# 2.7. Dromius sigma (Rossi)

The majority of recent British records of *D sigma* come from two sites in Yorkshire, and there are two other recent records of the beetle in this county, which is clearly its British headquarters. In addition, there are recent sightings from single sites in west Norfolk and Notts. Older records are somewhat more widely scattered across eastern England, particularly in East Anglia, where it formerly occurred in both the Norfolk Broads and Cambridgeshire Fens. This is a fenland ground beetle, which occurs in wetlands amongst coarse, tussocky vegetation. The adults are believed to climb up onto the plants after dark to feed on aphids and other small invertebrates. Most captures of the beetle relate to specimens found in grass and sedge litter, or in tussocks of coarse species such as *Deschampsia cespitosa*. *D sigma* is a spring breeder that can chiefly be found from April to June. The overwintering adults can also b found in the autumn and throughout the winter months, when they have been found inside reed stems. The larva is currently unknown.

A small contract was set up in 2001-02 to investigate the status of this species at Askham Bog in Yorkshire. This was in response to specific concerns about the introduction of Exmoor pony grazing onto the site, and the effects that this was having on the tall-herb fen with a well-developed litter layer that re thought to be required by this species.

Fears for the future of *D sigma* at Askham Bog proved to be well-founded, with only a small population continuing to occur in one small part of the reserve. The introduction of ponies here has certainly had an impact in reducing the amount of suitable habitat for the beetle, but this is considered to be a minor impact compared to the impact of past drainage and scrub encroachment.

In response to the work carried out under this contract, the area of the site supporting *Dromius sigma* has been fenced from stock to allow the recovery of the tall fen habitats favoured by the beetle.

**Future action:** The fortunes of the small colony of this species at Askham Bog should continue to be monitored. Otherwise, this species is well-established at most of its existing localities and does not require further conservation action at the moment.

Monitor the colony of D sigma at Askham Bog at regular intervals (once every c. 5 years).

2.8. Harpalus froelichii

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Mark Telfer has made very significant progress in developing our understanding of the ecology and distribution of *H froelichii*, during the three years that this species has been surveyed as part of the SGBP.

One of the most significant achievements has been the discovery of the beetle at five Breckland sites, with three of these being new sites for the species. At most of these sites there appear to be large populations of this beetle. At two of the new sites for the species, adults were recorded in moth traps, and this would appear to be a very effective method of sampling this species in July and August, when the new generation of adults emerge. It is interesting that there are no moth trap records from April and May, when adults can be found by hand-searching. This suggests that dispersal chiefly occurs in the new adult generation in late summer and early autumn. It is planned to extend moth-trapping to other Breckland sites in 2002, and to also look at historic sites in Suffolk from which there are no modern records. Historical records from Dorset are now considered very likely to be erroneous.

Specimens collected from moth traps have been kept in captivity, and feeding trials have been conducted. Adults exhibit fascinating feeding behaviour, and showed a striking preference for knotgrass *Polygonum aviculare/arenasterum* seeds in captive trials

A third major element of work during the year has been the completion of an exhaustive literature search for information on the ecology and distribution of *H froelichii*. This has proved surprisingly productive, with much useful data gathered, especially from the European literature.

Whilst carrying out studies of *H froelichii*, many other important carabids have been recorded, such as *Amara fusca*, *Cymindis macularius*, *Ophonus punctatulus* and *Bembidion argenteolum*, confirming the outstanding importance of the Breck for conservation of our ground beetle fauna. The latter two species are BAP Priority species in their own right (see section 3 below).

**Future action:** Work carried out by the SGBP has established that sufficient breeding populations of *H froelichii* still exist in the Breck for this species to be considered "recovered". However, a number of its sites have no conservation status, and there is still a pressing need to use the distributional and ecological data gathered during the course of the current study to implement conservation management for this species.

- Ensure the needs of this species are incorporated into the Breck Environmentally Sensitive Area scheme and the Arable Margins HAP.
- Ensure managers of all sites with this species are aware of the presence of the beetle, and try to ensure a favourable management regime is adopted at all sites, with special emphasis on the maintenance of weedy arable field margins.

2.9. Lebia crux-minor (Linnaeus)

A limited amount of work has been carried out on this species between 2001 and 2003. It is not included in the UK BAP, but is nonetheless an extremely rare and threatened insect in Britain.

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All of the known British sites for *L crux-minor* are in England, with the most recent record coming from Ditchling Common, Sussex. Otherwise, there are a handful of records of its occurrence around the fringes of Bodmin Moor in East Cornwall. Elsewhere in the British Isles, *L crux-minor* appears to be well-established on the extensive wetlands of Ireland, but is absent from both Wales and Scotland. It is found on marshy grasslands, where it is a specialist predator of leaf beetle (Chrysomelidae) adults and larvae.

Despite visits having been made to all of the historic English sites for *L crux-minor*, no individuals of this species have been recorded. More worryingly, most of the possible habitat for the species has either been damaged by neglect, or destroyed by agricultural improvement. Ditchling Common, Sussex, from where the beetle was recorded most recently has become rather overgrown, and the area of the site from which the beetle was previously recorded has been lost to scrub encroachment, despite scrub control being carried out. There are however still other parts of this site that, though rather rank, have wet grassland with devil's-bit scabious *Succisa pratensis*, but the beetle was not re-found here during the current survey. The Cornish sites at Boconnoc and Treneglos have also been the subject of intensive survey effort. In both cases, much of the culm grassland habitat that formerly occurred here has been either destroyed by drainage, ploughing and afforestation, or has, like the Sussex site, suffered from the withdrawal of management, and the subsequent encroachment of scrub onto the site.

Between 2001 and 2003, the author has looked at ten other Culm grassland sites in Devon and Cornwall, with particular emphasis on sites lying near to those with existing records of the beetle. Two such areas were surveyed in 2001, and it is planned to search further possible new sites for the beetle in 2002. Information on the ecology of *L crux-minor*, and its British and European distribution has also been gathered during the Project, and should help to target future work more effectively.

**Future action:** This genus contains some of our rarest, and most elusive ground beetles. Though there have been considerable losses of its marshy grassland habitat in southern England, it is also possible that the range of survey techniques used to try and locate it are inefficient. With this in mind, future surveys should trial new techniques, which may be more effective in recording the species.

• Survey further sites within the historic range of the beetle trialing different search techniques, such as evening sweeping and night-searching.

## 2.10 Lebia cyanocephala (Linnaeus)

Originally this species was excluded from the UK BAP, as it was thought to be extinct in Britain at the time. Subsequently, Dr J Denton has discovered it at two sites in Surrey, and it was therefore decided that for the purposes of this Project, it should be treated as a BAP Priority species.

Dr J Denton continued a limited programme of survey for this elusive beetle at Thursley Common, during 2001 and 2002. This work was a continuation of the work that had already been carried out on it in 1999 and 2000 under the auspices of English Nature's Species Recovery Programme. Progess continues to be very limited, with only one adult recorded from the site in 2001. Despite very intensive searching of the site using hand-searching, vacuum sampling and pitfall-trapping, this continues to be an exceptionally elusive beetle. Further sampling of populations of adults and larvae of its suspected host, *Chrysolina hyperici* have also been made, though none of these were parasitised by *L cyanocephala*. Its close relative, *L chlorocephala* has been encountered on a number of occasions during the survey.

Until it is possible to sample this species more effectively, it will not be possible to understand its ecology, or to draw up a management strategy that aims to ensure its conservation.

**Future action:** It is currently unclear whether *L cyanocephala* is an extremely rare and threatened species, or simply one that is very elusive and/or poorly sampled using the range of techniques that have been employed to try and locate it up till now. It is proposed that further new sampling techniques, such as evening sweeping/beating and night-searching should be attempted, to see if these prove more effective in locating the adult.

- Re-visit Thursley Common in June 2004, and carry out two evening/night visits to the site.
- Re-survey the second Surrey site at which this species has been found.

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## 2.11. Ophonus stictus (Stephens) [= obscurus (Fabricius)]

O obscurus has an unusual distribution, being only known recently from the east midland vice counties of Leicestershire (Rutland) and Northamptonshire. There is a further uncomfirmed modern record from Warwickshire. Older records are more widespread, extending south-west to three sites around Oxford, and an isolated site in Gloucestershire. In the first half of the century most British records of O obscurus were from a cluster of sites around Cambridge, but there have been no further sightings here since 1951. Lastly, there is a single 1905 record from Colchester, N Essex.

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This beetle shows a very striking preference for abandoned quarries on outcrops of oolitic limestone, with all the Northamptonshire and Rutland colonies being from this habitat. At Geeston quarry an individual was pitfalled in an area of sparsely vegetated sheep's fescue *Festuca ovina* – wild strawberry *Fragaria vesca* grassland that had substantial quantities of bare ground (Phillips and Evans, 1996). Older records are more difficult to link to a habitat, but it seems likely that the majority of these are from similar habitats. Certainly, all the Oxford sites for which there is locality data are old limestone quarries. Most records of the adult are of specimens found underneath stones, though a singleton has been pitfalled. The larva is currently unknown, but it is likely that, like other *Ophonus* spp, both adults and larvae are seed feeders.

Limited surveys of the recent sites for this species on the oolitic limestone of Northamptonshire and Rutland have been undertaken during 2001 and 2002. In the first year, the foot-and-mouth epidemic precluded fieldwork in spring, but four days fieldwork were carried out in September. A further four days fieldwork was carried out in 2002. The two post-1980 sites at Old Sulehay Forest, Northants and Geeston Quarry, Rutland were both surveyed, and visits have also been made to five other sites on the Oolitic limestone in this area, two of which formerly supported colonies of the beetle. Unfortunately no *O stictus* were recorded during fieldwork, though it is thought that this may be because it was too late in the season for the adults to still be found. Four more days fieldwork will be carried out in spring-summer 2002.

Although no beetles were seen, a considerable amount of information has been gathered on the habitat present at the recent and historic sites from which *O stictus* has been recorded. The Geeston Quarry site from which the species has been recorded as recently as 1995, is very unpreposessing, with banks of limestone rubble supporting very sparse ruderal vegetation dominated by wild strawberry *Fragaria* vesca and "exotics" such as budleia *Budleia davidii* and evening-primrose *Oenothera* sp. Ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and bramble *Rubus fruticosus* scrub is beginning to encroach onto the site.

More promising looking, is the former site at Old Sulehay Quarry, Northamptonshire. This has very extensive areas of quarried limestone, ranging from very freshly worked areas in the active quarry, through to ruderal, grassland and scrub communities in disused areas. Pitfall traps were laid out at this site, but no *O stictus* were trapped.

A number of other species of ground beetle have been recorded during the course of survey work at these sites, including nationally scarce species such as *Platyderus* 

ruficollis, Ophonus azureus and Lebia chlorocephala. A second BAP species, Ophonus punctatulus has also been recorded from this area in the past.

A search of both the British and European literature has been undertaken, and has been incorporated into the final report that has been prepared for this species.

**Future action:** Though the limited surveys undertaken during the SGBP have been unsuccessful in re-finding this species, there is no reason to suppose that it no longer occurs in the area. It is more likely that this is a ground beetle of very ruderal habitats, which has now moved on from the disused quarries in which it has been recorded in the past into actively quarried areas.

Carry out surveys of actively quarried areas on the Lincolnshire/Northamptonshire
 Oolite, having first obtained access permission from quarry owners.

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## 2.12. Crucifix Ground Beetle Panagaeus crux-major

Dr D Bell has carried out further work on this species as part of the SGBP in 2001 and 2002. This followed on from a series of surveys that had been carried out by D Hemingway at its recent Welsh site. It was hoped that it might prove to be less elusive at its English sites than it has been in Wales.

Research during the two years has focussed on two sites; Saltfleetby-Theddlethorpe National Nature Reserve (NNR) in Lincolnshires and the River Rother in East Sussex. Survey work in 2001 at the latter site was limited to autumn and winter visits, as it was closed during the foot-and-mouth outbreak. However, it was possible to visit Saltfleetby-Theddlethorpe throughout the spring and summer, and two adults were recorded here in 2001, with a further 13 adults recorded in 2002. No adults were recorded from the River Rother during the course of the survey. A variety of techniques have been used during the two years to try and locate this beetle, chief amongst which are hand-searching, pitfall trapping, and winter-searching under bark and in flood refuse. D Boyce has also searched its former haunts on the Somerset Levels during 2002 and 2003, but has been unable to find populations of the beetle here.

A careful search of both British and European literature has been undertaken, with the aim being to try and glean as much information on the distribution and ecology of the species as possible.

#### Future action:

It is unclear whether this is a genuinely very rare and threatened species, or one that is cryptic in its habits and/or poorly sampled by the range of survey techniques used up till now. A considerable amount of resources has been devoted to trying to elucidate its ecology and distribution in Britain, with results being meagre to this point. Without the development of more effective methods of sampling the species, it is suggested that further research cannot be justified at this stage.

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• Ei be wi 2.13 Kugelann's Ground Beetle Poecilus kugelanni

JM Walters has carried out work on this species in all four years that the SGBP has been running. The contract has been extremely successful in furthering our understanding of both the ecology and distribution of the species in Britain.

P kugelanni is now known from seven sites in southern England. Five of these are in Devon, where the species has proved to be quite widespread on the East Devon Pebblebed heaths, in addition to its colonies on Bovey Heath and Aish Tor, Dartmoor. Otherwise, there are two extant colonies in the New Forest, Hants, and two in Dorset. The two latter sites were discovered by the SGBP in 2001, at Winfrith Heath and Povington Heath. At Povington, P kugelanni occurs on MoD-owned land, where the use of the site as a training ground in the use of military vehicles ensures abundant open, sandy banks ideal for this beetle. This site also supports colonies of the two other lowland heathland Priority BAP Carabids, Cicindela sylvatica and Anisodactylus nemorivagus, in what is an outstanding lowland heathland ground beetle assemblage. The MoD are keen to carry out conservation action for lowland heathland invertebrates, and in partnership with RSPB are beginning a programme of heathland management that should increase the amount of habitat available to P kugelanni and other heathland invertebrates.

Detailed autecological studies have continued at the Dartmoor site, which appears to hold the largest population of *P kugelanni* currently known in Britain. Adults have been observed feeding on other beetles and bugs, and the larvae have been found in July-August, and have been reared through to the adult state. The larvae are currently undescribed, and it is planned to undertake a full description. Rearing has confirmed that *P kugelanni* is a typical spring breeder, with the teneral adult emerging in the late summer/early autumn and overwintering. The Devil's Coach-horse *Ocypus olens* has been observed preying on adult *P kugelanni*.

The British and European literature has been searched, and this has yielded much useful information on the distribution and ecology of the species. In particular, the relationship of this species with animal dung, where it preys on coprophilous invertebrates on the Continent is a fascinating observation. In this respect, it may be no coincidence that the Dartmoor site has such a high density of the beetle. This is the one current site for *P kugelanni* which is still subject to a relatively intensive, mixed grazing regime (the New Forest sites are in a sand quarry and on a road verge). If this is a significant relationship, it seems certain that further colonies will be discovered on the extensively grazed heaths of the New Forest, and this will be a major focus of survey effort in 2002.

#### Future action:

As with a number of the other species where the SGBP has been most successful in furthering our knowledge of their distribution and ecology, the number of sites at which the beetle has now been found exceeds the figure given in the UK BAP where they can be considered to be "recovered" (5 sites). However, there is still a pressing need to ensure that land managers at both a strategic and local level are aware of the habitat and management requirements of the beetle.

• Ensure managers of all sites with this species are aware of the presence of the beetle, and try to ensure a favourable management regime is adopted at all sites, with special emphasis on the maintenance of light grazing.

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• Ensure the needs of this species are incorporated in the Upland Oak Woodland HAP.

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2.14. Edmond's ground beetle Tachys edmondsi Moore.

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Edmond's ground beetle is a tiny, dark reddish-brown Carabid. It is a great rarity that has only ever been recorded from the New Forest. It was discovered in a valley mire here in 1912, with the last record being by AM Massee in 1937. After this, there was a long hiatus during which time it was feared that it had become extinct. However, in May 2000, a Coleopterist's meeting organised in the New Forest rediscovered *T edmondsi* in a small valley mire.

The focus of work under the SGBP has continued to be on searching further suitable-looking sites for the beetle in the New Forest, though some autecological information has also been collected, and this aspect should be developed in future years.

The beetle was re-recorded at the two sub-populations at which it had previously been found in 2000. Encouragingly, a further sub-population was discovered to the northeast of these existing sites. Unfortunately, surveys of ten new areas during 2001 failed to locate any new colonies of the species in 2001, and the species is clearly very restricted, even within its tiny British range, in the central New Forest.

All three sub-populations at the main study site occur in large hummocks of Sphagnum capillifolium and Sphagnum papillosum on the interface between wet valley mire and dry heath. A feature of the humid heath within which the beetle occurs is that the Sphagnum hummocks are extremely warm, even to the human touch. This would suggest a thermophilous hygrophile, at the extreme northern limit of its distribution, and is consistent with the Mediterranean distribution postulated by Hammond (2000). As an adjunct to this, the three colonies of the beetle are all surrounded by woodland and birch scrub, which further increases the shelter and warmth of the local microclimate. Birch is a mixed blessing, as in some areas it is beginning to excessively shade otherwise suitable habitat for Tedmondsi. During 2002, detailed characterisation of the habitat requirements of this beetle will be carried out including descriptions of vegetation composition and structure, substrate type and humidity.

Since the end of the current Project, Booth (2003) has reported *T edmondsi* from two further sites in the New Forest. One of these is quite close to the other populations, but the other record is of a singleton about 3km to the south-east of the existing colonies, and it may therefore represent a distinct metapopulation of the beetle.

**Future action:** Though it is very small, *T edmondsi* is clearly a genuinely rare beetle, which is absent from many apparently suitable areas of habitat within the New Forest. Fortunately, where it does occur, it seems to be relatively abundant, and is quite easily sampled by sieving damp *Sphagnum* hummocks. Though it is probably not an endemic species, it still has a very limited world range on the west Atlantic seaboard and in the western Mediterranean. The populations in the New Forest are "relicts" that are well to the north of its nearest known colonies in France, and it is a high priority for further conservation action.

- Survey further sites in the area of the recently discovered colony of *T edmondsi*
- Collect detailed information on the physical, chemical and biological properties of the microhabitats in which *T edmondsi* adults are found.

# 3. Other BAP priority ground beetles

3.1. Amara strenua
Zimmerman, 1832.

Priority: 2

Distribution: Recently A strenua has been recorded from coastal sites in Kent

**Habitat and Ecology:** Primarily thought to be an inhabitant of the upper saltmarsh zone, where it is generally found under accumulations of plant debris. It has recently also been found at an inland site, where it occurs in numbers in flood refuse in floodplain fen. The adults have been recorded in May-June, and also in October.

The adults are phytophagous and probably feed on seeds. The larvae are thought to be carnivorous, but there are no details of their ecology. The larva is not described in Luff (1993).

Range: A West European species, known from Denmark and Latvia in the north, to Austria and Romania in the south. In the latter countries, and in other parts of continental Europe, it occurs inland on the banks of large rivers.

Management Requirements: Unknown

## References:

• Actions in UK BAP: 5.1. Monitoring only. The requirements of the species should be taken into account in the delivery of the action plans for saltmarsh and coastal and floodplain grazing marsh.

**Future Action:** This species appears to be holding its own within its limited geographical range and habitats. There is currently no need for further action to be taken for this species.

Feed habitat requirements of this species into saltmarsh and coastal grazing marsh HAPs.

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## **British Records:**

#### Post 1970

1999 - Dibden Bay, South Hants, vc11 (SU410095). Dr P Kirby.

31/10/98 - Maytham Wharf, East Sussex, vc14 (TQ8622). D Hance.

1985 - Reading Sewer, Potman's Heath, East Kent, vc15 (TQ8728). JA Parry.

12/7/83 - Pawlett Hams, N Somerset, vc6 (ST282438). One, at edge of grassy ditch behind sea defences. AP Foster.

No date - Potman's Heath, East Kent, vc15 (TQ82). PJ Hodge.

No date - Cookmere. PJ Hodge.

There is also a post 1970 record in Hyman and Parsons (1992) for south Devon, though this record has not yet been traced.

1995 - East Suffolk, vc 25 (45). Record in Luff (1998).

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1979 - Reading Sewer, Potman's Heath, East Kent, vc15 (TQ82). JA Parry.

1965 - Higham (TQ7171). SA Williams.

1961 - The Swale SSSI (TR0864). KC Side.

1955 - The Swale SSSI, Faversham Creek (TR0263). Maidstone Local Records Centre.

1951 - Stanford-le-Hope (TQ6882). PM Hammond.

1950 - South Thames Estuary and Marshes SSSI (TQ7074). Maidstone Local Records

1949 - Isle of Grain (TQ8776). LS Whicher.

1945 - South Thames Estuary and Marshes SSSI (TQ7074).

1941 - Cross, North Somerset, vc6 (ST4154). FR Browning. This locality is considered doubtful by Duff (1993).

1930 - Isle of Sheppey (TQ96).

19th Century - Isle of Wight (Fowler, 1887).

<b>3.2.</b> Anisodactylus nemorivagus (Duftschmid)	Status: Notable A
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Priority: 2

**Distribution:** This is primarily a species of the New Forest, with other recent records from heathland in Surrey, Berkshire and Wiltshire. There are also some older records from the Suffolk Breck.

**Habitat and Ecology:** This is a stenotopic inhabitant of lowland heathland in southern England. The adults have been found at the base of heather plants. The species is a spring breeder, with records of adults being from March to May. Both the adults and larvae are thought to be seed feeders. The larva appears to be undescribed.

**Range:** Found across western Europe to Asia Minor and northern Iran. It is species of open, sandy habitats throughout its range, and in Germany, it also has a strong association with heather plants.

Management Requirements: Unknown

## References:

#### **Actions in UK BAP:**

5.1 Monitoring only. The requirements of the species should be taken into account in the delivery of the action plan for lowland heathland.

#### **Future Action:**

- Recent work on *Pterostichus kugelanni* has resulted in the discovery of new sites for this species, which is not considered to be threatened currently. Implementation of management action for *P kugelanni* and *Cicndela sylvatica* should also be of benefit for this species.
- Feed habitat requirements of this species into lowland heath HAP.

## **British Records:**

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10/4/92 - New Forest, S Hants, vc11 (SU30). PJ Hodge.

10/4/92 - Stagbury Hill, New Forest, S Hants (SU2815). PJ Hodge.

1992 - New Forest, Furzley Common, S Hants, vc11 (SU2816). PJ Hodge.

28/3/86 - Chobham Common, Surrey, vc17 (SU9765). DA Lott.

1981 - Windsor Forest, Berks, vc22 (SU97?). AA Allen and JA Owen.

1974 - Pound Bottom, S Wilts, vc8 (SU2117?). DR Nash.

1973 - Hamptworth, S Wilts, vc8 (SU2419). ML Luff.

16/5/70 - New Forest, S Hants, vc11 (SU3206). RO Clarke.

5/70 - New Forest, S Hants, vc11 (SU3307). RO Clarke.

1970 - Bishop's Dyke sandpit, New Forest, S Hants, vc11. RO Clarke.

#### Pre 1970

1964 - Cavenham and Icklingham Heaths, W Suffolk, vc26 (TL77). DR Nash.

1962 - New Forest, S Hants, vc11 (SU30). SA Williams.

1951 - Ockham (TQ0756). LS Whicher.

1939 – Windsor Forest, Berks vc22 (SU97).

1926 - Redbridge (SY7888). FH Haines.

1926 - Puddletown (SY7594). FH Haines.

1916 - Crowthorne, Berks, vc22 (SU8464).

10/5/11 - Woking, Surrey, vc11 (TQ0058). H St J K Donisthorpe.

#### Other

No date - Tuddenham, W Suffolk, vc 26 (TL77). AE Gardner.