Further Notes on *Orchis purpurea* Herbivory and Conservation

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In the January 2012 edition of the *Journal of the Hardy Orchid Society*, David Johnson and Mike Gasson (Johnson, 2012; Gasson, 2012) drew attention to the worrying status of one of the largest Kentish colonies of *O. purpurea*. The near total herbivory of flowering plants in this beech plantation every year since 2007, and the unusual character of much of the damage, as previously reported by Alan Blackman (Blackman, 2008) and Derek Larter (Larter, 2008), has led to plenty of speculation regarding the culprit or culprits responsible. Deer, and in particular the Reeve's Muntjac, have frequently been suggested as a likely cause of the damage. Years when the Lady Orchids have been heavily browsed at this site have been recorded sporadically over the last 20 to 30 years – the notebook of Francis Rose records such an event in 1990. However, the last 6 consecutive years of very high levels of herbivory, resulting in very few (if any) plants surviving to set seed, are certainly without precedent and raise serious concerns regarding the future of this population.

The suggestion that deer are responsible for the damage to the Lady Orchid population here has been around for some time. In Derek Turner Ettlinger's *Illustrations of British and Irish Orchids* the author includes a photo of *O. purpurea* from this site with a comment that the colony is 'heavily predated by deer'. However, at present, deer are only very thinly established in East Kent. The only species that is frequently recorded is the Fallow Deer (Philp 2002) and even this in quite low numbers – I know of only two wild populations on the North Downs east of the River Stour, one between the villages of Stowting and Elmsted (quite close to the Kent Wildlife Trust reserves of Yockletts Bank and Spong Wood), and the other in the vicinity of Wye National Nature Reserve. There are larger populations just to the west of the Stour in Kings Wood, and they have also been recorded in Denge Wood. Fortunately the Reeves Muntjac remains absent from East Kent, though given the rate of its spread across the rest of southern England, assisted by accidental and deliberate releases, its arrival can be expected soon (Chapman *et al*. 2008). Similarly, Roe Deer remain largely confined to West Kent and to my knowledge there are no records from east of the River Stour.

Given the relative scarcity of deer in East Kent, it would seem unlikely that they are responsible for the loss of flowering spikes at this particular site. I would be inclined to share David Johnson's view that rabbits are responsible for a share of the damage

Fig. 1 Close up of *Orchis purpurea* in Kent
Fig. 2: Landscape of the beech plantation where the Lady Orchids are subject to herbivore damage
Photos by Alfred Gay

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Fig. 3: Lady Orchid with herbivore damage Photo by Alfred Gay

– they have greatly increased in the last few years and there are plenty of them in the surrounding woods and fields. However, they cannot be the cause of the type of damage referred to by Alan Blackman (the nipping of individual florets as illustrated in the photograph) that was very prevalent in 2007 and in the years since. In my opinion, birds or invertebrates would be more likely candidates for this type of damage and the rearing and feeding of a population of pheasants very close to the *O. purpurea* colony would perhaps make these game-birds prime suspects. I have certainly seen pheasants amongst the Lady Orchids on more than one occasion although I have not witnessed them eating any Lady Orchid flowers or yet noticed any similar damage in other pheasant-rearing woods with Lady Orchid populations.

Although the Lady Orchids at this site flowered very poorly in the 2012 season, there were noticeably fewer plants that had been nipped, browsed or eaten off at the stem than in previous years. Rather, the poor flowering appeared to be due to plants choosing not to flower, which was consistent with several other East Kent sites I visited – perhaps the preceding dry autumn and the heavy snowfall in February were responsible. However, I worry that over the last 6 years or so, there has also been a decline in non-flowering Lady Orchid rosettes, a trend that would not be surprising given the lack of any plants surviving to set seed, but could also be due to the plantation becoming less suitable than it once was. Whilst beech is one of the most frequent associates of *O. purpurea* (Rose 1948), the orchid's abundance under deep shade at this site is fairly atypical compared to its other strong colonies in East Kent, most of which occur in the comparatively well-lit environs of the grassland-scrub-woodland edge, or in woodland that is regularly coppiced, typically under hazel. It is also worth noting that many of the beech trees are quite young, though the plantation (on an ancient woodland site) dates back to 1948. A similar, but more mature plantation exists a few miles further north but holds far smaller numbers of *O. purpurea* and larger populations of *Cephalanthera damasonium* and *Epipactis helleborine*.

In 2002, some sensitive thinning of the beech was undertaken on the advice of Francis Rose and a few other local naturalists, due to concerns that the plantation

was becoming too dark. Declines in populations of *O. purpurea* as woodland matures have been documented at several sites and can occur very rapidly – one particular colony under hazel coppice a few miles further east declined every year from approximately 400 flowering plants in 2003 to under 50 flowering spikes in 2011. However, the results of the thinning of the beech were mixed at best; although Lady Orchid numbers remained fairly stable in the immediate years, there was a noticeable increase in the ground cover of brambles and the regeneration of sycamore and ash. This illustrates the challenges of conserving populations of *O. purpurea* as it is very difficult to find a solution that is guaranteed to work. As David Johnson points out, opening up a woodland can also encourage rabbits to move in and graze off Lady Orchid spikes, although equally they can assist control of less desirable vigorous vegetation. Additionally, it seems clear that some shade is important to preserve soil moisture levels and to reduce the spread of competitive grasses, ensuring that there is some open ground suitable for seed germination.

It may be that given these particular habitat preferences, Lady Orchid populations have always been prone to fluctuations in abundance as woodland is coppiced and then allowed to mature. The most suitable woodlands are probably those with a high level of structural diversity, with some open grassland and a high proportion of scrub. It is interesting to note that whilst it seems likely that some East Kent Lady Orchid populations declined in the latter half of the 20th century, very few colonies have been lost. The species exhibits a remarkable ability to persist in low numbers, often in the secluded corners of an old hazel thicket, or clustered around the roots of a magnificent beech tree. The recording of the Lady Orchid in 44 tetrads in Eric Philp's *A New Atlas of the Kent Flora* (2010) is a slight decrease from 48 tetrads in the original 1981 *Atlas of the Kent Flora*. It illustrates this persistence, and I suspect this latest figure may be an under recording.

With regards to this beech plantation colony, the first concern must be to establish finally what has been eating all the Lady Orchid flowers in recent years. It would perhaps also be advantageous to try to increase the amount of suitable habitat by opening up some of the adjacent woodland in a sensitive way and monitoring the results – I was notified by one naturalist that the grassland just outside the wood also used to hold large numbers of Lady Orchid as well as Musk Orchid, although this has since been ploughed and improved.

References

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