

BUTTERFLY CONSERVATION UPPER THAMES BRANCH

Purple Emperor (*A. iris*) Report for 2023

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Summary of 2023

The data were obtained from various sources; sightings posted on the Butterfly Conservation Upper Thames Branch website, data from 10km square observations, sightings recorded on iRecord and separate records sent to the Species Champion. The data sources were compared and combined and any duplicates were eliminated.

As always with the Purple Emperor obtaining accurate population numbers for this butterfly is particularly challenging given its liking for forest canopies. Observing the butterfly frequently relies on it taking to the wing in suitable settings and that the insect is not backlit by the sun so that accurate identifications can be made. Sometimes the Emperor will visit the ground to take minerals or fluids from animal dung or carcasses, and in these cases it is easy to identify.

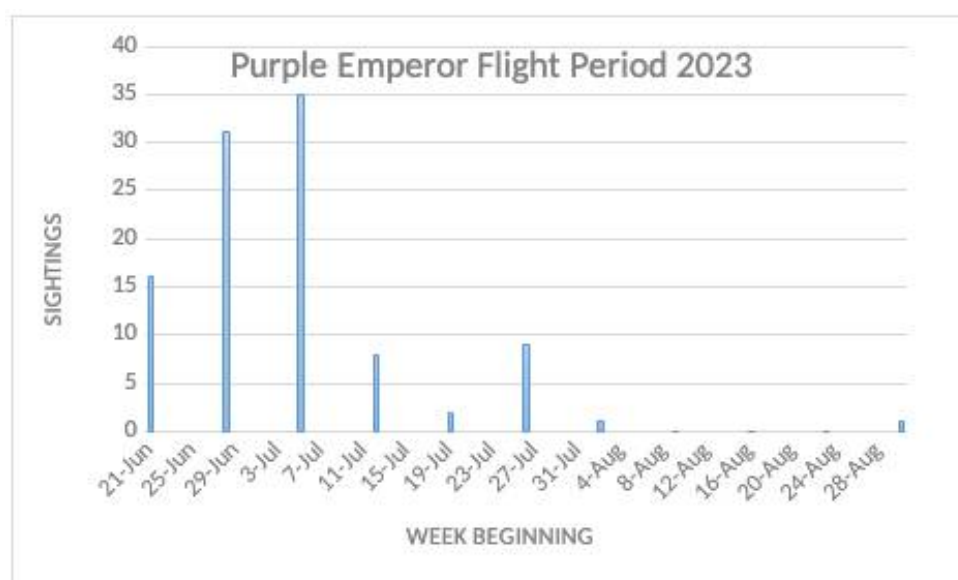
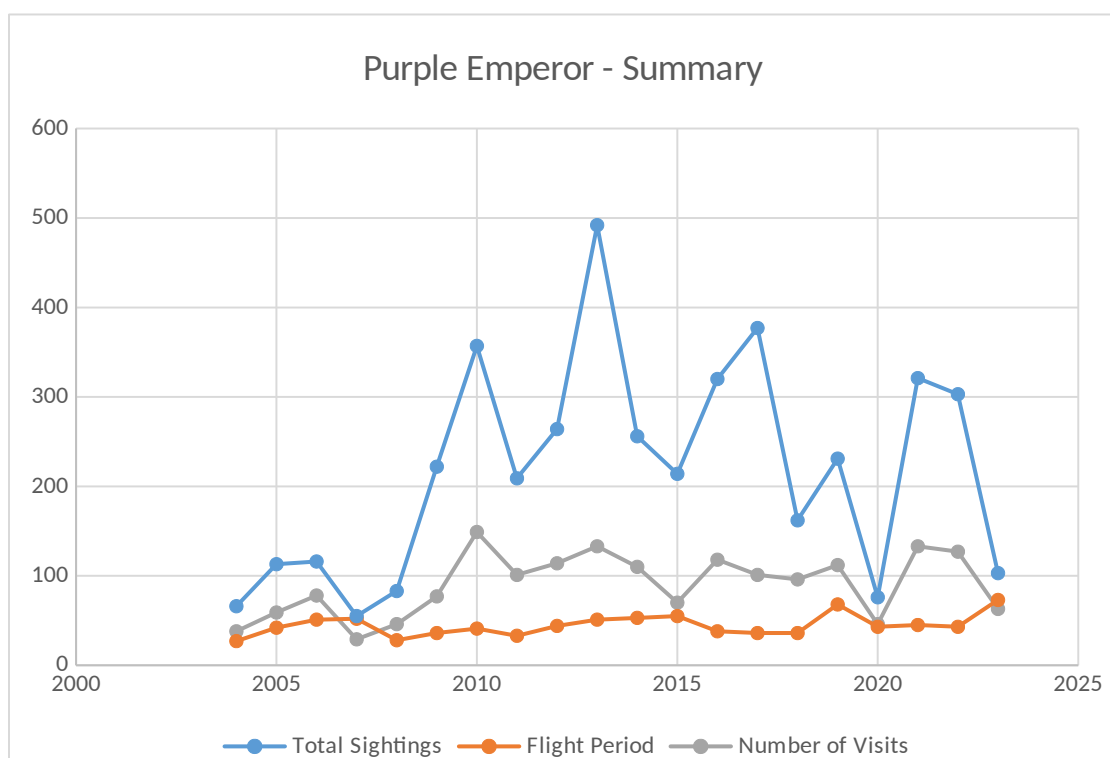
On descending from the woodland canopy, males and females are easily distinguished in appearance, the males having a distinctive purple sheen. When flying in the canopy, the males are aggressive, defending their territories from rivals and other interlopers.

Comparison with Previous Years

Year	Total Sightings	Total Visits	Date First Sighting	Date Last Sighting	Flight period (days)
2004	66	38	04-Jul	31-Jul	27
2005	113	59	27-Jun	08-Aug	42
2006	116	78	25-Jun	15-Aug	51
2007	55	29	19-Jun	10-Aug	52
2008	83	46	29-Jun	27-Jul	28
2009	222	77	25-Jun	31-Jul	36
2010	357	149	28-Jun	08-Aug	41
2011	209	101	21-Jun	24-Jul	33
2012	264	114	04-Jul	17-Aug	44
2013	492	133	01-Jul	21-Aug	51
2014	256	110	16-Jun	08-Aug	53
2015	214	70	14-Jun	08-Aug	55
2016	320	118	03-Jul	10-Aug	38
2017	377	101	17-Jun	23-Jul	36
2018	167	96	19-Jun	25-Jul	36
2019	231	112	21-Jun	28-Aug	68
2020	136	100	20-Jun	17-Aug	58

2021	321	133	26-Jun	10-Aug	45
2022	303	127	15-Jun	28-Jul	43
2023	103	63	21-Jun	2-Sep	73

Overall 2023 was quiet year for sightings and the number of insects seen per visit was relatively low (at 1.64 compared to 2.39 the previous year). The flight period started in late June which is fairly typical. However the last sighting of 2023 occurred on the 2nd of September which is a record since these reports were first compiled in 2004. This was a lone insect seen at Curridge (SU489722) recorded almost a month after the previous sighting at the beginning of August.



The Purple Emperor Flight Period and the Weather in 2023

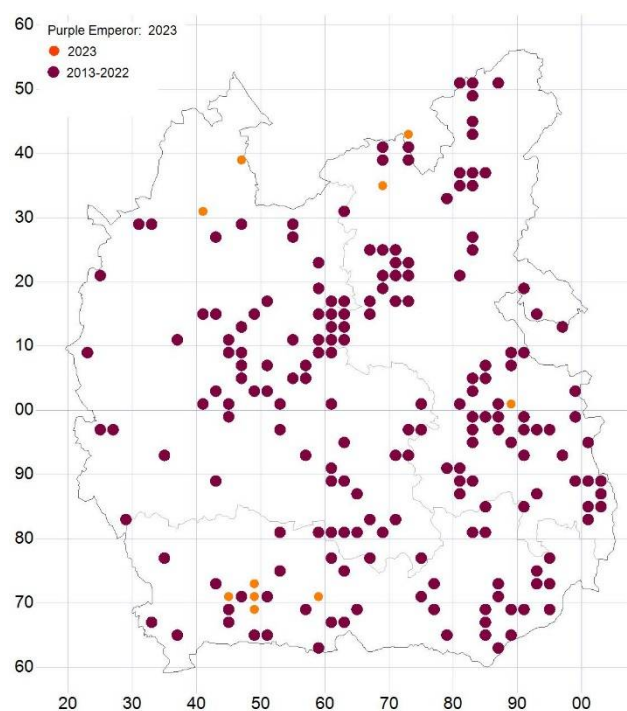
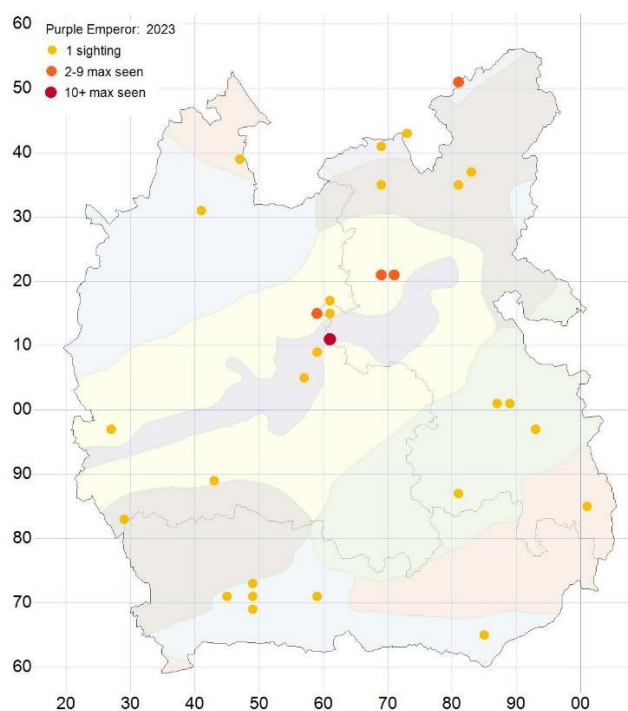
The previous summer, in 2022, was characterised by a period of drought and spells of extreme heat. The main caterpillar food plant, the Sallow, prefers moist conditions. It is tempting to speculate whether these harsh conditions contributed to the lower number of sightings in 2023, given that many species of tree exhibited signs of heat stress such as shedding branches and leaves during the summer and autumn of 2022.

The weather in the spring of 2023 was wet with below average sunshine. Things improved through most of June which was very sunny. However conditions changed in the 24th of June and the weather became unsettled with the sunshine interspersed with showers.

The number of Purple Emperor sightings fell away sharply after the middle of July. This may be due to a summer storm which hit the region on the 14th and 15th of July when heavy rain and strong winds battered the Upper Thames area. In previous years (particularly 2020) summer storms are believed to have caused the death of many roosting butterflies, particularly the males which spend the night high in the forest canopy, thus making them more vulnerable to high winds and heavy rain.

Distribution of the Purple Emperor throughout the Upper Thames Region in 2023

The maps below on the left shows the number of sightings in 2023. On the right, the map indicates locations where the Purple Emperor was sighted for the first time since the period 2013 to 2022, indicated by the orange dots.



Most sightings in 2023 were of single insects and only at 5 sites was there more than one butterfly seen. The likelihood is that the Purple Emperor is more common and more widespread in the Upper Thames region than these sightings indicate but its numbers are hard to quantify as the butterfly is difficult to spot unless searching for it specifically and because of its liking for the forest canopy. The main cluster of sightings as in previous years is focused on an area due east of the Cotswolds and north west of the Chiltern Hills. The main stronghold of the Purple Emperor in the Upper Thames region is Bernwood Forest and its nearby satellite woodlands.

The map on the right (above) shows that in 2023 there were 10 new sites where Purple Emperors were recorded compared to the period covering ten years previously (from 2013-2022). Of these, three sites were at least 4km distance from locations where Purple Emperors were previously recorded between 2013 -2022. The details of these sites are included in the table below.

Site	10km Square	Grid Reference
Great Tew Estate	SP43	SP40633021
Banbury	SP43	SP46043974
Leckhampstead Wood	SP63	SP684357

Acknowledgements

Thanks as ever to all the people who sent in sightings. Many thanks also to Peter Ogden who helped collate and process the data.