

Management of an artificially created wildflower meadow for common blue *Polyommatus icarus* butterflies at Bunkers Park, Hertfordshire, England

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SUMMARY

Despite initial concern, a haylage cut of herb-rich meadow in mid-June 2006 did not reduce the numbers of common blue *Polyommatus icarus* butterflies. July 2006 was exceptionally hot and this undoubtedly benefited the second generation of common blues in that year.

BACKGROUND

Bunkers Park (southeast England) is thought to have been under cultivation since Roman times up until the 1990s. In 1996, Dacorum Borough Council (Hemel Hempstead, Hertfordshire) in partnership with the Herts and Middlesex Wildlife Trust, commenced conversion of 47.4 ha of the farmland into a new area of local open space. The land was ploughed and seeded with grasses and wild flowers and this area now contains wildflower meadows, young woodlands and leisure areas. Transect monitoring, undertaken by Butterfly Conservation, has been carried out on the site annually since 1998. Bunkers Park is now developing into an important butterfly habitat in Hertfordshire, with 25 species recorded up to 2006.

ACTION

Management: Since the herb-rich meadows of Bunkers Park in Hertfordshire (southeast England) were created in 1996, the annual management in most years has been a late hay cut in mid-July. This timing was agreed originally to allow herbs in the sward to set seed and for first generation butterflies, particularly common blue *Polyommatus icarus*, to breed prior to cutting. In 2004, for instance, Bottom Field (a 5.7 ha meadow within Bunkers Park) was cut during the week after 22 July. In 2006,

at the farmer's request, and after consultation with the Local Authority landowner, Dacorum Borough Council, and Herts and Middlesex Wildlife Trust, a haylage cut (producing livestock fodder part way between hay and silage) was allowed in mid-June. Mowing was seen to be in progress during a visit on 11 June, some five weeks earlier than in previous years.

At the time, concern was expressed at the possible effects this early cut might have on common blue numbers later in the year. In 2006, 1st generation common blue numbers were beginning to build-up after a particularly slow start to the season. A cold, wet period at the end of May resulted in the first common blue sighting being not until 2 June, 10-12 days later than might have been expected. Also, bird's-foot trefoil *Lotus corniculatus*, the main common blue larval foodplant, was just coming into flower.

In order that some areas were left unaffected by this early cut, by agreement, the cut on Bottom Field was not total. Two broad strips were left uncut through the middle of the field (each approx. 10 x 150 m) with a narrow uncut strip around the field margins.

Butterfly transects: In order to assess common blue numbers on an annual basis (and to try and determine what impact the earlier cut in 2006 might have on butterfly numbers), butterfly

transect monitoring was carried out by Butterfly Conservation between April and September, commencing 1998.

Habitat condition survey: In August 2004, a Butterfly Conservation 'Habitat Condition Survey' in respect of common blue, was carried out over Bottom Field. The survey covered the whole field, with sample points spaced about 20 m apart. At each sample point, grass height was measured using a drop-disc, and the presence/absence of flowering bird's-foot trefoil noted. A visit to reassess habitat condition was subsequently made on 15 August 2006, exactly two years after the 2004 survey.

CONSEQUENCES

Common blue transect results: In 2006, the final 'Index of Abundance' for common blue on Bunkers Park was 334, an increase of 12.5% over 2005 (Index = 297); and +200% over 2004 (Index = 108). If the first generation of the common blue is assumed to be those butterflies recorded during April – June; and the second generation during July – September; in 2006, 87% of all sightings were of 2nd generation butterflies, with the peak flight period occurring between the third week of July and the third week of August. The average of percentages of the final index, attributed to the two generations, for the previous seven years, 1999-2005, are: 1st gen. = 41%; 2nd gen. = 59%. Of the eight years that Bunkers Park has been monitored, 2004 is the only year that 1st generation common blues (53%) outnumbered the 2nd generation (47%).

Habitat condition survey: Bottom Field was planted in 1996 with a seed-mix containing 5% bird's-foot trefoil. In August 2004, just one month after the meadow had been mown, 55 of the 60 sample points showed early signs of bird's-foot trefoil coming into flower. The average grass height measurement was 6.2 cm. No common blues were seen on Bottom Field during the day of the survey.

The visit on 15 August 2006 (two years after the Habitat Condition Survey) presented a very different picture. Over two months had passed since the haylage cut in June, and the bird's-foot

trefoil was in full bloom over the whole field, both on the cut areas and on the uncut strips. Grass-height measurements were not taken, but it is estimated that on the mown areas grass height was in the 10-15 cm range; on the uncut strips >20cm. Common blues were seen in good numbers flying over the whole of Bottom Field; with, perhaps, a greater concentration of butterflies on the taller, denser herbage of the uncut strips.

Clover and clouded yellows: A further, unforeseen, but positive effect of the early cut in 2006 has been to encourage migrant clouded yellow *Coleas croceus* butterflies to the area. Along with the bird's-foot trefoil, red (fodder) clover *Trifolium pratense* was a constituent of the original planted seed mix. The early cut had allowed the clover to develop to flowering size at just the time migrant clouded yellows were moving through. The only previous record for clouded yellows on Bottom Field is two in 2003. In 2006 small numbers (max. 8) were to be seen in flight on every visit made between 24 July and 10 September.

Conclusions: Despite initial concern, the June 2006 cut did not result in any demonstrable drop in common blue numbers recorded for Bottom Field. After one of the worst starts to any season for the common blues on Bunkers Park, their strong recovery in the second half of the season resulted in the year as a whole, finishing better than in 2005, and within normal limits of variability. The exceptionally hot, dry July in 2006, certainly, had considerable effect on the success of the 2nd generation of common blues; it is, therefore, not wished to draw any firm conclusion as to the possible outcome, had the cutting regime not been changed.

The farmer has indicated that he will be looking to take a haylage crop off Bunkers Park in June 2007, and again in subsequent years. In the light of the favourable outcome of the changes reported in this case study, it has now been agreed that a haylage cut in June 2007 will be allowed; and that on Bottom Field, a 10 m wide strip around the field margins, and 2 x 10 m strips across the centre of the meadow, will be left uncut. The effects of these changes will be monitored and reviewed at the end of the season.