | 1 | | | | 3 | 3 | | 36 |
| 2-Sep | 23 | 4 | 10 | 2 | | 5 | | | | | | | 12 | 1 | | 33 |
| 12-Sep | 24 | 6 | 2 | | | 3 | | | | | 1 | | 2 | 3 | | 26 |
| 16-Sep | 25 | 4 | 4 | 2 | | 1 | 1 | 1 | | | | | 1 | | | 13 |
| 26-Sep | 26 | | | | | | | | | | | | 4 | | | 17 |
| Grand Total | | 110 | 181 | 171 | 24 | 61 | 63 | 1 | 2 | 39 | 8 | 1 | 37 | 192 | 61 | 951 |

A Report on the 2010 Butterfly Survey

OBSERVATIONS **Summary of Observations**

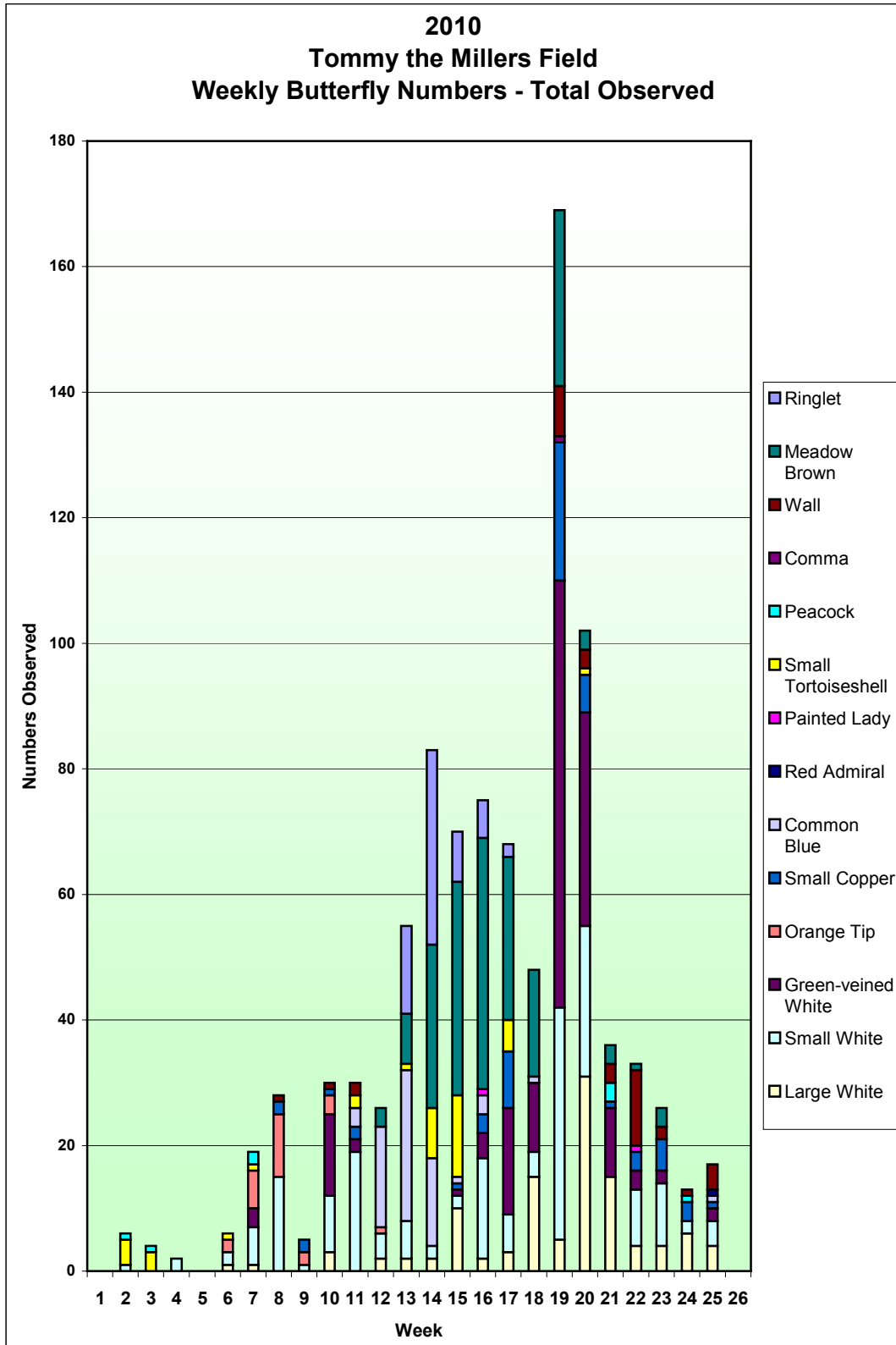
By Section

| Section | Large White | Small White | Green-veined White | Orange Tip | Small Copper | Common Blue | Red Admiral | Painted Lady | Small Tortoiseshell | Peacock | Comma | Wall | Meadow Brown | Ringlet | Total Adult |
|---------|-------------|-------------|--------------------|------------|--------------|-------------|-------------|--------------|---------------------|---------|-------|------|--------------|---------|-------------|
| 1 | 47 | 44 | 35 | 4 | 5 | 12 | | | 14 | 4 | 1 | 20 | 58 | 27 | 271 |
| 2 | 22 | 65 | 67 | 7 | 9 | 24 | | 1 | 10 | 3 | | 6 | 57 | 13 | 284 |
| 3 | 17 | 36 | 27 | 3 | 35 | 21 | 1 | | 4 | | | 7 | 46 | 10 | 207 |
| 4 | 10 | 23 | 29 | 8 | 3 | | | | 3 | 1 | | 3 | 6 | 1 | 87 |
| 5 | 14 | 13 | 13 | 2 | 9 | 6 | | 1 | 8 | | | 1 | 25 | 10 | 102 |
| Total | 110 | 181 | 171 | 24 | 61 | 63 | 1 | 2 | 39 | 8 | 1 | 37 | 192 | 61 | 951 |

A Report on the 2010 Butterfly Survey

Graphs – By Weeks

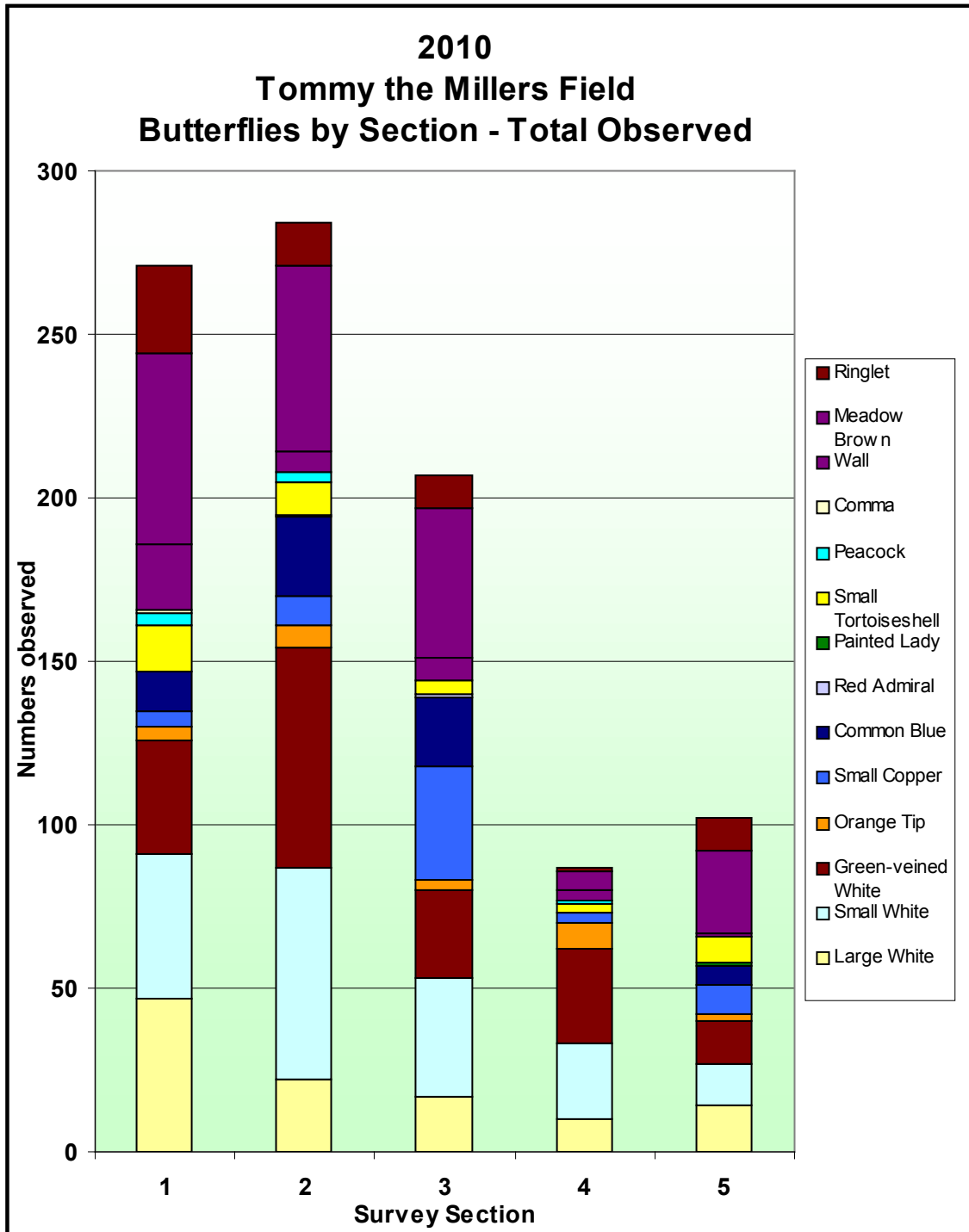
Total Butterfly Count Graphed by Weeks



A Report on the 2010 Butterfly Survey

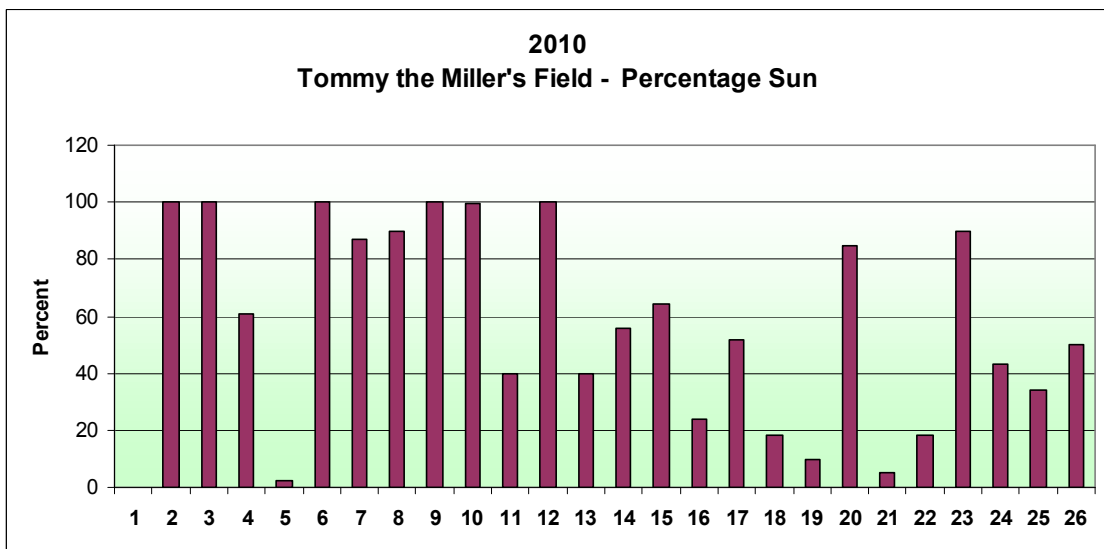
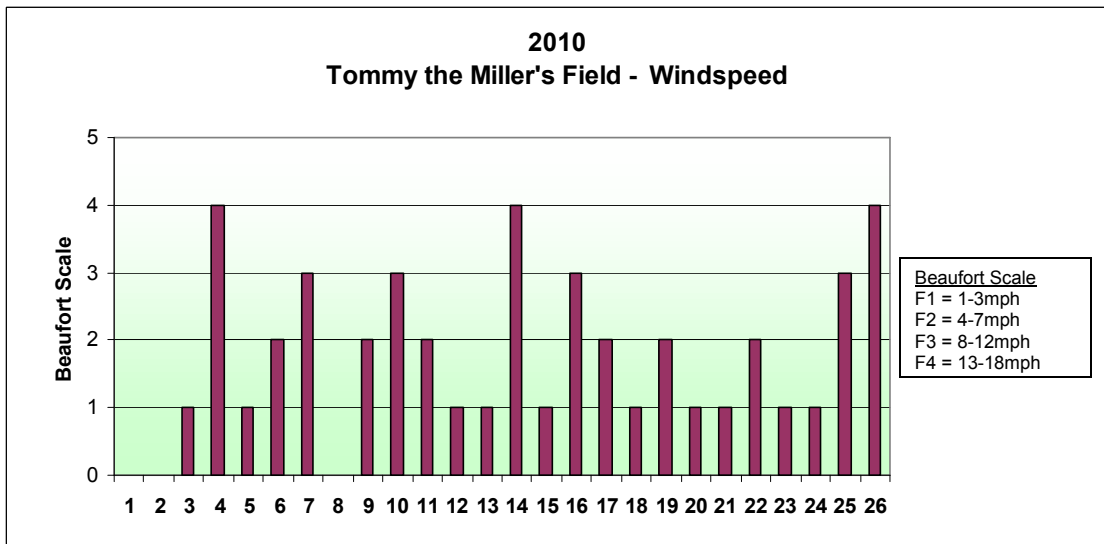
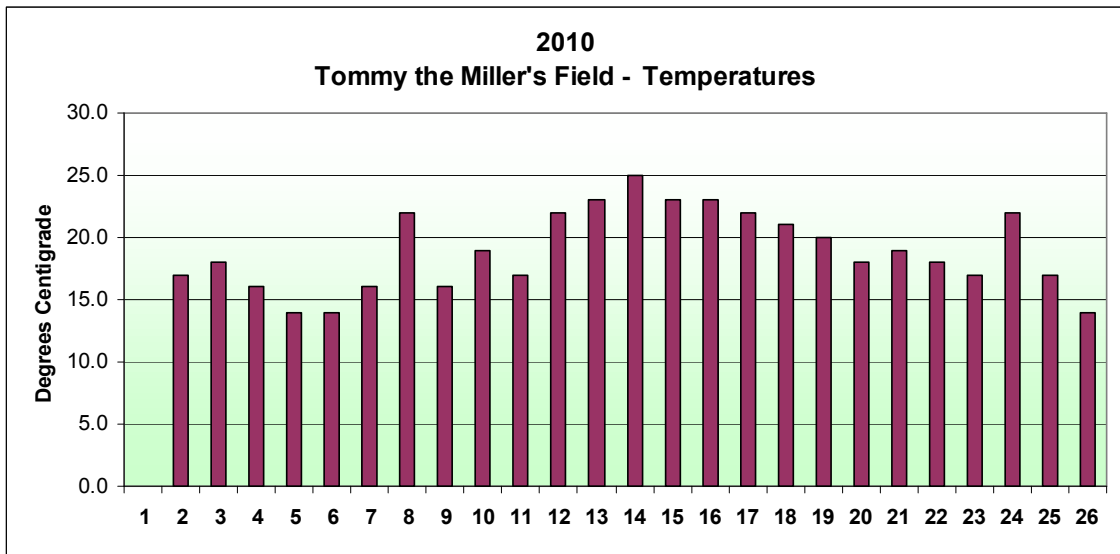
Graphs – By Section

Total Butterfly Count Graphed by Section.



A Report on the 2010 Butterfly Survey

Weather



A Report on the 2010 Butterfly Survey

Monthly weather reports

April was drier than usual, but lacked mild spring-like days. On the occasion of clear sunny weather it always seemed to be tempered by a cold wind from the north or the east. A cold clear night on the 2nd was the last white frost of the month with -2.2°C., (28.0° F), further slight frosts coming on three nights mid-month. Milder air swept in on the 24th. Total rainfall for the month was 23mm (0.9 inches), a dry month like April 2009. The warmest day was the 28th, with 19.0°C (66.2°F).

May was a rather cold month. It seemed the wind from a northerly quarter would never cease, so when a warm Atlantic sou-westerly came on the 19th bringing us a few days of high temperatures (22°C (71.6°F) on the 23rd), we thought summer had arrived. Not so. A return to the wind from the north-east brought cold temperatures and a late frost in some areas on the 26th. Rainfall was scarce with most coming overnight on the 6th, 14th, and the 30th, the total for the month being 39.5mm (1.6 ins). In addition to the slight frost on the 26th, there was frost on three night at the beginning of the month, with the coldest night on the 3rd when it fell to 1.1°C (34.0°F), and 'butterfly days' were few. By the end of the month the temperatures had crept back up to something like normal.

June was generally a pleasant and warm month. It started with several days of early sea-mists with the wind coming from the east. A change came with two nights of light rain on 7th/8th. From mid-month high pressure prevailed, bringing bright and sunny days with balmy sea breezes and rising temperatures, the peak being on the 27th with 26°C (78.8°F). It proved to be the driest June for at least 10 years with a total of only 12mm (0.5ins).

Although **July** was a warm month, it was short on bright sunny days with soaring temperatures. The warmest day was the 1st and 27°C (80.6°F) was recorded, but it was muggy and overcast with some drizzle. This was the basic pattern for the rest of the month, with only three fully sunny days. Winds were persistent but generally light from a SW quarter, but a passing cold front on the 4th brought strong SW winds up to gale force for a time. A cold night was recorded on the 23rd; with clearing skies and a cool NE wind the temperature fell to a minimum of 7°C (44.6°F). Rainfall, like last month, was below average with a monthly total of 65mm (2.6ins).

The weather for **August** was a little disappointing, as there were few long, hot, sunny days; mostly grey, quiet days interspersed with sunny spells and showers. Often the cloud cover kept it warm at night. A high of 15.6°C (60.1°F) on 20th and a cooler night brought sea-mist in at dawn. Night time temperatures fell at the end of the month to single figures, bringing the thoughts of the coming Autumn. Rainfall, like the last 4 months, was below average with only two nights of steady rain, the total for the month being 56mm (2.2 ins). Strong winds came from a northerly direction on the 12th and 29th.

September seemed to blow 'hot and cold' throughout, with average temperatures and rainfall. Heavy rain and a strong north-east wind on the 7th brought the only stormy day early in the month. An overnight temperature of

A Report on the 2010 Butterfly Survey

14.5°C (58°F) on the 11th was warm for the time of year. A cold night on the 17th did not reach freezing point, so no frosts were recorded. A mild mid-month with light winds changed quickly on the 23rd to a cold northerly and heavy showers, and gale-force winds on the 24th.

Comparison between the 2006 - 2010 Observations.

The surveys, in all years, took place between the 1st of April and the 29th of September.

| <u>Year</u> | <u>Total Number of butterflies observed</u> | <u>Number of species</u> |
|-------------|---|--------------------------|
| 2010 | 951 | 14 |
| 2009 | 999 | 14 |
| 2008 | 811 | 14 |
| 2007 | 829 | 12 |
| 2006 | 1472 | 13 |

Species observed

| 2006 | 2007 | 2008 | 2009 | 2010 |
|----------------------|----------------------|----------------------|----------------------|----------------------|
| | Comma | Comma | Comma | Comma |
| Common Blue | Common Blue | Common Blue | Common Blue | Common Blue |
| Green-veined White | Green-veined White | Green-veined White | Green-veined White | Green-veined White |
| Large White | Large White | Large White | Large White | Large White |
| Meadow Brown | Meadow Brown | Meadow Brown | Meadow Brown | Meadow Brown |
| Orange Tip | Orange Tip | Orange Tip | Orange Tip | Orange Tip |
| Painted Lady | | | Painted Lady | Painted Lady |
| Peacock | Peacock | Peacock | Peacock | Peacock |
| Red Admiral | Red Admiral | Red Admiral | Red Admiral | Red Admiral |
| Ringlet | Ringlet | Ringlet | Ringlet | Ringlet |
| Small Copper | Small Copper | Small Copper | Small Copper | Small Copper |
| | | Small Skipper | | |
| Small Tortoise shell | Small Tortoise shell | Small Tortoise shell | Small Tortoise shell | Small Tortoise shell |
| Small White | Small White | Small White | Small White | Small White |
| Wall | | Wall | Wall | Wall |

A Report on the 2010 Butterfly Survey

Weather

Much of the variation in butterfly numbers can be attributed to the differing weather experienced during the survey periods. Below is a comparison of weather records for 2006, 2007, 2008, 2009 and 2010, gathered from a continuous weather recording station at Letham Shank Farm. This is a small farm situated just to the west of the A1 on the north bank of the river Tweed. Letham Shank Farm, grid ref NT978537, just west of the survey area.

2006

| Date | Av Barometer mb. | Max. Temp °C | Min. Temp °C | Av Wind Dir. (T) | Av Wind kt. | Rainfall mm. | Sunshine hr. |
|-----------|---------------------|-----------------|-----------------|---------------------|----------------|-----------------|-----------------|
| April | 1004 | 11.7 | 3.1 | 248 | 8.1 | 9.3 | 174.2 |
| May | 1004 | 13.9 | 6.0 | 192 | 6.5 | 53.3 | 194.0 |
| June | 1012 | 18.0 | 9.5 | 189 | 4.6 | 16.7 | 170.3 |
| July | 1011 | 21.3 | 12.1 | 192 | 4.3 | 8.0 | 253.2 |
| August | 1004 | 18.0 | 11.4 | 225 | 5.2 | 96.3 | 130.3 |
| September | 1001 | 18.4 | 11.3 | 204 | 4.1 | 54.8 | 133.5 |

2007

| Date | Av Barometer mb. | Max. Temp °C | Min. Temp °C | Av Wind Dir. (T) | Av Wind kt. | Rainfall mm. | Sunshine hr. |
|-----------|---------------------|-----------------|-----------------|---------------------|----------------|-----------------|-----------------|
| April | 1019 | 15.0 | 7.3 | 162 | 4.1 | 0.9 | 53.7 |
| May | 1006 | 14.5 | 7.5 | 185 | 6.5 | 59.7 | 145.1 |
| June | 1010 | 15.1 | 10.2 | 158 | 4.8 | 65.8 | 78.6 |
| July | 1005 | 18.4 | 10.8 | 196 | 5.0 | 121.8 | 137.1 |
| August | 1011 | 17.9 | 10.7 | 216 | 6.3 | 61.1 | 131.6 |
| September | 1017 | 17.1 | 7.9 | 219 | 7.0 | 31.6 | 118.0 |

2008

| Date | Av Barometer mb. | Max. Temp °C | Min. Temp °C | Av Wind Dir. (T) | Av Wind kt. | Rainfall mm. | Sunshine hr. |
|-----------|---------------------|-----------------|-----------------|---------------------|----------------|-----------------|-----------------|
| April | 1007 | 10.7 | 4.3 | 171 | 7.9 | 64.0 | 140.60 |
| May | 1016 | 14.1 | 8.5 | 159 | 6.8 | 25.8 | 185.60 |
| June | 1011 | 17.3 | 9.5 | 205 | 6.2 | 67.5 | 141.80 |
| July | 1009 | 18.4 | 12.2 | 179 | 6.3 | 48.9 | 120.50 |
| August | 1004 | 18.2 | 12.5 | 197 | 5.5 | 168.9 | 76.90 |
| September | 1013 | 16.0 | 10.2 | 204 | 6.7 | 125.5 | 91.20 |

A Report on the 2010 Butterfly Survey

2009

| Date | Av Barometer mb. | Max. Temp °C | Min. Temp °C | Av Wind Dir. (T) | Av Wind kt. | Total Rainfall mm. | Total Sunshine hr. |
|-----------|---------------------|-----------------|-----------------|---------------------|----------------|-----------------------|-----------------------|
| April | 1010 | 12.8 | 5.7 | 177 | 7.2 | 8.3 | 153.8 |
| May | 1012 | 15.1 | 6.9 | 185 | 8.0 | 39.4 | 234.8 |
| June | 1016 | 16.0 | 10.0 | 161 | 5.9 | 22.0 | 182.0 |
| July | 1005 | 18.8 | 11.9 | 211 | 7.0 | 180.4 | 72.3 |
| August | 1008 | 18.9 | 11.9 | 214 | 6.2 | 64.4 | 30.5 |
| September | 1015 | 16.5 | 9.8 | 230 | 7.3 | 56.5 | 33.5 |

2010

| Date | Av Barometer mb. | Max. Temp °C | Min. Temp °C | Av Wind Dir. (T) | Av Wind kt. | Total Rainfall mm. | Total Sunshine hr. |
|-----------|---------------------|-----------------|-----------------|---------------------|----------------|-----------------------|-----------------------|
| April | 1016 | 12.2 | 4.6 | 222 | 6.7 | 69.7 | 64.2 |
| May | 1015 | 13.4 | 6.1 | 203 | 6.4 | 28.4 | 126.3 |
| June | 1016 | 17.4 | 10.3 | 179 | 5.0 | 11.3 | 91.2 |
| July | 1008 | 19.3 | 11.7 | 233 | 6.0 | 63.8 | 157.6 |
| August | 1010 | 17.6 | 10.2 | 236 | 5.1 | 56.6 | 166.2 |
| September | 1010 | 15.9 | 10.0 | 212 | 8.5 | 37.1 | 134.5 |

Evaluation.

It should be understood that the 951 butterflies we recorded from Tommy the Miller's Field in 2009 are only a small sample of the population the field supports. The survey "area" is a moving cube 5m x 5m x 5m; butterflies only get counted if survey cube and flight-path coincide so the majority are not recorded. Tommy the Miller's Field must be host to thousands of butterflies each season. Lightly grazed and unfertilised pastureland is now in very short supply, so Tommy the Miller's Field is extremely important for butterflies and all sorts of wildlife.

Our butterfly samples are taken in the same way as at hundreds of other sites in the UK. The data have been sent to Butterfly Conservation (www.butterfly-conservation.org.uk), who co-ordinate "independent" transects for the United Kingdom Butterfly Monitoring Scheme (UKBMS, www.ukbms.org.uk). Butterfly transects give a true indication of changes in species numbers over time (Thomas, 2005). They are especially valuable when they have been continued for a large number of years (some were initiated in 1976), when they allow monitoring of the effect on butterflies of changes in land use, habitat development, weather and climate (Brereton *et al*, 2006). Even when there are no long time-series of data, the large number of monitored sites in the survey allows comparison of data across the UK and provides reliable indices for rarer species. The results also contribute to the "sightings" sent to Butterfly Conservation by thousands of groups and individuals, and then collated which

A Report on the 2010 Butterfly Survey

are verified by local co-ordinators. These are especially useful for showing changes in distribution (Fox et al, 2006).

There is usually a marked correlation between butterfly numbers and local weather conditions. Comparison of the results from a single site for five field seasons does not tell us a great deal about long-term trends – we need to continue the butterfly transect and comparisons for several years to come. However our results do seem to illustrate the short-term effects of the weather on butterfly numbers.

Total numbers of each species recorded on the transect in successive years

| Species | Year | | | | |
|----------------------------|-------------|------------|------------|------------|------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Small Skipper | 0 | 0 | 1 | 0 | 0 |
| Large White | 136 | 69 | 81 | 116 | 110 |
| Small White | 417 | 305 | 292 | 237 | 181 |
| Green-veined White | 18 | 19 | 17 | 135 | 171 |
| Orange Tip | 79 | 43 | 31 | 31 | 24 |
| Small Copper | 40 | 7 | 9 | 48 | 61 |
| Common Blue | 27 | 3 | 13 | 45 | 63 |
| Red Admiral | 2 | 4 | 7 | 1 | 1 |
| Painted Lady | 9 | 0 | 0 | 64 | 2 |
| Small Tortoiseshell | 52 | 38 | 16 | 53 | 39 |
| Peacock | 49 | 51 | 60 | 73 | 8 |
| Comma | 0 | 3 | 2 | 1 | 1 |
| Wall | 2 | 0 | 2 | 29 | 37 |
| Meadow Brown | 391 | 145 | 151 | 75 | 192 |
| Ringlet | 250 | 142 | 129 | 91 | 61 |
| TOTAL | 1472 | 829 | 811 | 999 | 951 |

Spring numbers of those species which over-winter as adults, such as Small Tortoiseshell, Peacock and Comma, depend on the number which went into torpor the previous autumn and how many of these survived the winter (Toms, 2008). There were plenty of Peacocks around in Tommy-the-Miller's in late summer 2009 to overwinter, but in 2010 Peacock numbers were disappointingly low. Peacocks are one of the first butterflies to emerge from hibernation (Lewington, 2003), and April 2010 was cold and dank in coastal Northumberland. If insects come out of hibernation and are then unable to feed as the weather is too cold they will eventually die. Peacocks had a "good early season" inland in Berwickshire although they were less plentiful in late summer 2010 (Cowe, 2011) so the poor spring showing may be an effect of local weather (cold, damp easterly wind off the North Sea).

Small Tortoiseshell, another species that hibernates as an adult, has had several poor years nationally but is now recovering in places (Butterfly Conservation, 2011). In Tommy the Miller's numbers were reasonable, especially in spring. Were these small butterflies able cope with the cold weather better than the Peacocks? Numbers of Commas on the transect remain too small to make generalisations.

A Report on the 2010 Butterfly Survey

White butterflies usually over-winter as pupae, Orange-tips having a single generation each year while Small, Large and Green-veined Whites have a winter and one or more summer generations. Orange-tips were notably scarce this spring. Again, the cool weather may be to blame. This may also have affected numbers of Small Whites, plentiful but not as abundant as usual. Numbers of Large Whites and particularly Green-veined Whites built up steadily over the summer, the latter having a particularly good year in Tommy the Miller's. Their caterpillar food-plant (Cuckoo Flower) was able to survive the dry weather in Tommy the Miller's as the springs in the field kept the ground moist, but it seems that in parts of Berwickshire the drought had a bad effect on Cuckoo Flower and hence Green-veined Whites.(Cowe, 2011).

Common Blue and Small Copper over-winter as caterpillars, and have one or two additional summer generations. Small Coppers numbers were high in 2010, particularly the second brood individuals, with many flying well into September (mostly feeding on yarrow). Common Blues had a good year too overall, but here was no autumn peak as in 2009, which might mean a poor second brood and overwintering stock. In Britain as a whole "The Common Blue has also had an excellent year, especially its second brood in August" (Butterfly Conservation, 2011).

Ringlets and Meadow Browns also over winter as caterpillars, but have a single generation each year. Numbers of Meadow Browns were high, over a long season, in Tommy the Millers in 2010, so there must have been successful egg-laying and over wintering in 2009. In contrast numbers of Ringlets were lower than usual. This may be because the coarser grasses on which they feed are more susceptible to drought (Lewington, 2003).

The Painted Lady is a migrant, sometimes abundant in late summer. 64 Painted Ladies were recorded on the transect in Tommy the Millers in 2009, but only 2 in 2010. Red Admirals were also scarce this year. This has been the pattern nationally (Butterfly Conservation, 2011).

No Small Skippers were recorded in 2010, only 1 individual ever having been spotted on the transect (in 2008). However numbers of Wall butterflies continue to rise with 37 sightings, amazing considering only 4 were recorded in the first 3 years of the survey in Tommy the Miller's. As they are supposedly moving north and into our area in response to climate change, the recent cold winters might have a detrimental effect, or may simply keep the insects safe in torpor .

In general, slightly fewer butterflies were observed during 2010 compared with 2009. This is probably because although April, May and June were extremely dry they were relatively cool and cloudy, and even later in the year when average temperatures approached normal there were few hot, sunny "butterfly" days. Although the process of surveying often disturbs butterflies resting along the transect which fly out of cover, some may remain low down in the vegetation. Periods of strong winds and heavy rain in September curtailed the butterfly "season" unusually early.

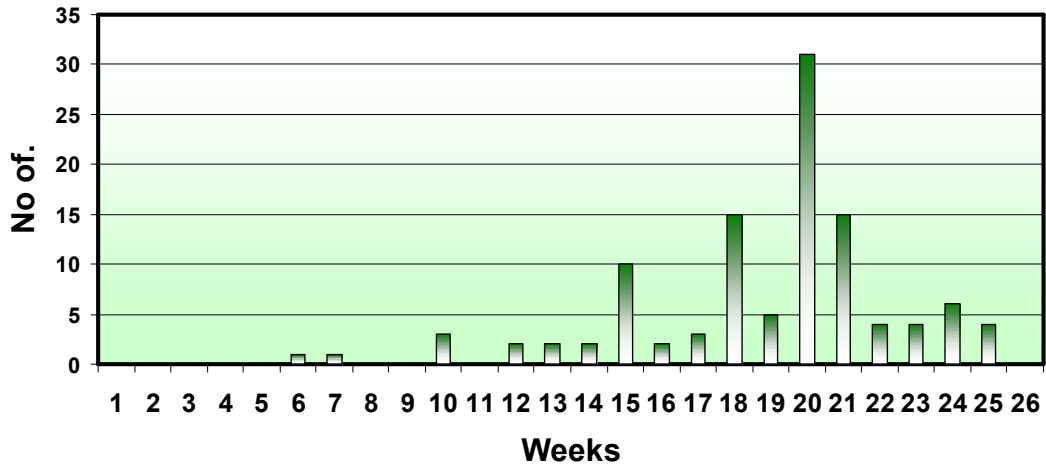
Again, it will be fascinating to find which species did succeed in reproducing well, and what has survived our second, even colder, snowy winter.

A Report on the 2010 Butterfly Survey

Butterfly Species

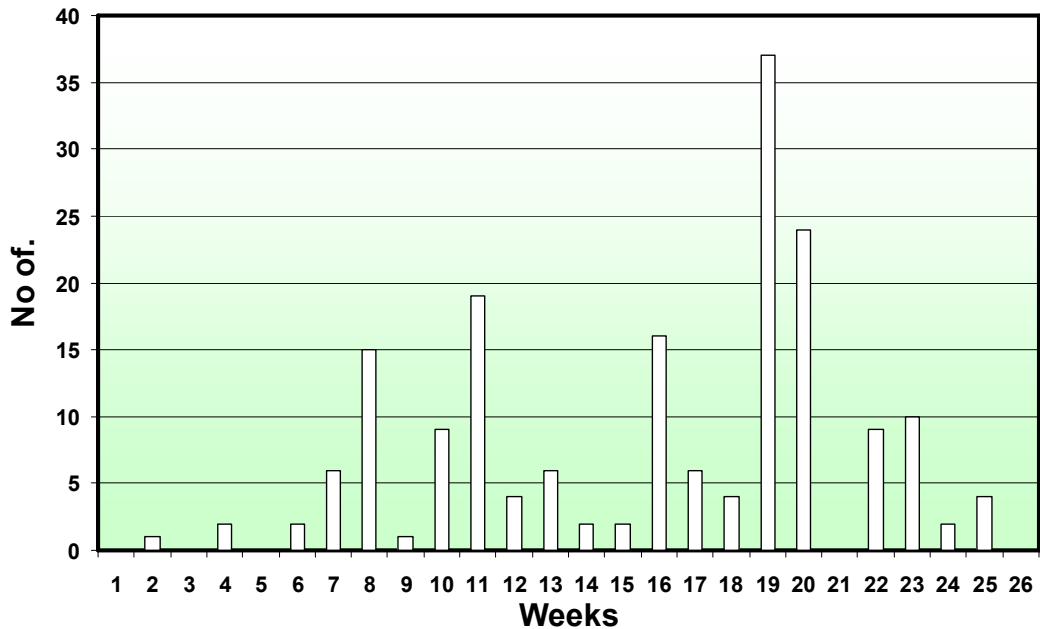
Tommy the Miller's Field -
Graph by Species

■ *Large White*



Tommy the Miller's Field -
Graph by Species

□ *Small White*

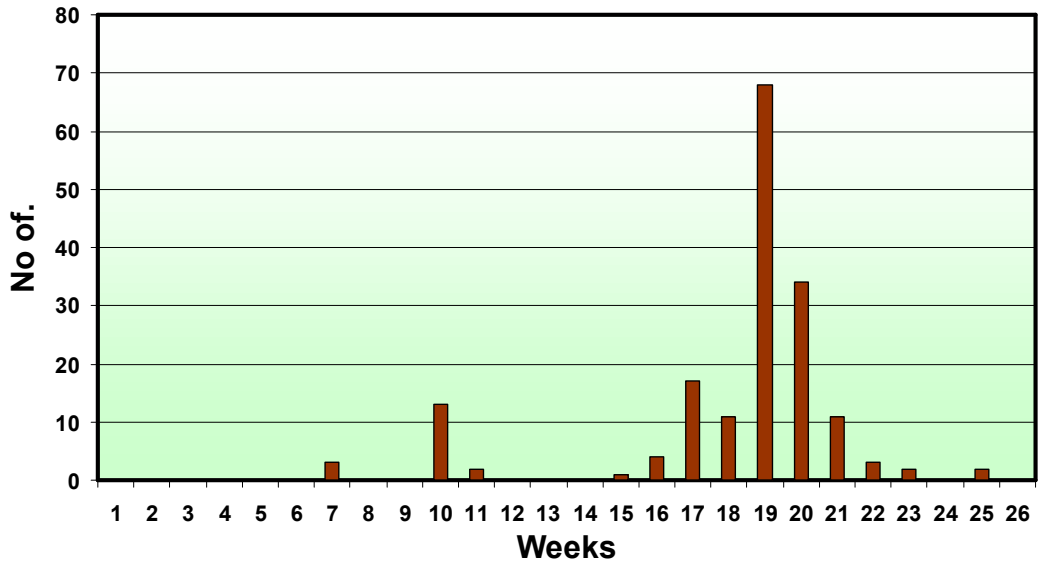


A Report on the 2010 Butterfly Survey

Tommy the Miller's Field -

■ *Green-veined White*

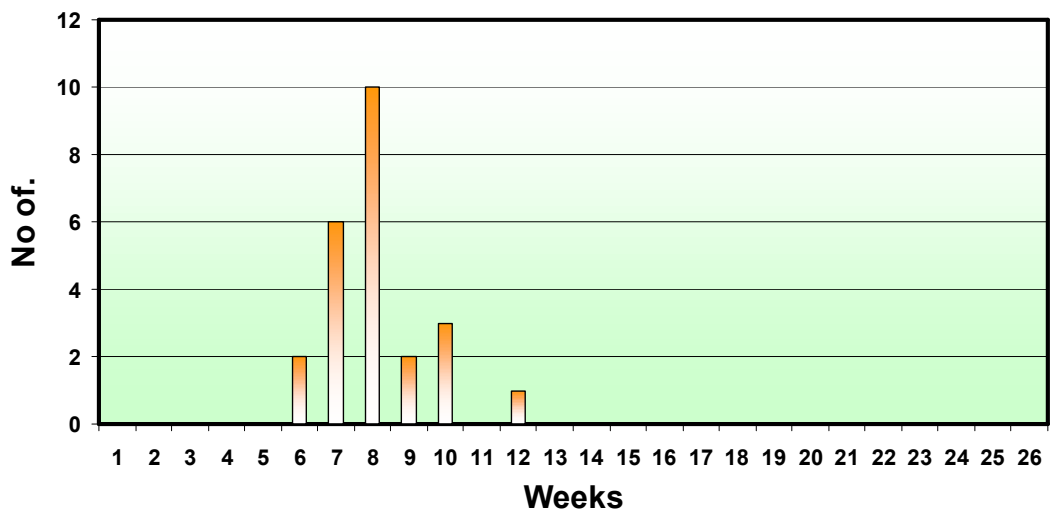
Graph by Species



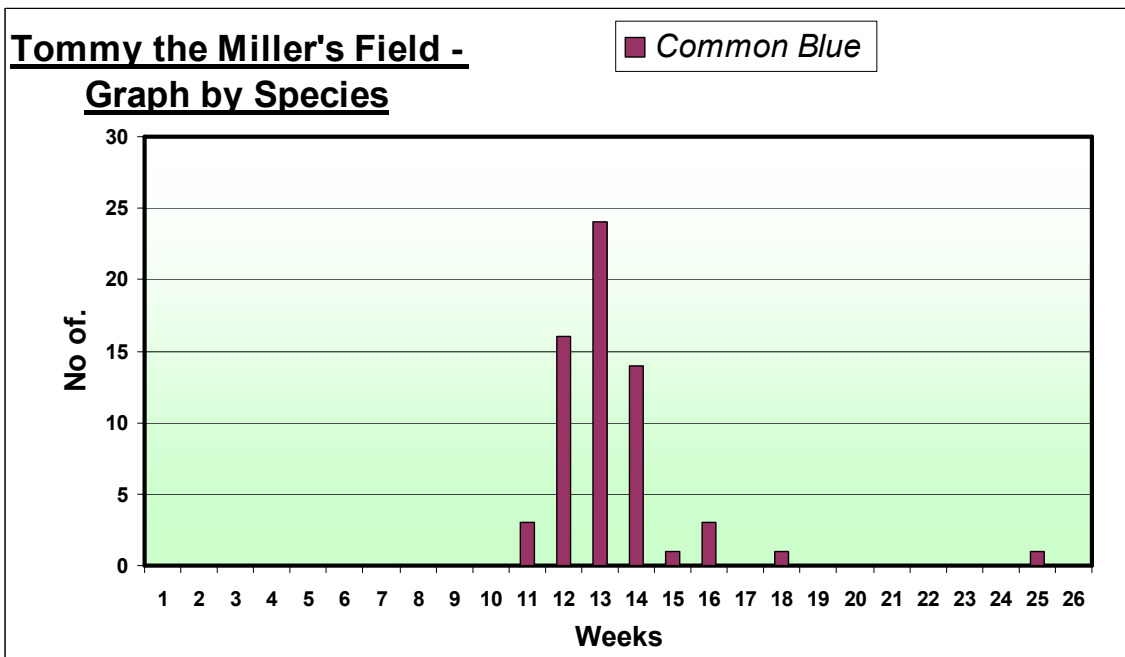
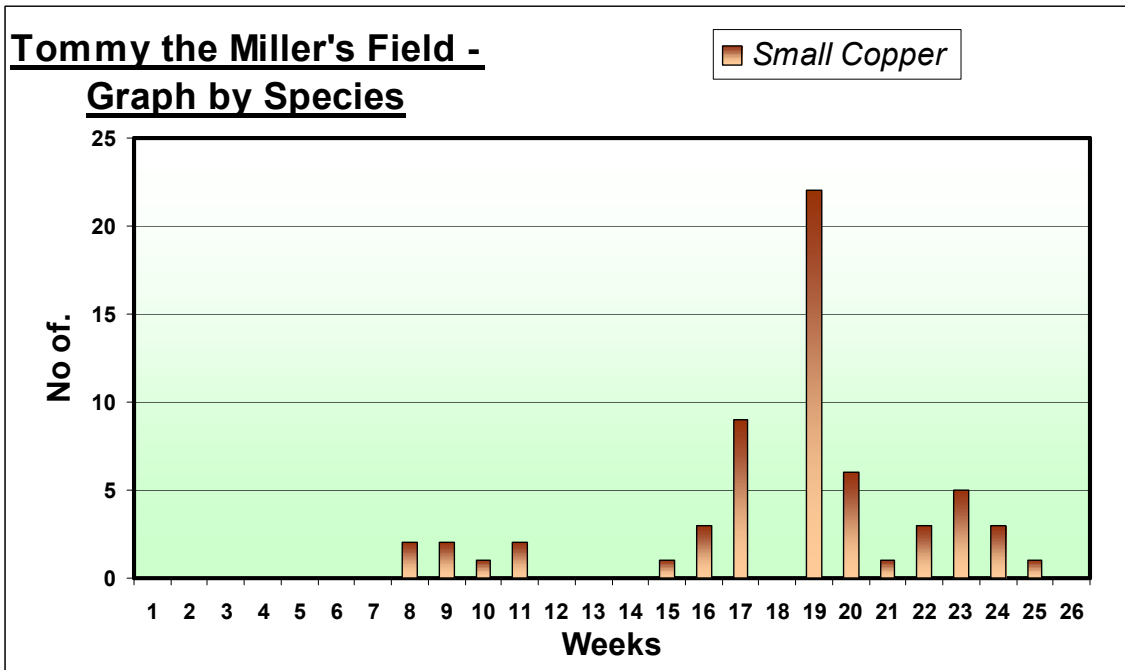
Tommy the Miller's Field -

■ *Orange Tip*

Graph by Species



A Report on the 2010 Butterfly Survey

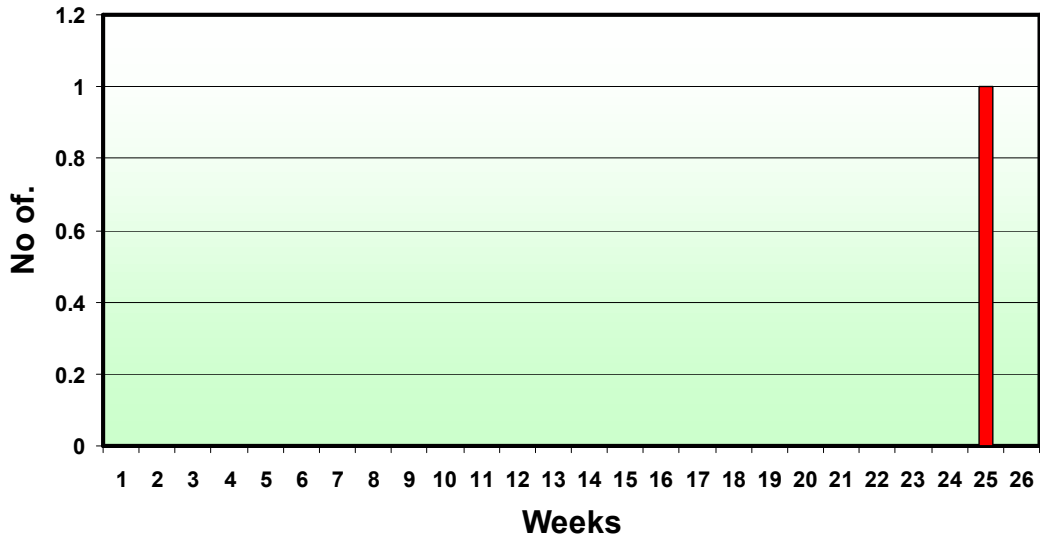


A Report on the 2010 Butterfly Survey

Tommy the Miller's Field -

■ *Red Admiral*

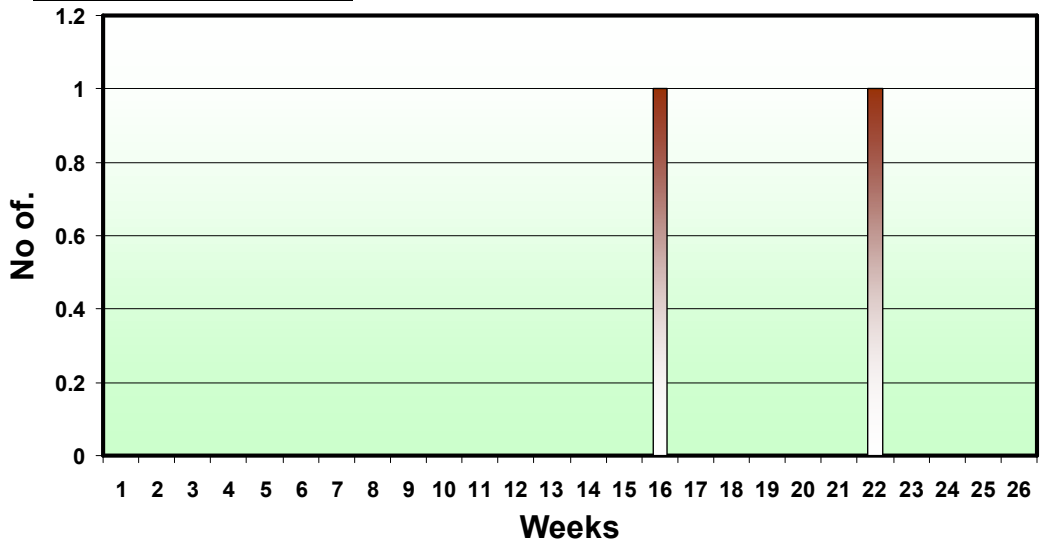
Graph by Species



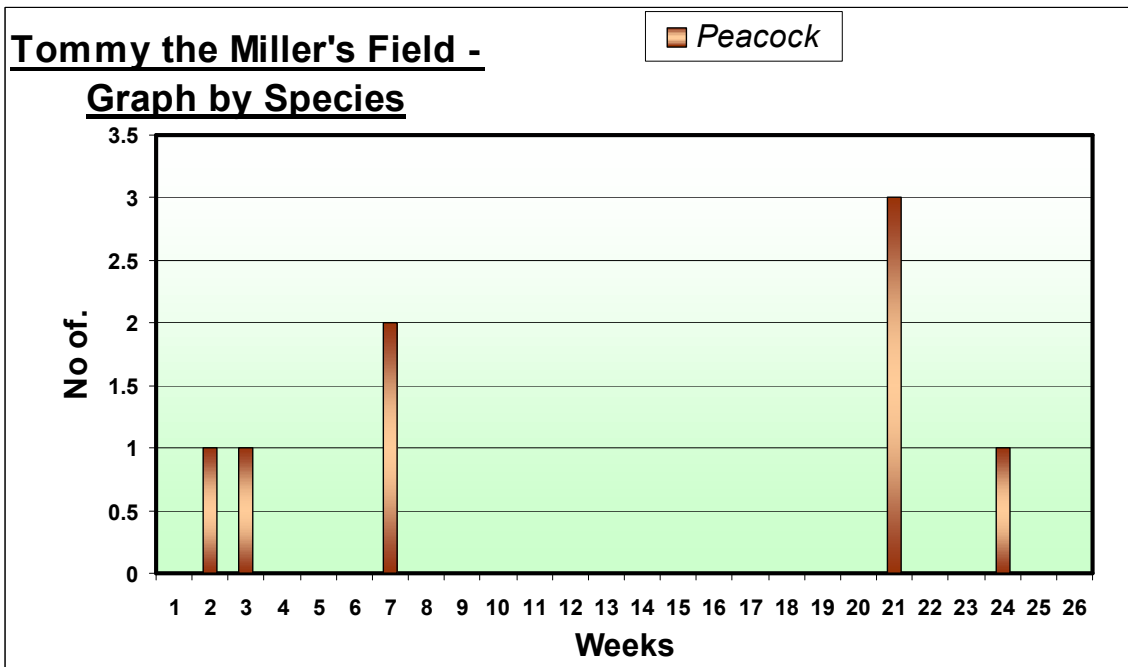
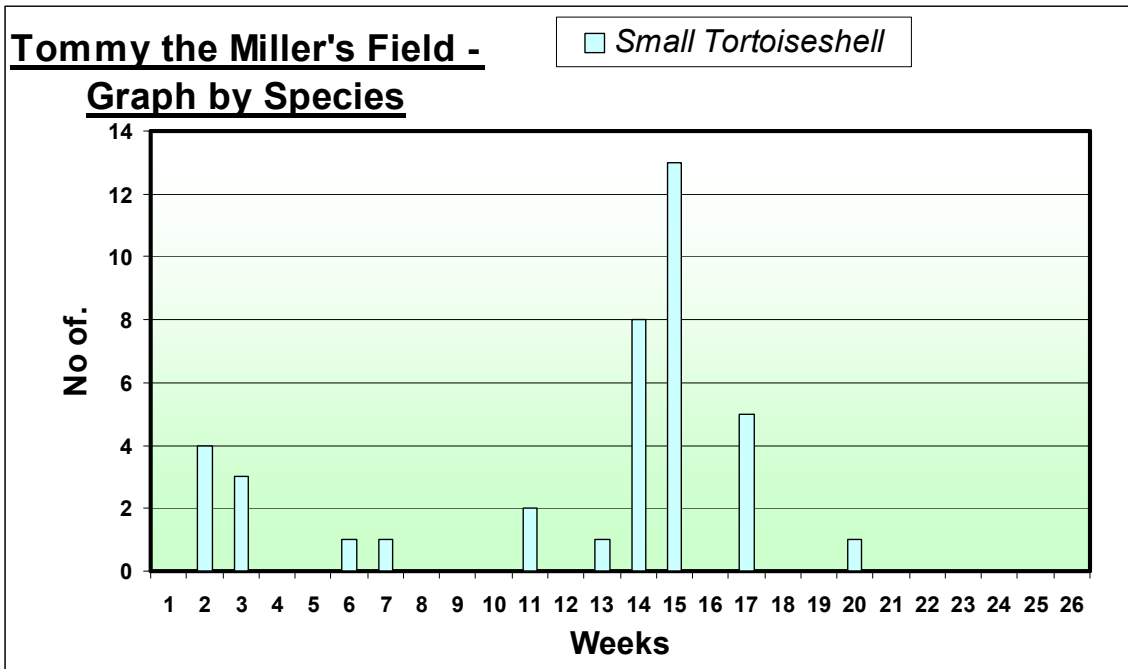
Tommy the Miller's Field -

■ *Painted Lady*

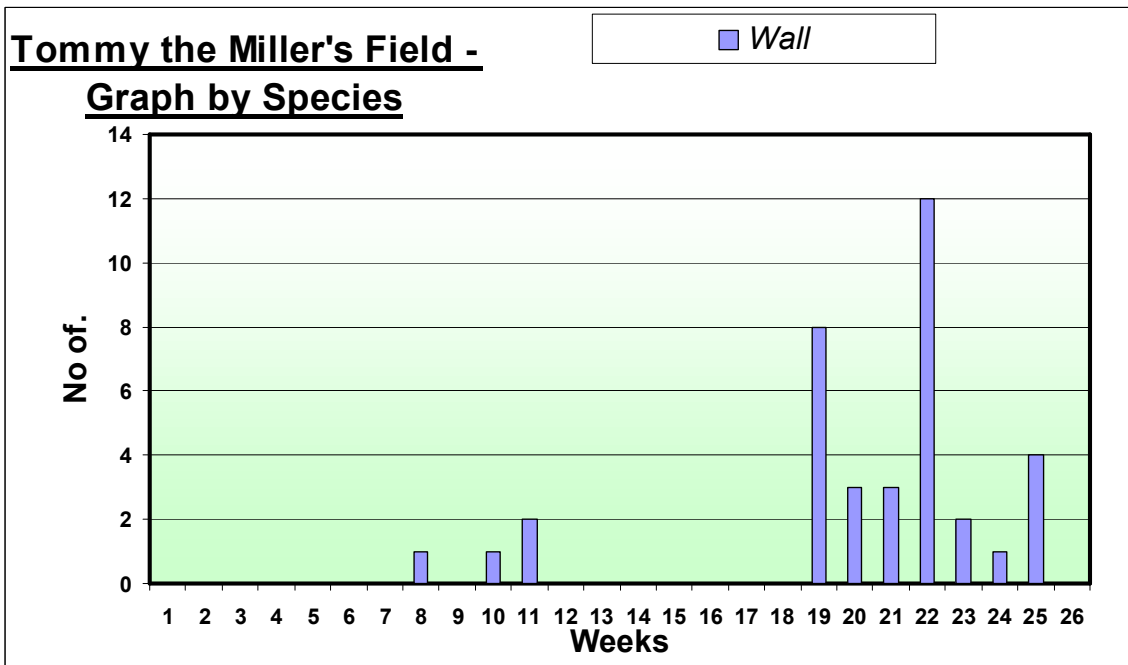
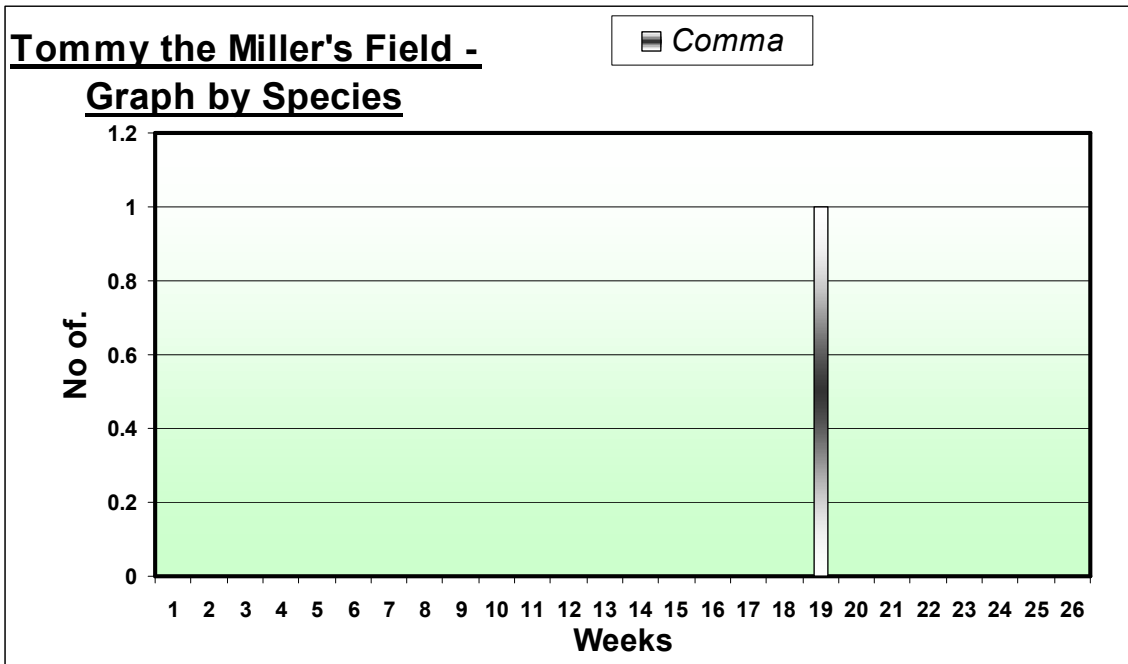
Graph by Species



A Report on the 2010 Butterfly Survey



A Report on the 2010 Butterfly Survey

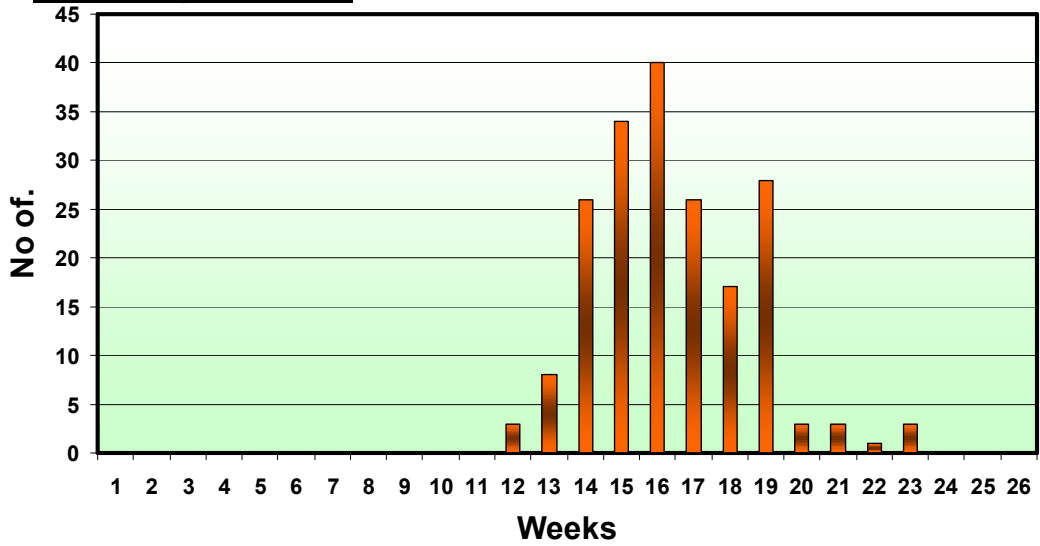


A Report on the 2010 Butterfly Survey

Tommy the Miller's Field -

■ *Meadow Brown*

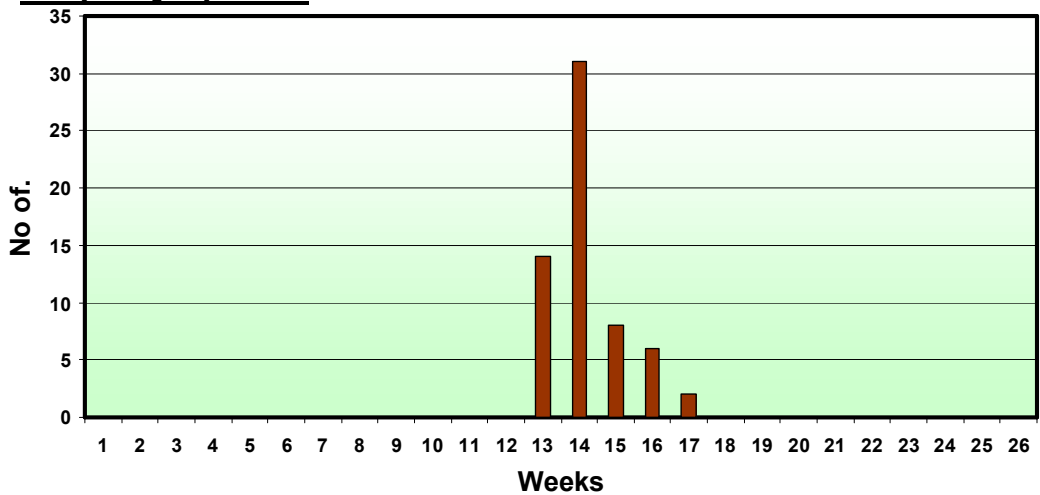
Graph by Species



Tommy the Miller's Field -

■ *Ringlet*

Graph by Species



References

Brereton, T., Roy, D. and Greatorex-Davies, N., 2007. Thirty years and counting. The contribution to conservation and ecology of butterfly-monitoring in the UK. *British Wildlife*, 17, 162-170.

Butterfly Conservation – This is the largest butterfly conservation organisation in Europe. Website - <http://www.butterfly-conservation.org>

Butterfly Conservation, 2011. http://www.butterfly-conservation.org/article/9/225/good_year_for_britains_butterflies_but_the_battle_to_save_them_continues.html

Cowe, Iain, 2011. Butterfly Season 2010. http://www.berwickwildlifegroup.org.uk/Local_Wildlife.html

Fox, R., Asher, J., Brereton, T., Roy, D. and Warren, M., 2007. *The State of Butterflies in Britain and Ireland*. Pisces Publications, Newbury.

Lewington, R., 2003. *Pocket Guide to the Butterflies of Great Britain and Ireland*. British Wildlife Publishing.

Lewington, R. and Bebbington, J. , 2005 (second edition). *Guide to the Butterflies of Britain*. Field Studies Council.

National Biodiversity Network – The National Biodiversity Network is the UK's first web based database of British wildlife. Website - <http://www.nbn.org.uk> .

Thomas, J.A., 2005. Monitoring changes in the abundance and distribution of insects using butterflies and other indicator groups. *Philosophical Transactions of the Royal Society, B*, 360, 339-357.

Toms, M. 2008. Another poor summer? *Bird Table 55, Autumn 2008*. British Trust for Ornithology.

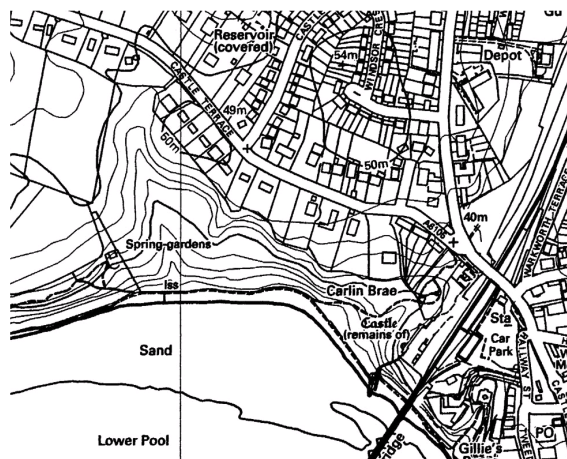
United Kingdom Butterfly Monitoring Scheme (UKBMS). Website – www.ukbms.org.uk .

Appendix 1

Details of Survey Area as supplied to Butterfly Conservation

| | | | | | |
|------------------------------------|---|------------------------------|----|----------------------------------|----------------|
| Site Name | Carlin Brae / Spring Gardens (names on OS map) (Tommy-the-Miller's Field usual local name) | | | County | Northumberland |
| OS Grid ref. (6 fig.) | NT 991 535 | OS map no. (1:50 000) | 75 | Year transect established | 2006 |
| Transect length (m) | 1,025m | | | Transect width | 5M |
| Overall habitat description | Dry semi-improved grassland with wet flushes on steep south-facing slope | | | | |
| Sites conservation status | None | | | | |
| Owner details | Mr and Mrs MacPherson, Castle Hills Farm, Berwick upon Tweed, TD15 1PB | | | | |

SITE MAP: 1:10 000 or 1:12 500 photocopy based on an OS map, showing scale and sections



Tommy-the-Miller's (Spring Gardens/ Carlin Brae)

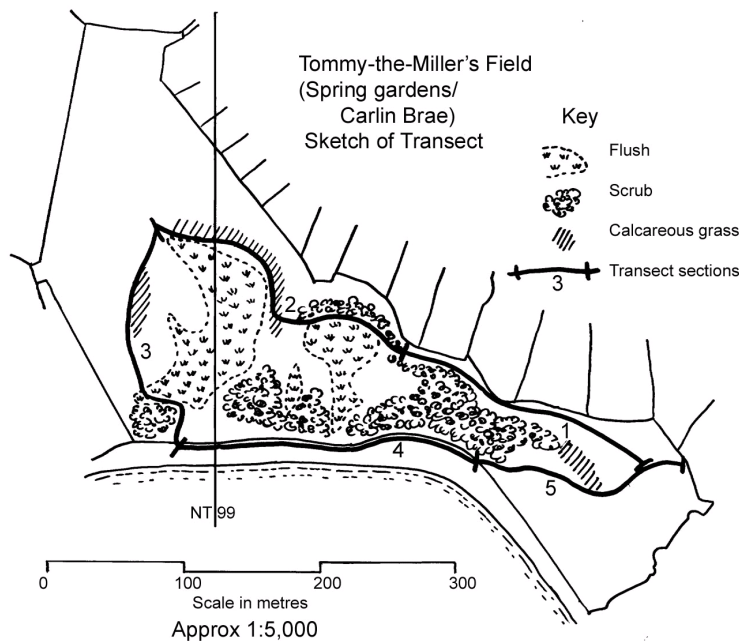
From 1:10,000 O.S.

TARGET NOTES

As you can see, the area slopes steeply towards the south, sheltered from cold winds.

The main habitat is semi-improved, dry, flower-rich neutral grassland (E2.1) with rush-dominated flushes (D4) (Sections 1&2), but there are areas of more calcareous grassland (E1.2) (Sections 1&3), substantial amounts of impenetrable hawthorn scrub (F3.1) which were necessarily skirted by the transect route (Sections 1,2&4) and Section 4 runs near the Tweed Estuary (A2) on one side (although also including bramble scrub and a warm, sunny wall). To the north of the field (outside the transect) are large mature gardens (privet, buddleja, cabbages, etc).

The field is grazed very rarely by beef cattle – much higher grazing densities would benefit the butterflies' food-plants (e.g. Sorrel, Birdsfoot Trefoil). Hardheads were an excellent nectar source later in the year, as were the numerous thistles.



A Report on the 2010 Butterfly Survey

Summary of Habitat

| | | | <u>HABITAT</u> | <u>MANAGEMENT</u> |
|-------------|------------------|--------------------|--|--|
| Section No. | Grid Ref. | Section Length (m) | Description/notes & main species | Description/notes |
| 1 | NT 992 535 | 200 | Semi-improved grassland – a mix of neutral (on drift) and calcareous (on shallower soils) with dense hawthorn scrub invading rapidly. Mature gardens to north. | Very occasional grazing by cattle, scrub invading rapidly |
| 2 | NT 990 536 | 225 | Steep bluffs with shallow calcareous soils and flower-rich grassland, deeper neutral soils mostly semi-improved, and flushes with rushes and willow herb on spring line. | Very occasional grazing by cattle. |
| 3 | NT 989 536 | 200 | Dry neutral grassland (finer grasses and sorrel), steep bluffs with calcareous soils (birdsfoot trefoil, etc) and flushed areas adjacent (outside transect) | Very occasional grazing by cattle |
| 4 | NT 991 535 | 225 | Tarred path (frequently used), with old sunny wall to north separating off dense bramble scrub. To south is rough grass and salt marsh on edge of estuary. | Ungrazed. Verges of path sometimes strimmed, very occasionally treated with weed killer. |
| 5 | NT 993 535 | 175 | Narrow, well-used tarred path through field with mostly neutral grassland. Some flower-rich calcareous grass and invading hawthorn scrub nearby. | Very occasional grazing by cattle |

Appendix 2

Observed species details and status in the United Kingdom Butterfly Monitoring Scheme database.

Comma - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=104>

Common Blue - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=106>

Green-Veined White -
<http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=99>

Large White - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=98>

Meadow Brown - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=75>

Orange Tip - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=4>

Painted Lady - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=123>

Peacock - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=84>

Red Admiral - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=122>

Ringlet - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=8>

Small Copper - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=68>

Small Skipper -
<http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=120>

Small Tortoiseshell -
<http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=2>

Small White - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=100>

Wall Brown - <http://www.ukbms.org/SpeciesFactsheets.aspx?speciesId=94>