

The Purple Emperor 'Master Tree' Project

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The Purple Emperor has always been shrouded in mystery. It is this mysterium that makes it, rather than the Swallowtail, Britain's premier butterfly. Our challenge is to determine its conservation requirements without shattering this precious element, a fate that inevitably befell the Large Blue on reintroduction.

The mystery centres on the concept of the 'Master Tree', an ancient term of unknown origin that holds that Purple Emperors assemble annually around certain trees, with specific branches or even sprays being used annually. Frohawk and Tutt write about Purple Emperors gathering in late morning around a clump of oaks on a little hill at Chattenden, NE Kent, Frohawk adding, 'some distance from shallows'. It is important to note that both authors were writing after the butterfly had died out from those woods, for contemporary information would not have been publicised. It is hardly surprising that no description or location of a 'Master Tree' appears anywhere in the literature, not even in Heslop's monograph, *Notes and Views of the Purple Emperor*.

Heslop's diaries reveal that he never found any 'Master Tree' that attracted the species consistently for more than two or three years, and never searched for 'Master Trees' on high ground. In fact, his main 'Master Tree' was in a low point, along the road that separates Blackmoor Copse from Bentley Wood. It functioned intermittently. His searches were limited to roadsides and rides along which he could drive, to facilitate the use of the 37½ foot high net with which he took almost 100 specimens!

Ken Wilmott broke the mould. In the late 70s he discovered, albeit accidentally, two 'Master Tree' locations on high points at Bookham Common, Surrey. These have been used annually for at least 25 years. He must be the first person ever to divulge a 'Master Tree' location, describing them in his 1987 WWF report and in his BBCS booklet, and guiding visiting groups to the locations. The account of Purple Emperor male assembly in Jeremy Thomas' 1991 book is based on Ken's work and the scanty accounts in the old literature.

In the mid 90s I visited Bookham with Ken and noted that the two 'Master Tree' locations, or territories as Ken terms them, were in distinct arboreal and topographical situations – sheltered high point woodland glades. Ken is understandably hefted to Bookham in July, and the Bookham model had not been tested elsewhere. I determined to do that. At the same time Liz Goodyear and Andrew Middleton independently decided to do likewise in Hertfordshire, inspired by Ken's booklet.

As long ago as 1971 I found a 'Master Tree' in West Sussex, a clump of birches around which males soared and battled in certain weather conditions – until it was felled by the 1987 hurricane. In 1975 I discovered Straits Inclosure, Alice Holt Forest, where iris was relatively common. This wood is on flat terrain, with a fairly even canopy height. Sightings of males after lunchtime were so rare that I concluded that they spent the afternoons doing absolutely nothing, high up. Some do, but during these last two years I have realised that many do something radically different.

In 2001 I found a male assembly point on the edge of Alice Holt, by searching for a situation comparable to the main Bookham territory. This is a small spinney in a large garden, just over the crest of the ridge and well sheltered from prevailing winds. It is 250m from an obvious breeding ground. In numerous subsequent visits throughout the flight seasons I have never failed to see at least one male on territory here in reasonable weather. Sightings of clashing and chasing males are common here, and are characteristic of these assembly points. The favoured spot is a beech bough in a small gap adjoining the tallest tree. Males battle amongst themselves each afternoon, fighting for possession of the gap and the beech perch. Late in 2002 I realised that this is one of a series of territories in similar sheltered high point glades along the ridge that effectively runs north to south through Alice Holt. Since then, four major territories, in daily use annually, have been found, plus five others that attract lesser numbers intermittently, depending on weather conditions and the state of the flight season. All are around glades amongst broad-leaved trees in sheltered high point situations, where activity takes place out of the main air turbulence. This amounts to a sophisticated form of hill-topping. It is crucial to note that activity can be restricted to very small areas – commonly <.25 ha. Males migrate to these places daily, except in extremes of heat, cloud and wind, before dropping down slope in early evening. It took me 30 years to discover that some males leave Straits Inclosure in late morning, seemingly heading towards high ground assembly points, whilst others establish territories in a sizeable part of the wood that holds the oldest, tallest trees. Would that I had known that the 1970s, when the population was considerably larger!

The 'Master Tree' Project was formed to conduct similar studies in other woodland systems. Searching for these sheltered high ground territories is proving to be an invaluable survey technique – the butterfly was unconfirmed from Hertfordshire before Liz and Andy employed the technique there. I have also developed monitoring methodology, which works well in many of the major territories. Studies have commenced in the Oxford woods, in the Bentley Wood system, in West Sussex, and in the Northamptonshire woods, which may well hold the best populations nationally. Studies are also getting underway elsewhere within the Purple Empire. Annual reports are produced, which are available on request (contact matthew.oates@nationaltrust.org.uk) and which will lead to a major publication.

The Project aims to locate, stimulate and facilitate searches for male assembly points; liaise with relevant land owners and managers; develop methodology for monitoring adult numbers in assembly points, increase conservation knowledge; publish annual and final reports; above all, make this wonderful butterfly more accessible to people of all walks of life.

Our provisional findings are, firstly, that the concept of a single 'Master Tree' may well be a misnomer, but that there are 'Master Territories', especially in sheltered high point situations, and that there are also secondary territories. Secondly, that the butterfly may have different assembly strategies in different arboreal and topographical situations. Thirdly, that this is a highly mobile insect that can undertake daily migrations.

It is becoming increasingly apparent that quite a few 'Master Tree' situations have been known for some time, but have either not been recognised as such or have been kept as closely guarded secrets. It would be helpful if more of this type of information could reach us. For those wanting to go out and search for these wonderful places: study the contours on large scale maps, foresters stock maps, and aerial photos; prospect likely spots during the winter, and visit in reasonable weather after 12.30pm during the flight season, Enjoy and report back!

The glory of it is that we have no idea why a significant percentage of males migrate to these highly localised and specific places in the afternoons, where they behave despicably towards each other. It seems unlikely that they do it for courtship and mating, for females appear to avoid these spots like the plague and males search frenetically for females in the shallows on low ground during the mornings, with some success. I have no desire to determine why, for that would shatter the mystery of the iris.

(reproduced from 2004 Butterfly Conservation Hampshire & IOW Branch annual butterfly & moth report).