

Herbivore Pressure on Orchid Populations – Nippers Re-visited David Johnson

Mike Gasson has raised the issue of the tremendous pressure put on our native orchid populations by browsing herbivores in his last two Editorial Notes (*JHOS* 8 [3] 75 and *JHOS* 8 [4] 111). Mike referred back to one of the HOS field trips led in Kent by Alan Blackman in 2007 (*JHOS* 4 [4] 139), when Alan was forced to abandon his intended visit to a particularly fine *Orchis purpurea* site in East Kent because all the flowers had been eaten off; he considered this to be the work of Muntjac deer. Speculation arose as to the actual culprits and Derek Larter, who knew the site well, mused whether the “Nippers” could be badgers or birds (*JHOS* 5 [1] 23). Alan Blackman later took the matter a little further (*JHOS* 5 [2] 40), pointing out that he not only found whole flower spikes of the Lady Orchids had been eaten, but also individual flowers had been removed, leaving the remains of the ovary attached to the still erect stems. He thought it unlikely that badgers or birds were responsible since they are not vegetarians. No firm conclusions were drawn, and it was hoped that further observations might throw more light on the situation.

I am very familiar with the *Orchis purpurea* site which Alan and Derek discussed in their earlier *JHOS* articles, and sadly have to report that the devastation to the Lady Orchid population there has been almost total for the past two or three years. Certainly in May 2011 when I visited, I could find no Lady Orchids flowering on the site in a year when this species flowered quite well elsewhere right across the county. As Alan intimated, it appears *O. purpurea* is a particularly juicy morsel for herbivores, since the extremely large population of Common Twayblades (*Neottia ovata*) seem to flower untouched, as do the several clumps of Bird’s-nest Orchids (*Neottia nidus-avis*), which regularly flower on the site.

Who is the villain of the piece? Alan thinks it may be Muntjac deer, and I agree that deer species must be heavily involved, but I would also suggest that the humble bunny cannot be ignored. A small colony of Lesser Butterfly-orchids (*Platanthera bifolia*) flower across the road only a few hundred metres from the Lady Orchid colony. They are regularly attacked by a large ambient rabbit population, and unfortunately, only a few flowering spikes of *P. bifolia* manage to survive each year. Several other Lady Orchid colonies that I monitor suffer rabbit damage, so I know that rabbits have a taste for “Our Lady”. One such colony of Lady Orchids at Cuxton (near Rochester) was suffering severe rabbit damage, but the site’s Plantlife warden organised local volunteers to erect brushwood barriers around the main part of the colony, and I am pleased to report that in 2011, 30–40 plants flowered happily within the barriers, whilst most of those plants outside the barriers were rabbit grazed.

Returning to the East Kent *O. purpurea* site, which is in beech woodland, Alan said that in 2007 some complete flower spikes were eaten, but other stems were left

standing with only the florets “very neatly chewed off”. I agree that in those instances, deer must have been the culprits, as rabbits tend to chew off flower spikes whilst they are still close to the ground. Possibly both deer and rabbits have combined to wreak havoc on this fine Lady Orchid population, which regularly used to hold in excess of 1000 flowering plants. It is of particular concern since this large colony held far more colour and lip-shaped variants than any other Lady Orchid colony I have ever seen. Several of the true var. *albiflora* with a white lip and green hood could always be found, together with a huge range of colour variants. Also, lip variants were frequent, and occasionally some plants could be found with long-waisted florets resembling what has been termed var. *militariformis* (remnants perhaps of a past Kentish *O. militaris* population?).

I have not personally witnessed the phenomenon which Alan mentioned of individual florets being neatly removed from the otherwise undamaged spikes of Lady Orchids, but a couple of years ago, I did notice such an occurrence with Violet Helleborines (*Epipactis purpurata*). In late July 2009, I saw two fine spikes of Violet Helleborine in full flower at High Elms close to Darwin’s famous “Orchis Bank” at Downe (Bromley). To my surprise, on re-visiting some 10 days later, both spikes were still standing, but all the florets had been stripped off! As the spikes stood over 60 cm high, I can only assume they had been browsed by deer, of which I understand there are several species around the High Elms area.

From my own observations in Kent, I would suggest that there has been a massive increase in deer numbers in recent years and they have become a growing problem for many of our flowering plants, and in particular for our woodland species of orchid. Rabbits have always posed a threat, more perhaps to our downland and grassland orchids, but they will enter woodland margins and glades, and seem to “enjoy” many orchids. Fences and barriers can help to keep rabbits at bay, but not so with deer, although I understand Muntjac will only get over relatively low barriers. A problem indeed where large numbers of orchids are involved and caging is not a practical proposition.

Lost Ladies – Does It Matter? Mike Gasson

As David Johnson mentions, I made a point of drawing attention to the plight of one of the biggest and best Lady Orchid populations in Kent. My reasons were two-fold. First, for the past few years I have taken an interest in the impacts of deer on the flora of remnant ancient woodland in Norfolk, noting in particular the damage done to orchids by the introduced Reeves Muntjac. Second, I have a special affection for the species – one of my earliest, most memorable and formative orchid trips involved an overnight drive and wait until dawn for a first encounter with *Orchis purpurea*. I was

rewarded with a glorious late spring morning, trees bathed in dappled sunlight and a young badger family out for a frolic, oblivious to my presence in their back yard. The “Ladies” were spectacular and numerous; perfect flowering plants displaying subtle variations of colour and anthropomorphic form. And there was the bonus of albinos, whose flowers sported lime green hoods in place of the usual deep purple. Mornings like this remain in the memory and make a long drive and forfeited sleep massively worthwhile.

In the past, *JHOS* has carried several references to the destruction of Lady Orchid flowering spikes at one of their best sites, with various theories about the culprits aired. As David suggests, there may be several “players”, although I share Alan Blackman’s view that the Muntjac probably plays a major role. A while ago at a HOS Meeting, Alan staged a photographic exhibit that nicely illustrated the fact that this particular colony shows extensive morphological variation in its flowers, something that David also notes in his article. Furthermore, this is one of the largest populations in Kent. The preserved diaries of the botanist Francis Rose illustrate this well, with estimates of 3-4000 plants in 1991, 2000 in 1993, 1000 inflorescences in 1996, 2000 and seen to be “sub-dominant in parts of the wood” in 1999.

Contrast this with recent years when hardly an inflorescence has survived to set seed. One might argue that tubers remain to provide plants in another year but obviously the recruitment of new plants from seed is eliminated. Hence, sustained selective “herbivory” on an ageing orchid population may ultimately lead to its loss. Does this matter? There are other large colonies and a significant number of additional sites in Kent, as well as a few outpost plants elsewhere. But do we actually know the current status of *O. purpurea* across its remaining sites? Of possibly greater significance for the population in question is the extent to which its large size, long history and acknowledged phenotypic diversity indicate an important gene pool that could be relevant to future adaptability of the species. If this really is an unusually diverse colony then arguments about genetic conservation come into play and indicate that the preservation of its plants and/or its gene pool warrants serious consideration. The cause of extensive herbivore damage could be investigated further. In the deer-afflicted woods that the Norfolk Wildlife Trust manages we have used exclusion cages to differentiate rabbit and deer browse. Also, it seems worthwhile to decide whether this particular population has real significance as an unusually diverse genetic reservoir, as that would trump even its status as the location of a very large number of individual plants. Overall a case might be made for some form of site management to preserve at least a part of this important colony of Lady Orchids.

Photographs of *Orchis purpurea* inflorescences taken in seasons prior to their loss due to herbivore pressure. This illustrates the extensive phenotypic variation that is characteristic of this colony.

Photos by Alan Blackman (1-7) and Mike Gasson (8-9)

