

THE BUTTERFLIES & DRAGONFLIES
OF
KNOLL GARDENS
2010

INTRODUCTION

A preliminary survey was carried out at Knoll Gardens during the latter part of the 2009 season. Both butterfly and dragonfly species were monitored within and immediately adjacent to the gardens. This was to ascertain which species were present and the areas and plant species, or wet areas in the case of the dragonflies, that they preferred.

This is the report of the follow-up survey, which was carried out based on the British Butterfly Conservation Society (BBCS) guidelines. At first the whole of the gardens were monitored but a semi-fixed route was soon established, as the more shaded areas were not frequented by the majority of species. Here, just the cursory checks for Speckled Wood and Holly Blue were made.

The first week of the BBCS count commences on the 1st April and continues each week until the 29th September.

Owing to poor weather conditions, the monitoring did not commence until the 2nd week of the 26 week period.

The first of the dragonflies do not normally emerge until a few weeks into the BBCS count period. They do, however, continue beyond the finishing week but only for a few species - depending upon weather conditions. For the purposes of this report, as the dragonflies were monitored concurrently, it seemed logical to restrict the timing to that of the butterfly season.

TABLE & RECORD SHEETS

TABLE

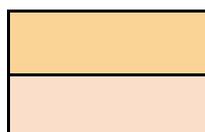
A list of the possible species of butterfly, dragonfly and damselfly that could occur within the gardens appears in Table 1.

Those that did appear during the survey are shown with coloured backgrounds:- orange for butterflies and green for dragonflies. For the few species that were seen in 2009 but not recorded for 2010 they are highlighted in a corresponding paler colour.

Also included in the table are the abbreviations for the various species, used on the record sheets.

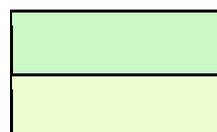
Table 1.

BUTTERFLIES		CO	DRAGONFLIES		CODE
Brimstone	Gonopteryx rhamni	B	Southern Hawker	Aeshna cyanea	A. cya
Brown Argus	Arcia agestis	BA	Brown Hawker	Aeshna grandis	A. gra
Clouded Yellow	Colias crocea	CY	Common Hawker	Aeshna juncea	A. jun
Comma	Polygonia c-album	CM	Migrant Hawker	Aeshna mixta	A. mix
Common Blue	Polyommatus icarus	CB	Emperor	Anax imperator	A. imp
Dark Green Fritillary	Mesoacidalia aglaja	DF	Golden-ringed	Cordulegaster boltonii	C. bol
Gatekeeper	Pyronia tihonus	GK	Broad-bodied Chaser	Libellula depressa	L. dep
Grayling	Hypparchia semele	GY	Four-spotted Chaser	Libellula quadrimaculata	L. qua
Green Hairstreak	Callophrys rubi	GH	Black-tailed Skimmer	Orthetrum cancellatum	O. can
Green-veined White	Pieris napi	GV	Black Darter	Sympetrum danae	S. dan
Holly Blue	Celastrina argiolus	HB	Ruddy Darter	Sympetrum sanguineum	S. san
Large Skipper	Ochlodes venatus	LS	Common Darter	Sympetrum striolatum	S. str
Large White	Pieris brassicae	LW			
Marbled White	Melanargia galathea	M			
Meadow Brown	Maniola jurtina	MB	DAMSELFLIES		
Orange Tip	Anthocharis cardamines	OT	Banded Demoiselle	Calopteryx splendens	C. spl
Painted Lady	Vanessa cardui	PL	Beautiful Demoiselle	Calopteryx virgo	C. vir
Peacock	Inachis io	PK	Azure Damselfly	Coenagrion puella	C. pue
Purple Hairstreak	Quercusia quercus	PH	Common Blue	Enallagma cyathigerum	E. cya
Red Admiral	Vanessa atalanta	RA	Common Bluetail	ISchnura elegans	I. ele
Ringlet	Aphantopus hyperantus	RT	Emerald Damselfly	Lestes sponsa	L. spo
Silver-washed	Argynnis paphia	SF	Large Red Damselfly	Phrosoma nymphula	P. nym
Small Copper	Lycaena phlaeas	SC			
Small Heath	Coenonympha pamphilus	SH			
Small Tortoiseshell	Aglais urticae	ST			
Small White	Pieris rapae	SW			
Small Skipper	Thymelicus sylvestris	SS			
Speckled Wood	Pararge aegeria	SP			
White Admiral	Limenitis camilla	WA			



= Butterfly species seen 2010

= Seen in 2009 but not 2010



= Dragonfly species seen 2010

= Seen in 2009 but not 2010

RECORD SHEETS

Each weekly record sheet consists of a map of the gardens on which abbreviation codes for the various species recorded were written, where they were seen. Letters in black represent butterfly species, those in red dragonflies. (See Annex(iii) 1 - 20)

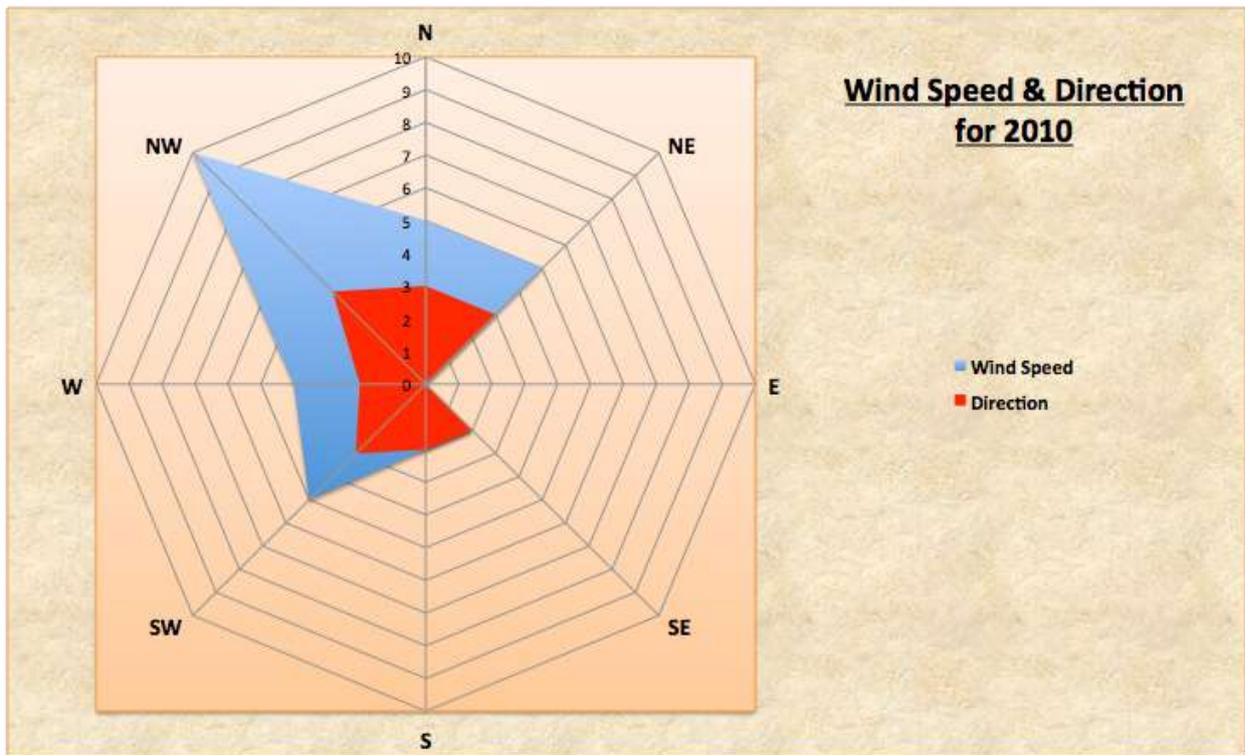
The weekly counts for both butterflies and dragonflies were entered into a spreadsheet. This would then show the flight periods and abundance for the various species, throughout the count sea son. (See Annex (i) & (ii) respectively)

The figures for any week that monitoring did not take place, due to bad weather, were calculated by taking the mean of the count prior to and after the missed week. These figures have been entered in red in the table.

From these results, charts were produced which indicate the total numbers seen and the number of species recorded each week. (See text)

WEATHER CONDITIONS

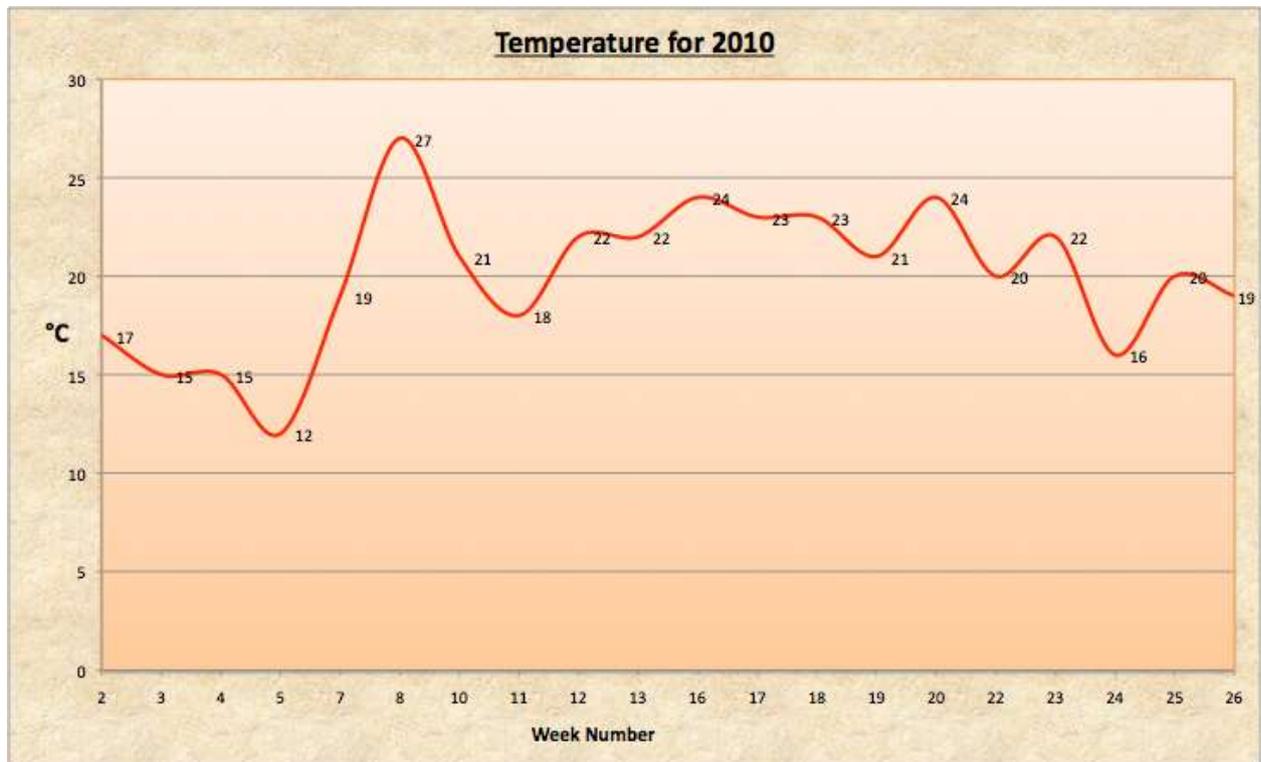
WIND



The above chart shows that the prevailing winds throughout the survey came mainly from a North-westerly direction and that their speeds were greater than any that came from the South or South-east.

This meant that migrant butterflies such as Clouded Yellow, Painted Lady, Red Admiral and a few others would encounter great difficulty in reaching our shores from the Continent.

TEMPERATURE



The graph shows the temperature variation from week to week during the survey period. After a cold start to the season, the weather perked up and warm temperatures accompanied by days of unbroken sunshine prevailed for several weeks.

This encouraged many of the early emerging butterflies to take to the wing. It also warmed the ponds and damselflies and dragonflies could take advantage of the pleasant conditions.

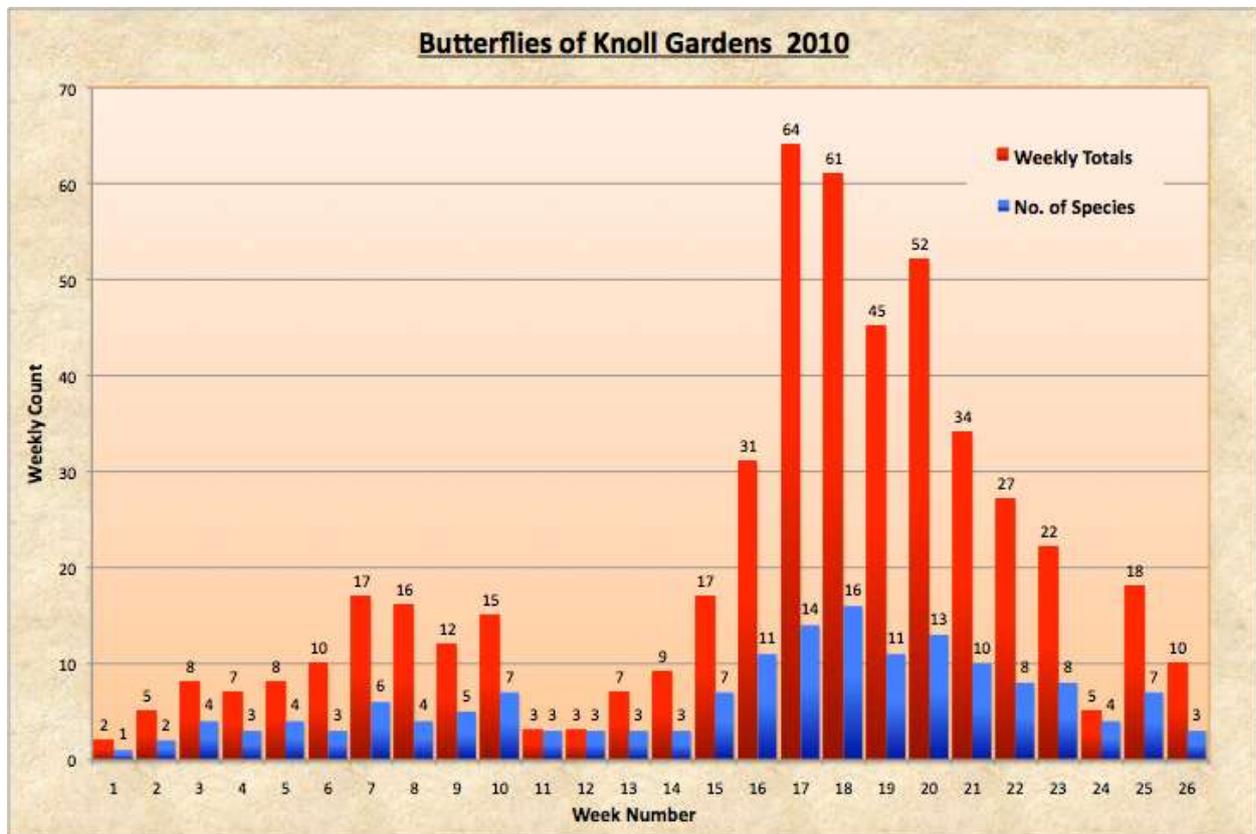
However, the continued warm spell dried up the grasses and other caterpillar foodplants of the later emerging butterflies. Consequently they were lower in numbers than usual. This included species such as Common Blue, Small Copper, Small Heath and many of the "Browns".

As a result of the watering programme at Knoll Gardens, the flowers and grasses fared better than the surrounding countryside. Thus good numbers of the species that were around took advantage of them.

OTHER OBSERVATIONS

The prolonged warm spell during the early summer of 2010, encouraged many Honey and Bumble Bees to take the opportunity to gather nectar as they did in the previous year. No day flying moths were observed but this has been a poor year for them elsewhere too. Other sightings included a Wood Mouse and a Weasel.

FINDINGS



BUTTERFLIES

A total of over 500 individuals of 21 species of butterfly were counted during the 2010 season. Two species were seen during the last few weeks of the 2009 which were not seen in 2010. This produces a grand total of 23 species occurring in the gardens.

With a preponderance of southerly winds during the spring of 2009, many migrant butterflies, especially Painted Lady and Clouded Yellow arrived here to produce a summer brood. Amazingly no Red Admirals were seen, despite being a common migrant to these shores. Their numbers were generally low everywhere else too.

As shown above, the prevailing winds during 2010 were from a northerly direction for most of the year and very few migrants made it here. However, 14 Red Admirals were counted during the season.

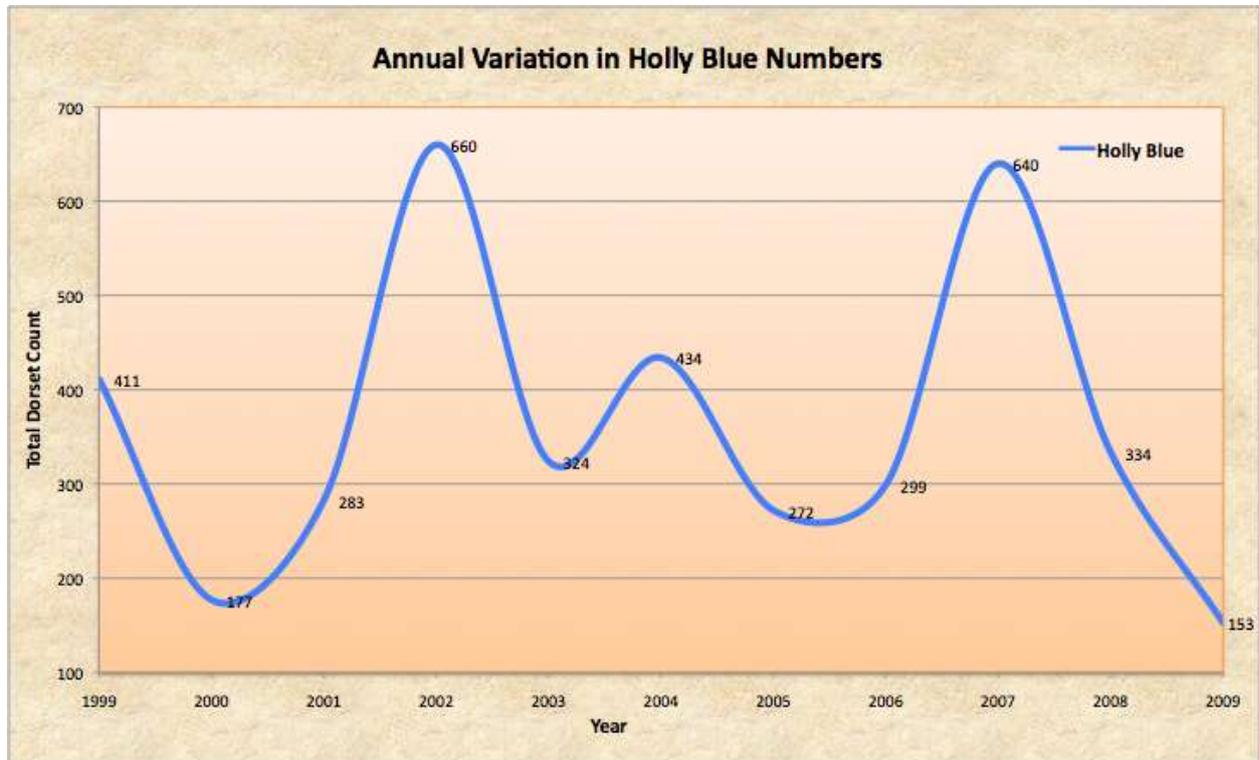
The most numerous butterfly, with a count of 71, was the Meadow Brown. Tying for second place, at 62 each, were Green-veined White and, very surprisingly Holly Blue.

These were closely followed by Large White (53), Gatekeeper (48), Comma (42) and Brimstone (30).

The presence of mature Oak trees in the gardens attracted Purple Hairstreak, Ringlet and Silver-washed Fritillary, all woodland species.

Other species of interest included Brown Argus, large numbers of Comma, and drawn to the shadier areas, with dappled sunlight, Speckled Wood and a single Grayling.

The distribution of the various species throughout the gardens can be seen on the Weekly Record Sheets (Annex iii).



Holly Blue - Because the caterpillar of this species is parasitized by a wasp, their numbers vary over a 3 - 4 year period from high to low and back up again, in the asynchronous 'parasite/prey' cycle. The last 2 years have been poor and it may well be that they made a recovery during 2010. A count of 62 is one of the highest in Dorset. In the spring it breeds on Holly and the later brood on Ivy during the summer.

ODONATA

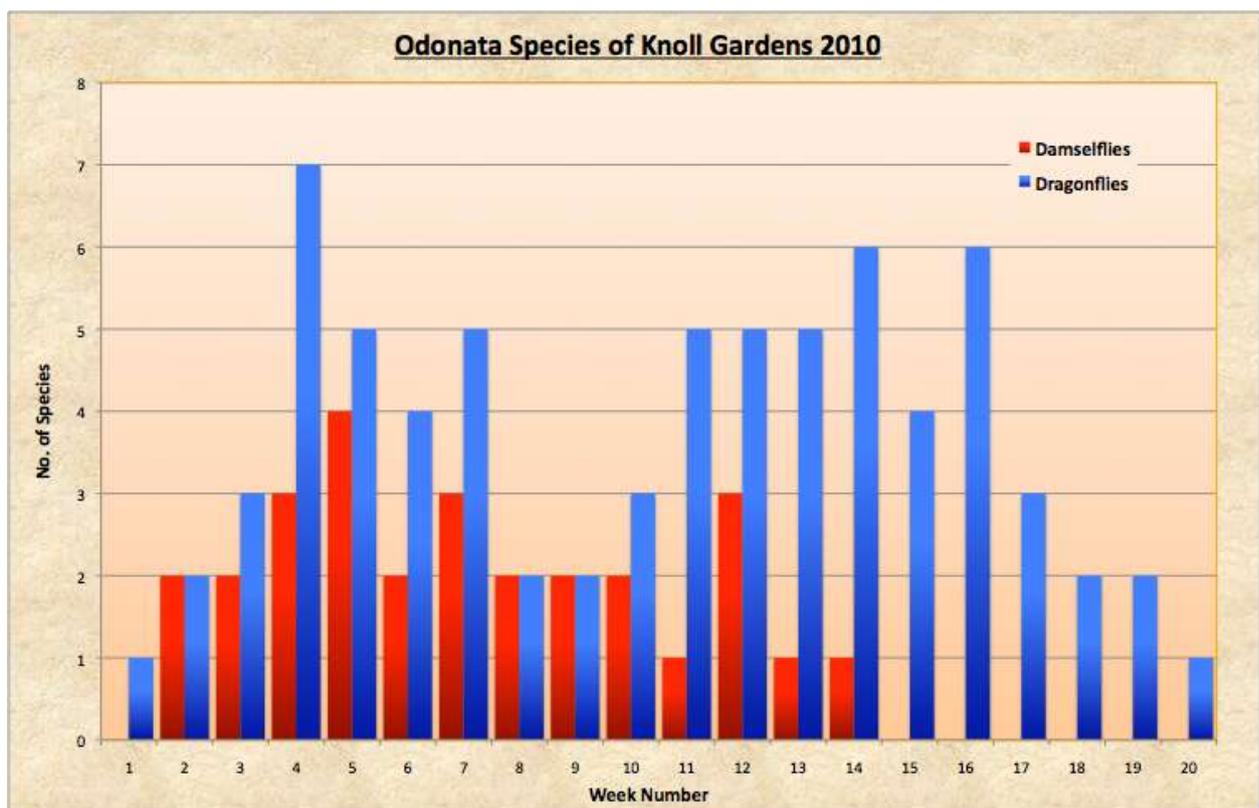


Chart of the numbers of Damsel & Dragonfly Species seen each week.

It shows that the numbers of dragonfly species are consistently higher than damsels, especially during the later weeks of the season.

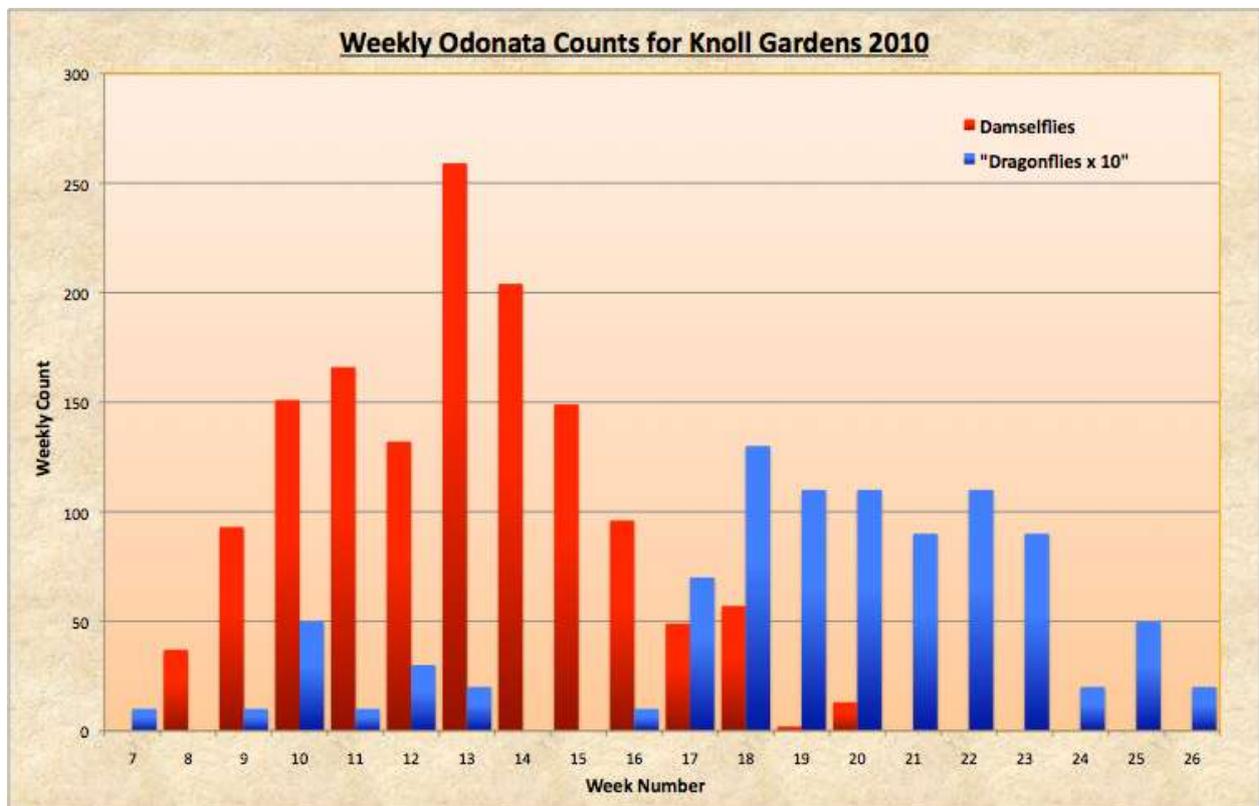


Chart of the numbers of Damselies & Dragonflies counted each week.

Damselie numbers are well in excess of dragonflies. To show the trends of the latter on same chart scale, their numbers have been multiplied by a factor of ten.

It shows the damselies hatch early in the year and in far greater numbers.

The dragonflies, like butterflies, have a range of species with different flight periods.

ODONATA

The overall total count of odonata was in excess of 1500, consisting of 15 species. (4 damselie and 11 dragonfly.) The appearance of Common Blue-tailed Damselie during the 2009 survey brings the total number of species for the gardens to 16.

DAMSELFLIES

The most numerous were Azure Damselies, appearing over a period of 13 weeks with a total count of 1,245. Many of these were paired, confirming breeding on site. The next most abundant were the Large Red Damselies with a count of 156, which only lasted 9 weeks.

The "demoiselles" are riverine species and had probably migrated into the gardens from nearby streams, although some were attracted to the Upper Waterfall inlet.

The lack of Common Blue-tailed Damselies during 2010 is a mystery, seeing that they were definitely present during 2009 and late on in the season too.

DRAGONFLIES

The earliest emerging dragonfly was the Broad-bodied Chaser, unmistakable with its broad, powder-blue abdomen.

The shaded nature of the Mill Pond and Lower Waterfall Pond attracted other early dragonflies that prefer sheltered water areas, Hairy Dragonfly and Downy Emerald respectively. Neither of these species are abundant anywhere.

Common Darters were the most numerous, 46 being counted. And as in 2009, found throughout the gardens, resting up, sunbathing on foliage or garden ornaments. They were the longest enduring dragonfly, with a flight period of 10 weeks.

The Southern Hawker, also seen during the latter weeks of the 2009, was the second most abundant species at 16 individuals. It also had the 2nd longest flight period at 9 weeks. 2009 was an exceptional year for Brown Hawker but one was seen hawking around various areas of the gardens during 2010 on no less than 5 separate occasions. Many of the species showed evidence of breeding on site, with coupled pairs and individual females egg-laying.

The discovery of a Golden-ringed Dragonfly was a surprise. They too are a riverine species, usually seen patrolling up and down streams and rivers. However, they are strong fliers and will often migrate some distances from moving water.