# The Doncaster Naturalist

Volume 2 Number 2 October 2011

Doncaster Naturalists' Society

# Editorial

It has been another busy year for the Doncaster Naturalists' Society, thanks to the efforts of Louise Hill, our indefatigable President. She has ensured that the DNS is one of the most active of local natural history societies, and, together with Pip Seccombe, has organised a full set of activities for the forseeable future. Several DNS members also took part in field work over the last few years for a new atlas of the region's flora. The results of their labours, under the direction of Geoffrey Wilmore, will soon be available to see. The forthcoming launch in Doncaster of *The South Yorkshire Plant Atlas*, edited by Geoffrey Wilmore, Jeff Lunn and Professor Rodwell is a notable coup, and means that the Society will be playing host to many of the region's top naturalists.

Botanical themes feature strongly in this issue of *The Doncaster Naturalist*. Pip Seccombe's update on her work to protect the Fritllaries at Owston is a fascinating story with a very positive result. Less happy though are the articles concerning invasive alien plants and the problems thy are causing. Owls and their pellets are topics for two articles which provide us with insights into their diets and other habits.

This edition of *The Doncaster Naturalist* inevitably looks back at the past activities of our members and friends. The range of topics is again wide, and we have sufficient material to produce an edition with fourty-four pages this time. Contributions are welcomed from all, whether they are reports of research, descriptive anecdotes, drawings, poetry or photographs. I can't promise to publish everything received, but I will try to reflect the variety of material and contributors.

Paul Simmons

# The Doncaster Naturalist

Volume 2 Number 2 October 2011


## Parliamentary land enclosures in the Doncaster Metropolitan Borough: An influence on landscape change during the 18th and 19th centuries.

C. A. Howes

**Introduction**

The medieval rural landscape of the Doncaster Metropolitan Borough with its open meadows, open pastures and open arable and with common rights held over the grazing and the use of certain products of heaths, peat moors, woodland and wetlands, was generally annexed (privatised) by series of land enclosure phases, some dating from the Stuart or Tudor times.

The presence of ancient species-rich hedgerows indicate to us that much earlier land drainage and enclosure projects (before c.1700) did take place but were generally not well documented and can only be traced through careful historical studies and field-work.

However, the period of Parliamentary enclosure left a legacy of detailed cartographic and statistical records, together with meticulous written descriptions of the landscapes that were being altered.

Substantial areas of uncultivated habitats in the form of limestone grassland, heathland, wood pasture, peat moorland and wetlands were modified out of existence to the detriment of their dependent specialist species. However, the parliamentary enclosures produced an exercise in boundary-making on an unprecedented scale. Those who acquired land, their tenants, heirs and assigns, according to the allocations of the Enclosure Commissioners, were required by statute to create and maintain boundary hedges and ditches. In the long term this formed:

a) miles of new linear woodland-edge habitats
b) networks of flooded ditches and drains into which riparian and aquatic organisms (usurped from their desiccated wetlands) could take refuge.

## Aims

This study attempts to provide a gazetteer, inventory and index of the Parliamentary Enclosures that affected the parishes within the geographical area currently designated as the Doncaster Metropolitan Borough. It also seeks to provide a general analysis of the timing and magnitude of the local Enclosure Awards and to show the frequency by which various broad habitat or land-use types were affected.

## Methods

Lists of Enclosure Acts and Awards for the Yorkshire Ridings have been assembled for parishes and townships in the West Riding by English (1965), for the East Riding by Neave (1971) and for the North Riding by Tate (1978). These listings have been compiled by Dr. Barbara English (1985) into a most useful dossier arranged alphabetically by Ecclesiastical Parish or civil township, each entry containing abbreviated information on the dates of the Parliamentary Act, and the subsequent detailed Award together with records of the acreages and some land types affected by the awards.

Doncaster data from English (1985) have been alphabetically tabulated for ease of analysis (see Appendix 1) with a view to examining the timing of enclosure activities. We can therefore quantify the extent of enclosure-modified land and indicate the frequency by which certain land uses and habitat types have been enclosed and presumably modified or destroyed. Many of the local Award documents and accompanying plans were used by the author to provide background evidence for planning appeals concerning historic landscape, public rights of way, biodiversity and hedgerow issues. As an aid to locating documents at the DMBC Archives Department (King Edward Road, Balby, Doncaster) catalogue codes are provided in Appendix 1. Those copies held by Parish Councils or by other public Records Offices are also indicated. In addition, during 2004-05 Jonathon Tesh, Tree and Hedgerow Officer for the DMBC Planning Department, visited Archives Departments and Record Offices of adjacent Counties and Metropolitan Boroughs, tracking down a further four Doncaster Awards not included in English (1985). These are noted in Appendix 1.

## Findings

The Parliamentary enclosure movement within our study area can be traced back to the Bentley-with-Arksey enclosure of 1759, the last being the Dolcliff & Mexborough enclosures of 1861. The timing, frequency and magnitude of these landscape-changing events is shown in Figure1.

A total of some 34 Parliamentary Enclosure Acts and Awards have now been traced for the Doncaster Metropolitan Borough. Although acreages are not available for 3 Awards (Rossington, Dolcliffe & Mexborough and South Bramwith), extant records for the remaining 31 Awards show that at least 37,058 acres (14,997 hectares) was enclosed. The land area affected by each enclosure operation ranged hugely from

154 acres at Braithwell in 1766 to 4,000 acres at Doncaster, Cantley, Rossington & Wadworth in 1771, with a mean size of 1,195 acres per award.

**Figure 1: Numbers of Doncaster Enclosure Awards per decade (1750s to 1860s) with an estimation of acreages affected.**

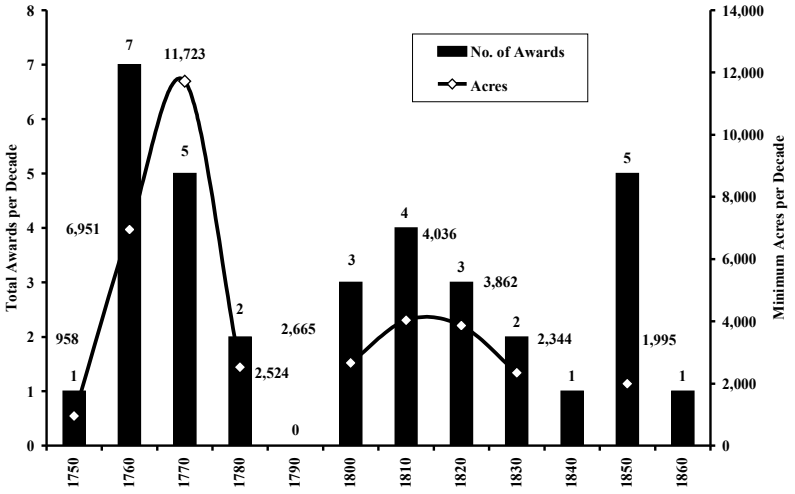



**Figure 2: Size categories of Awarded Enclosures in the Doncaster region**

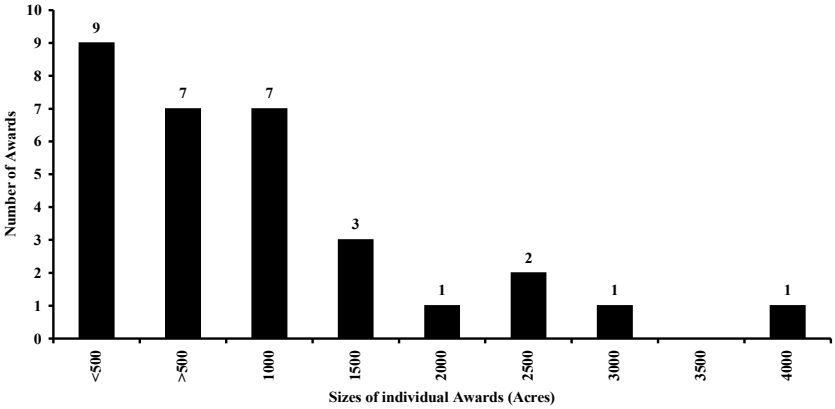


Figure 2 illustrates the relative frequencies of the acreage categories. The most frequent enclosure size was up to the 1000-acre class with 23 examples, giving a total acreage 20,080 (54.2%). However a disproportionate impact in terms of land take was contributed by just five awards in the largest size category (2001 to 4000 acres) which cumulatively contributed 41.45% of the recorded total acreage.

**Figure 3: Cumulative increments in Acreages Enclosed per 5 year period**

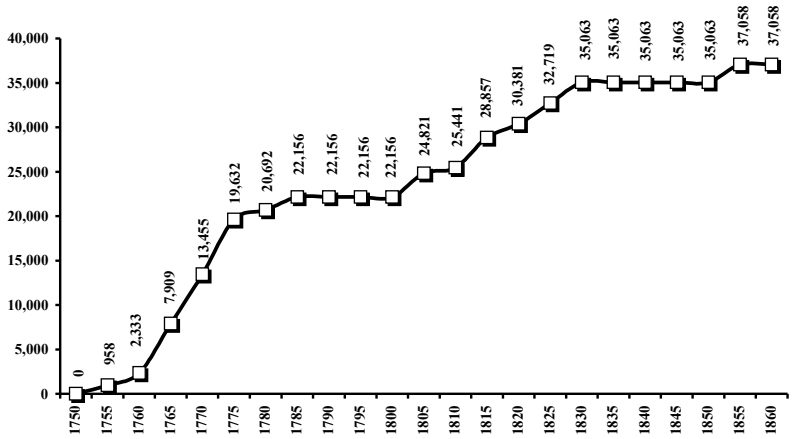


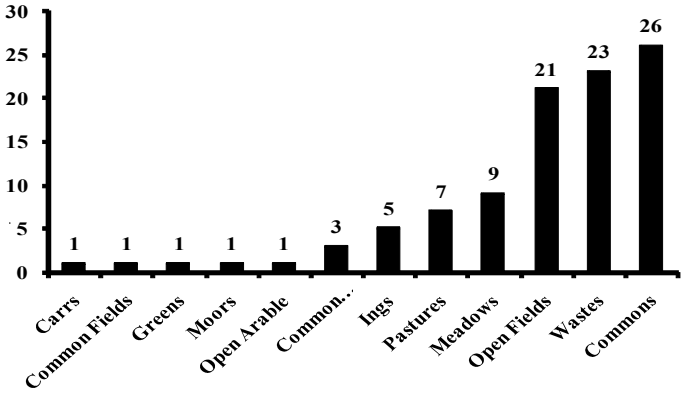

Figure 3, based on the incremental acreage totals enclosed per five-year period, shows that the enclosure movement proceeded fairly quickly with thirteen awards being undertaken during the twenty years from 1759 to 1779 which involved approximately 19,632 acres (52% of the total). A further surge of activity between 1806 and 1830, involving eleven awards, added a further 12,907 acres (34.8% of the total). So by 1830 94.6% of the ultimate acreage had already been enclosed.

In terms of landscape and habitat change, the 1760s and 70s must have been the most significant decade in terms of hedgerow creation, the excavation of ditch networks, with the resultant dispersal of surface water and lowering of groundwater, not to mention the agricultural development of a range of grassland and wetland habitats. Some twelve land-use or habitat categories are specifically listed as being involved in the Awards:

| Enclosure Award Entries | | Habitat/ Land-use types |
|---|---|---|
| Carrs | = | Carrs, Ings & Marshes |
| Commons & Wastes | = | Commons & Wastes |
| Common Field | = | Arable Fields |
| Common Pastures | = | Meadows & Pastures |

| | | |
|---|---|---|
| Greens | = | Pasture |
| Ings | = | Carrs, Ings & Marshes |
| Meadows | = | Meadows & Pastures |
| Open Arable | = | Arable Fields |
| Open Field | = | Arable Fields |
| Pastures | = | Meadows & Pastures |
| Turf Moors | = | Turf Moors |

**Figure 4: Land-use types affected by Doncaster Enclosures**




Since English (1985) only provides acreage figures for the total land to be enclosed in each Award, it has not been possible to quantify the areas of each of the land-use types. Therefore, Figure 4 merely shows the number of Awards in which land-use and habitat classes are mentioned.

## Discussion

The received wisdom seems to have been that Doncaster's lowland and highly managed agricultural landscape was largely the creation of the Parliamentary Enclosure movement and therefore only dates back to the mid 19th or at most mid 18th century. This study shows that this is far from the case.

In that the Doncaster Metropolitan Borough covers an area of approximately 140,850 acres (57,000 hectares), the 37,058 acres (14997 hectares) that were affected by the 18th and 19th century Parliamentary Enclosures only represents 26.3% of Doncaster's rural landscape. This suggests that much of our hedged and enclosed land dates from earlier phases of enclosure, and provides a partial explanation of why many of our farm hedgerows are more species-rich than if they merely had an 18th or 19th century origin.

Fields near Sykehouse © *Google Maps*

The lengths of new land boundaries created by the enclosures would inevitably be a function of field size which in practice varies markedly depending on the nature of farming practice, which in turn is influenced by prevailing soil types and topography. Muir (1997) shows that the enclosure of 27,000 acres on the Mendips resulted in the erection of some 1,650 miles of boundary fencing (1 mile of hedge per 16.36 acres). Using this ratio, by crude extrapolation, the enclosure movement within the Doncaster region could have been responsible for the creation and maintenance of some 2,265 miles of new boundary drains and hedgerows by the 1860s.

One effect of enclosing 'open arable' and managing it as pasture or hay meadow was to 'fossilise' the linear corrugations ('ridge and furrow') created by former ploughing. In parishes that have retained these enclosures un-ploughed, the 'ridge and furrow' still survives and has developed a characteristic 'wet and dry' ecology all of its own. This has become a 'hallmark' landscape feature of remaining grassland around the core of rural villages or indeed of some entire parishes, notably Kirk Bramwith, Fishlake and Sykehouse between the Don and Went. Here the effect can be seen to advantage when winter rains or melt floods the furrows; when rows of Daisies (*Bellis perennis*) and Good Friday Grass (*Luzula campestris*) on the dry ridges contrast with the Cuckoo Flowers (*Cardamine pratensis*), Meadowsweet (*Filipendula ulmaria*) and rushes (*Juncus* spp.) of the damper furrows; and in the powerful light of a low setting autumn sun. It is worth going to see.

Since the early phase of enclosure, particularly between 1760 and 1780 (evidently coinciding with a stagnant grain market) it is likely that many of these new fields, particularly on heavier soils, would have been managed as grassland for stock rather than to increase arable capacity. The dramatic increase in grain prices during the period of the Napoleonic Wars, from £1 a hundredweight in 1790 to a peak of £6.50 a hundredweight in 1801 no doubt encouraged a conversion from grassland to arable, thus potentially precipitating a reduction in permanent grassland habitat and the loss of some old meadowland species such as Pasqueflower (*Pulsatilla vulgaris*) and Green-winged orchid (*Orchis morio*). Conversely, it could have encouraged the spread of some of our notable arable weeds such as Corn Buttercup (*Ranunculus arvensis*) and Corncockle (*Agrostemma githago*).

## References

English, B. A. (1965) *Hand list of West Riding enclosure awards*. Leeds,
English, B. A. (1985) Yorkshire Enclosure Awards. *Studies in Local History No. 5* University of Hull, Hull.
Howes, C. A. (2006) Enclosing the Levels: Parliamentary land Enclosures of the Yorkshire component of the Humberhead Levels. *Conference on The Biodiversity of the Humberhead Levels. YNU Bulletin* **45** (Conference Supplement): 83-92.
Muir, R. (1997) *The Yorkshire Countryside: A landscape history*. Keele University Press, Edinburgh.
Neave, V. (1971) *A handlist of East Riding enclosure awards*. East Riding County Records Office, Beverley.
Tate, W. E. (1978) *A domesday of English enclosure acts and awards*: In Turner, M. E. (ed.) The Library, University of Reading.

**Appendix 1** (* Additional documents located by J. Tesh)

| Gazeteer of Parliamentary Enclosure Awards in Parishes and Townships of the Doncaster Metropolitan Borough | | | | |
|---|---|---|---|---|
| **Parish/Township** | **Act** | **Award** | **Acres** | **Award & Plan Archive codes** |
| Adwick-le-Street | 1760 | 1761 | 1000 | Award copy [ref. RD/DON/2/261] |
| Armthorpe | 1773 | 1774 | 1146 | Award copies [refs. PR/ARM/4/1; RD/DON/2/262] Plan orig. [ref. PR/ARM/4/1] Plan copies [refs. RD/DON/2/263 & DX/BAX/D/11/1/5] |
| Austerfield | 1765 | 1767 | 1200 | Award copy [ref. DX/WALK/5/1,3,4] Plan copy [ref. DZMZ/143/1] |
| Barnburgh-cum-Harlington | 1819 | 1822 | 1074 | Award [ref. PR/BARN/2] Plan [ref. PR/BARN/2] |
| Barnby Dun | 1803 | 1807 | 1332 | Award [ref. DD DC/N/1/1/4] Plan [ref. PR/BAR/1/3] |
| Barnby Dun, Thorpe-in-Balne & Kirk Sandall | 1766 | 1768 | 560 | Award [refs. PR/BAR/1/1; DD DC /E1/5/1-2; DY/DAW/7/5; DZ MZ/108] |
| Bentley-with-Arksey | 1759 | 1759 | 958 | Award [ref. DX/WALK/2/50; UB/BEN/7/3; TRC/1/11; DDDC/N/1/1/6] Plan [ref. UD/BEN/7/2] |
| Bentley-with-Arksey | 1827 | 1830 | 1555 | Award [refs. UB/BEN/7/3; TRC/1/11; DDDC/N/1/1/6] Plan [ref. UD/BEN/7/2] |
| Blaxton & Auckley-with-Finningley | 1774 | 1778 | 3321 | Award (original) [ref. DX/TB/3/1] Plan copy [ref. DZMZ/67] |
| Braithwell | 1765 | 1766 | 154 | Award [refs. PR/BRAITH/1/1-2] |
| Braithwell with Bramley * | 1769 | 1770 | 400? | Award [WRRD B8 p240]; [Sheffield CC Archives CL MD 3871] Plan [refs. PR/BRAITH/1/1-2] |
| Braithwell | 1855 | 1858 | 492 | Award [ref. PR/BRAITH/1/3] Copy [refs. DD/YAR/E2/2; DD/YAR/P4] Plan (1857) [ref. PR/BRAITH/1/3] |

| Parish/Township | Act | Award | Acres | Award & Plan Archive codes |
|---|---|---|---|---|
| Brodsworth* | 1815 | 1830 | 789 | Award [refs. P/10/9/A1-A2]<br>Plan [refs. P/10/9/A1-A2] Plan copy [ref. DZ MZ/24/3] |
| Burghwallis & Haywood* | 1813 | 1818 | 200 | Award [ref. PR/BURGH/4/1] Burghwallis PC has Award<br>Plan [ref. PR/BURGH/4/1] Burghwallis PC also has Plan. |
| Cadeby | 1809 | 1813 | 620 | Plan copy (c 1813) [ref. DZ MZ/71] |
| Campsall, Askern & Norton | 1814 | 1818 | 2846 | Award [ref. PR/NOR/4/1] Norton PC also have Award.<br>Plan [ref. PR/NOR/4/1]; Plan copies [refs. RD/DON/2/271-274] Norton PC also has 3 plans |
| Cantley, Branton, Bessacarr & High Ellers | 1777 | 1779 | 2856 | Award [P12/9/A1]<br>Plan [copy part – Cantley parish only RD/DON/2/277] |
| Conisbrough & Clifton | 1855 | 1858 | 601 | Award [ref. UD/ CON/6/1<br>Plan [ref. UD/ CON/6/1] |
| Conisbrough Fields | 1856 | 1858 | 313 | Award [ref. UD/ CON/6/2-5]<br>Three plans [ref. UD/ CON/6/2-5] |
| Dolcliff & Mexborough | 1859 | 1861 | ? | Award [ref. UD/MEX/6] |
| Doncaster, Cantley, Rossington & Wadworth | 1765 | 1771 | 4000 | Award (typescript copy of part) [ref. RD/DON/2/284]<br>Plan [ref. UD/MEX/6] |
| Frickley-with-Clayton | 1814 | 1821 | 450 | Award [ref. PR CLAY/6] Plan [ref. PR CLAY/6] |
| Hatfield, Thorne, Fishlake, Stainforth & Sykehouse | 1811 | 1825 | 2338 | Award [PR/FISH/1/5/2] Plan [PR/FISH/1/5/3-6] |
| Hexthorpe, Balby & Long Sandall | 1784 | 1785 | 1464 | Award (also typed transcript) [ref. AB7/3/83-85]<br>Two plans [ref. AB7/3/83-85] |
| Kirk Sandall | 1806 | 1808 | 445 | Award copy [ref. RD/DON/2/288]<br>Plan [ref. RD/DON/2/288] |
| Moss & Kirk Bramwith | 1780 | 1783 | 1060 | Plan copy [P16/9/A1; DZ MZ/30/P10] |
| Owston | 1760 | 1761 | 375 | Award [ref. PR/OW/72]. |
| Rossington* | 1810 | ? | ? | Plan [ref. AB/7/3/81-82 |
| Skellow | 1801 | 1806 | 888 | Award copy [ref. DD DC/E1/2/2-3]<br>Plan copy [ref. DD DC/E1/2/2-3] |
| South Bramwith & Sand Bramwith | 1842 | 1846 | ? | Documents at Wakefield Record Office |
| Stainton & Edlington | 1810 | 1815 | 370 | Award [ref. RD/DON/2/293-235]<br>Plan [ref. RD/DON/2/293-235] |
| Sutton, Campsall & Burghwallis | 1854 | 1858 | 589 | Plan [ref. PR NOR/4/3] |
| Tickhill | 1765 | 1766 | 1700 | Award [ref. DX/WALK/2/59] Copies [P56/9/A5; DX/WALK/5/14]<br>Plan copies [refs. P56/9/A1-A2; X/WALK/5/15] |
| Wadworth | 1765 | 1767 | 1962 | Award (typescript copy) [ref. P21/9/A1]<br>Plan [ref. P21/9/A2] |

# Owl pellets at Thorpe Marsh Nature Reserve

M. Townsend

Thorpe Marsh Nature Reserve is a Yorkshire Wildlife Trust reserve of 77 hectares on the flood plain of the River Don, about four miles downstream of Doncaster and two miles west of Barnby Dun.

On land owned by HJ Banks and farmed as pasture and hay meadow by two tenant farmers, Thorpe Marsh has water bodies of various sizes, hedgerows, maturing scrub and semi-improved and unimproved neutral grassland, much of the last being old ridge-and-furrow. These habitats provide hunting grounds for owls, particularly for Tawny Owls (*Strix aluco)*, and Long-eared Owls (*Asio otus)*. Tawny Owls breed on the reserve and Long-eared Owls winter there and may have bred locally.

The extensive system of land drains, including the River Eaubeck, and other water bodies have supported Water Voles (*Arvicola terrestris)*, but invasion during the last few years by American Mink, (*Lutreola lutreola vison* - *Mustela vison* in some publications) seems to have eradicated the reserve's water voles.

Two Tawny Owls had a regular roost from October 2009 onwards in an oak tree in the north-west corner of the Thorpe Mere area (SE588095). On 20th February I collected owl pellets from beneath this tree. Most were intact and from these and the parts I judged there to be the equivalent of 26 pellets. When dissected the pellets contained the remains of the following animals:

| | |
|---|---|
| Pygmy Shrew (*Sorex minutus)* | 1 individual (2 jawbones - 1 left and 1 right). |
| Common Shrew (*Sorex araneus)* | 2 individuals (2 skulls, 4 jawbones - 2 left and 2 right). |
| Bank Vole (*Clethryionomys glareolus)* | 4 individuals (1 skull, 5 jawbones - 4 left and 1 right). |
| Short-tailed Vole/ Field Vole *(Microtus agrestis)* | 46 individuals (42 skulls, 89 jawbones – 43 left, 46 right). |
| Wood Mouse (*Apodemus sylvaticus)* | 9 individuals (9 skulls, 15 jawbones - 7 left and 8 right). |
| Dunnock (*Prunella modularis)* | 1 individual, identified from a ring, number X445870. This was a 2009 juvenile, ringed by Ken Pearson at Thorpe Marsh NR on 22nd August 2009 |
| Great Tit (*Parus major)* | 1 individual, also identified from a ring, number X445715. This was also a 2009 juvenile, ringed by KP at Thorpe Marsh NR on 31st July 2009. |

There was also 1 other mouse skull and 3 mouse jawbones that I was unable to identify. They were either Wood Mouse or House Mouse (*Mus musculus),* though probably the former in view of the location of the reserve and because all of the other mouse remains were of Wood Mouse.

On the basis of these 64 prey items and using a Mammal Society Prey Value conversion table, the percentage of prey by numbers and by weight was calculated and is shown in the following table.

Tawny Owl prey by numbers and weight:

| Number of prey items | % of prey | Prey species | Estimated weight (g) | Total weight (g) | % prey items by weight |
|---|---|---|---|---|---|
| 1 | 2 | Pygmy Shrew | 4 | 4 | 0.32 |
| 2 | 3 | Common Shrew | 8 | 16 | 1.29 |
| 4 | 6 | Bank Vole | 16 | 64 | 5.15 |
| 46 | 72 | Short-tailed Vole * | 21 | 966 | 77.78 |
| 9 | 14 | Wood Mouse | 18 | 162 | 13.04 |
| 1 | 2 | Dunnock | 15 | 15 | 1.21 |
| 1 | 2 | Great Tit | 15 | 15 | 1.21 |
| 64 | 100 | **Totals** | | 1242 | 100 |

In 1987 Mr. P. Thorpe carried out an analysis of 102 pellets of Long-eared Owl. The results were published in the Thorpe Marsh Nature Reserve annual report of 1987 as follows:

| Prey | Number of individuals | Estimated weight each (g) | Total estimated weight (g) | % prey by weight |
|---|---|---|---|---|
| Harvest Mice | 2 | 5 | 10 | 0.3 |
| House Mouse | 1 | 12 | 12 | 0.3 |
| Wood Mouse | 34 | 18 | 612 | 17.2 |
| Bank Vole | 23 | 16 | 368 | 10.3 |
| Short-tailed Vole | 103 | 21 | 2163 | 60.7 |
| Brown Rat | 1 | 100 | 100 | 2.8 |
| Birds | 15 | 20 | 300 | 8.4 |
| **Total prey Items** | 179 | | 3565 | 100 |

The Mammal Society conducts an owl pellet survey and its latest report was produced by R. Alasdair Love in 2009. It is interesting to look at this in conjunction with the two Thorpe Marsh surveys:

Table to show percentage of prey items in owl pellets:

| | Tawny Owl Thorpe Marsh NR 01/02/10 survey | | Long-eared Owl Thorpe Marsh NR 1987 survey | | Long-eared Owl Britain 1993 to 2009 | |
|---|---|---|---|---|---|---|
| | A | B | A | B | A | B |
| Short-tailed Vole | 72 | 78 | 58 | 61 | 71 | 75 |
| Wood Mouse | 14 | 13 | 19 | 17 | 14 | 13 |
| Bank Vole | 6 | 5 | 13 | 10 | 10 | 8 |
| Common Shrew | 3 | 1 | 0 | 0 | 0 | 0 |
| Pygmy Shrew | 2 | >1 | 0 | 0 | 2 | >1 |
| Harvest Mouse | 0 | 0 | 1 | >1 | 1 | >1 |
| Birds | 3 | 2 | 8 | 8 | 0 ^ | 0 |
| Others | 0 | 0 | 1 | 3 | 2 ^ | 2 |

Column A shows percentage of prey items, column B shows percentage by weight.
^ "Others" in the Mammal Society survey may include birds.

## Conclusions

All three surveys show that three species of prey, Short-tailed or Field Vole, Wood Mouse and Bank Vole, in that order, make up the bulk of prey for Tawny Owls and for Long-eared Owls. Short-tailed Vole form the bulk of the owls' food. Short-tailed Vole and Wood Mouse results are very similar for the Tawny Owl and Mammal Society Long-eared Owl surveys but both Long-eared Owl surveys point to a higher consumption of Bank Voles by Long-eared Owls than by Tawny Owls. Tawny Owls, on the other hand, are more likely to take shrews than are Long-eared Owls.

Long-eared Owls at Thorpe Marsh took a lower proportion of Short-tailed Voles than did those in the national survey but took a higher proportion of Wood Mouse and Bank Vole. They also took a larger percentage of birds. The difference is likely to be due to the fact that the Thorpe Marsh surveys are one-offs with the Long-eared Owl survey involving a total of 102 pellets whereas the Mammal Society survey involved more than 53,00 pellets from 373 locations.

All the results point to a preponderance of Short-tailed Voles compared to other small mammal species but are the proportions of prey caught due to this or is it due

to predator preference or to ease of capture of particular prey species? For example, the Thorpe Marsh Long-eared Owl results mirrored the national ones in that this species of owl "selects strongly against shrews as prey species". (from the Mammal Society National Owl Pellet Survey Report 2009 by R. Alasdair Love.)

The Long-eared Owl survey was carried out twenty four years ago but Long-eared Owls continue to winter at Thorpe Marsh and if in the near future we can gather recently-produced Long-eared Owl pellets and more Tawny Owl pellets interesting comparisons could perhaps be made.

**Acknowledgements**
Statistics for Long-eared Owl pellets are drawn from the Thorpe Marsh Nature Reserve survey of 1987 by P. Thorpe and from the National Owl Pellet Survey 2009 by R. Alasdair Love, published by the Mammal Society. I have also received helpful comments about the draft of this report from R. Alasdair Love.

---

## Mink takes pike

**M. Townsend**

In February 2011 three Thorpe Marsh Nature Reserve volunteer wardens, Arthur Hellewell, Alan Needham and I, noticed a disturbance in the drain that runs into Thorpe Mere. Through binoculars we saw that a mink (American Mink, Lutreola lutreola vison) was struggling to subdue a large pike (Esox lucius). The pike's open mouth was an awesome sight but the mink held had the pike firmly by the neck and after two or three minutes dragged the pike up the 45 degree bank into a bramble patch. We went to investigate and found the pike still alive but the mink had left the scene. The pike was 70 cm. long and longer by about 10 cm. than the mink.

This sighting confirmed the finding of mink scat at Thorpe Marsh Nature Reserve by Tom Hayek in June 2010. Tom, manager for the YWT's Humberhead Levels Living Landscapes project, had been looking for signs of water voles but found none even though there had been 11 sightings during 2008, up to the end of March.

It is also possible that predation by mink accounted for the disappearance of seven cygnets from Applehurst Pond during 2009. A pair of mute swans had raised seven cygnets to the size of adult geese when over the period of a week they disappeared. It seemed unlikely that people would make repeat visits like this and only the last cygnet was found. Its body was inaccessible so that we could not determine how it had died. The only non-human predator that we thought capable of taking large cygnets accompanied by two adults, in open water, was mink.

# Barn Owls at Adwick-le-Street water mill

**C.A. Howes** 7 Aldcliffe Crescent, Balby Doncaster DN4 9DS and
**Ken Pearson** Doncaster & District Ornithological Society

## Introduction

Over the years numerous ecological studies and data trawls are undertaken in response to the constant stream of planning applications handled by Local Authority Planning Departments. When submitted, these reports become part of the public planning process and are technically 'in the public domain'. However this fascinating archive is substantially unknown, realistically inaccessible and generally unrepresented in the natural history literature. This article provides a simplified insight into what goes on behind the scenes in the event of a Planning Application and places on record this interesting little saga.

Adwick Water Mill, in Mill Lane, Adwick-le-Street (SE/ 54120888), described as a fine early 18th century structure complete with water wheel and with later outbuildings (Magilton 1977), is situated in pastureland within the lowland flood corridor of the Old Ea Beck between the Sallow Carrland of Size Ings SSI and the Phragmites Reed Beds of Adwick Sewage Works SSI. The Water Mill had been empty and derelict since at least the 1970s and for decades had been used as a roosting and breeding site by Barn Owls (*Tyto alba*). From 1972 to 1981 KP had monitored the breeding success of the owls and had ringed the chicks. Though unsuccessful breeding took place in 1987 monitoring of the increasingly derelict building continued till 1993 in the hope that owls might return.

In 1993 the property changed hands and a planning application was submitted for Listed Building consent to convert of the Water Mill building into a domestic dwelling. Amongst preliminary responses received by the planning process, the following comments concerned the matter of the owls:

*"..one of the most extensive studies on barn owl diet (feeding ecology) in the Doncaster district was based on large numbers of owl pellets collected at this site. Further, I understand that barn owl chicks reared at this site have regularly been ringed by licensed members of the Doncaster and District Ornithological Society as part of a national investigation into aspects of barn owl dispersal, migration, mortality etc.*

*I would strongly urge that if planning permission is granted, it be conditional on allowing the owls to continue using the structure for breeding and roosting. This may require the provision of a suitable alternative nesting box and access. To keep within the law, it would also be necessary to undertake the work outside the April to September breeding period".*

To provide corroborative evidence in support of the preliminary comment, CAH further provided the results of the pellet analyses and trawled the DDOS *Annual Reports* and its scientific journal *The Lapwing* for relevant records, and KP provided his bird ringing and recovery records. The results of this data review were forwarded to the planning applicant's agent and to the Planning officers. Also provided were relevant documents on the design and installation of owl nesting facilities from the Hawk and Owl Trust, and references relating to the possible hazards of timber preservatives (insecticides and fungicides) from the *'Bat Workers Manual'*.

Since the Barn Owl is a Schedule 1 Protected Species in the Wildlife and Countryside Act (1981) the Planning officers were put in touch with the Species Protection Officer at English Nature for advice on how to proceed with the proposed development regarding the presence of this 'Protected Species'. Also, since this situation is frequently encountered during the conversion or development of rural buildings, it was suggested that the Hawk and Owl Trust be contacted to provide practical advice.

Advice from English Nature on the matter of Barn Owls and the implications of the Wildlife & Countryside Act. was to the effect that it would be an offence under the Act to disturb barn owls at a nesting site while it is being used for breeding purposes (ie. during the period when eggs or chicks are present). Since breeding is not currently taking place, this restriction would therefore not apply, though it would still be an offence to intentionally kill, injure or take a barn owl at any time of year.

Sadly, since it had probably been six years since barn owls could be proved to have bred at the site and that it could not be proved that the Mill was being used by the owls at the time of the application, the redevelopment was able to proceed without the installation of access and accommodation for future owl occupancy within the Mill building. We understand however that in mitigation an owl nesting box was to be installed in a nearby tree but the effects of this are not known.

**Chronological digest of Barn Owls records at Adwick-le-Street water mill**

**Pre 1972 -** Mr and Mrs Newsome, the former Water Mill owners and occupants of the adjacent Mill House confirmed that barn owls had occupied the Mill for decades. Owls had been present as long as they could remember.

**1972 -** Mr Ken Pearson commenced his long term ringing study of Barn Owls at this site.
Pair bred 4 chicks 4 ringed

**1973** Pair bred 1+3 chicks (two broods) 2 ringed.
A pair reared two broods at Adwick-le-Street (DDOS Ann. Rep. for 1973).

In June 1973 adults were seen taking young grass snakes to fledged owlets beneath Adwick railway bridge (Howes 1986 a&b).
On 8 December 1973 163 complete and a number of fragmentary pellets were gathered from the Water Mill by CAH, Arthur Bolton and Osborn Morton of Doncaster Museum). These were from a huge accumulation of pellet debris in an upper room at the Mill. Analysis of diet is presented in Table 1. At least two Barn owls were present in the Water Mill on 8.12.1973.

**1974 -** Pair bred 3 chicks 3 ringed.

**1975 -** Pair bred 4 chicks 4 ringed.
'...other breeding areas included... Adwick-le-Street' (DDOS Ann. Rep. for 1975).

**1976 -** Pair bred 3 chicks 3 ringed.
'Breeding at Adwick-le-Street' (DDOS Ann. Rep. for 1976).

**1977 -** Pair in residence but no eggs laid (possibly an old pair).

**1978 -** Pair bred 6 chicks 5 ringed.
(possibly one or both of pair were new young birds).

**1979 -** Pair bred 3 chicks 3 ringed.
Chick (GK 18437) ringed on 6.8.1979 was found dead on 1.5.1980 at South Cave, Humberside some 45km away (DDOS Ann. Rep. for 1980).

**1980 -** Pair bred 3 chicks 3 ringed.
Chick (GK 18440) ringed on 6.7.1980 was found dead near Marr 4km away (DDOS Ann. Rep. for 1980).

**1981 -** Pair bred 5 chicks 5 ringed.

**1982 - 1986** Breeding did not take place.
Due to owls not using the site for breeding, rat poison was employed to control the rodents.

**1987 -** Pair bred with three eggs laid and female brooding. During the incubation period Mrs Newsome found the male collapsed on the lawn of the Mill House. It was taken to Mrs Alma Owen's owl rescue centre at Hooton Roberts where it recovered. It was ringed and returned to the mill within ten days but the incubating female had deserted due to starvation and lack of pair bonding.

**1988 – 1992** The site was checked twice a year by KP but no breeding was shown to have taken place during this period.

**1993 -** The site was examined on 24 August 1993 and although no owls were present, a batch of 21 pellets was collected, some of which were reasonably fresh, indicating that barn owls still occasionally used the structure for daytime roosting.

Due to the increasing dereliction of the Mill, somewhat more light was able to penetrate through the dilapidated roof and rotting floors than was the case during the 1970's and 80's. This may be a significant factor in deterring the local owls from using the site for breeding purposes. The proposed re-roofing and renovation of this historic building would almost certainly re-create suitable breeding niches in the attic structure. Here, the provision of a nesting chamber and nesting box to a design specified by the Hawk & Owl Trust could lead to the re-establishment of breeding at this site.

In summary, Barn Owl, a Schedule 1 Protected Species in the Wildlife and Countryside Act (1981), was proved to have bred in this building in ten years between 1972 and 1987 and roosting took place for some years after this. From 35 chicks hatched, 32 were successfully reared to fledging. Of 32 chicks and 1 adult male ringed, two (6.25%) were later found dead. One at the nearby village of Marr and the other, 45km to the north east at South Cave in Humberside.

**Diet studies**

Tables 1 and 2 show that the Adwick Water Mill Owls fed on at least two bird species including Starling (*Sternus vulgaris*) and House Sparrow (*Passer domesticus*) and some eleven mammal species. These included the seldom recorded Water Shrew (*Neomys fodiens*) the very local Water Vole (*Arvicola terrestris*) and Harvest Mouse (*Micromys minutus*), this latter species (in 1973) constituting one of the first verified Yorkshire records. The abundance of Field Voles (*Microtus agrestis*) in the diet indicated the presence of rough grassland habitats. The large numbers of passerines, showed that the owls were regularly 'working' a local sparrow roost but in terms of performing a public service, Brown Rats (*Rattus norvegicus*) (in terms of prey weight) easily constituted their main prey. The observations of adults feeding fledged owlets on young Grass Snakes (*Natrix natrix*) appears to be the first Yorkshire and indeed British record of barn owls feeding on these diurnal reptiles.

Table 1. Analysis of 163 Barn Owl Pellets collected from Adwick-le-Street Water Mill on 8 December 1973.

| Species | Minimum no. of individuals | % prey items | % estimated prey weight |
|---|---|---|---|
| Common Shrew | 64 | 16.4 | 6.11 |
| Pygmy Shrew | 4 | 1.0 | 0.15 |
| Water Shrew | 6 | 1.5 | 0.86 |
| Harvest Mouse | 1 | 0.2 | 0.02 |
| Wood Mouse | 56 | 14.4 | 10.7 |
| House Mouse | 12 | 3.0 | 2.29 |
| Brown Rat | 34 | 8.7 | 32.49 |
| Bank Vole | 1 | 0.2 | 0.19 |
| Water Vole | 7 | 1.8 | 6.69 |
| Field Vole | 134 | 34.4 | 25.61 |
| Rabbit | 1 | 0.2 | 0.96 |
| Passeriformes (* ) | 69 | 17.7 | 13.19 |
| Starling | 2 | 0.5 | 0.76 |
| Beetle (+) | 1 | 0.2 | |
| TOTAL | 391 | | |

Total no. of pellets examined = 163
Total no. of vertebrate prey items (minimum) = 391
Mean no. of prey items per pellet = 2.4
(* ) Mainly house sparrows.
(+) Not included in vertebrate prey calculations.

Table 2. Numbers of prey items in a series of incomplete pellets:-

| Species | No. of individuals |
|---|---|
| Common Shrew | 16 |
| Pygmy Shrew | 1 |
| Wood Mouse | 1 |
| House Mouse | 3 |
| Mouse sp. | 10 |
| Brown Rat | 4 |
| Bank Vole | 1 |
| Field Vole | 25 |

**References**
Doncaster and District Ornithological Society Annual Reports (1957 to 1991).
Howes, C.A. (1986a) Barn owls preying on grass snakes - an overlap of shift-workers. *YNU Bulletin* **5**: 13-14.
Howes. C.A. (1986b) Barn owls preying on grass snakes. *Lapwing* **17**: 43.Magilton, J. (1977) *The Doncaster District: An Archaeological Survey*. Doncaster Museum, Doncaster.

---

## Unusual Jackdaw behaviour

**Sheila Hill**

In November 2007 I was called by my better half to the kitchen window to identify a bird which was on the roof of the house next door. At first sight, without binoculars, it appeared to be a Jackdaw. Then I realised that it had a hooked beak, which threw me completely. Apart from the beak, it was all Jackdaw in appearance, grey neck, black plumage and grey-blue eyes. There followed a quick dash by both of us, one for the binoculars and one for the camera. A close-up view of the beak showed that its beak was not truly hooked, its upper mandible was overgrown by about 2cm. and was curved sharply downwards. Keith was filming the bird from an upstairs window, and 15 arm-aching minutes later it was still on the roof, preening and looking skywards occasionally. Suddenly a bird swooped down and landed beside the first bird. The second bird was definitely a Jackdaw which, after a moments hesitation, proceeded to feed the first bird by regurgitation. The two birds then flew off.

The mystery here is not the beak, it's not that unusual, we once had a budgie which had a similar problem. The question is why was a Jackdaw still feeding young at the end of November? According to the BTO Garden Bird-watch book Jackdaws have one brood, between April and June. Incubation takes 17 to18 days, the young are in the nest 30 to 35 days, making a maximum of 53 days before the birds leave the nest. That takes us to the end of August, if my maths is correct. This is taking the latest dates for each stage. So the adult bird has been feeding the juvenile for about 3 months after it left the nest. Do Jackdaws feed their young that long or was the young bird one of a second brood laid by a pair who hadn't read the rule book? Thinking back to that June, maybe the first brood was lost in the Great Flood of 2007. Or was the adult bird intelligent enough to realise that the young bird could not feed itself properly because of its deformed beak?

Anybody got any ideas?

# Why collect flies?

**Peter Skidmore**

When Oliver Wendell Holmes included the words “Lepidoptera and Neuroptera for little folks, Coleoptera for men sir”, he was making an ecological statement as well as observing rivalries between entomologists of different persuasions.

Collecting Leps and Neuroptera does not necessitate dirtying the hands, but Coleoptera presents a very different ball game. Two famous Coleopterists were collecting one time in the New Forest when they found a dead tramp in a hedge bottom. What more natural than to shake him over a sheet to reap the rich harvest of beetles? Coleopterists are made of sterner stuff!


“Don’t venture out on the moors alone Sir Henry” warns the mad lepidopterist; from “The Hound of the Baskervilles” The Idler, 1893

But the flies are a different ball game again. Something weird happened to big G when he came to create flies. For all their dubious pabula the beetles are a fundamentally decent crowd. They abide by the rules - they play Queensbury - following the accepted lifestyle of egg, larva, pupa and adult. But flies are the sly opportunists of the animal world. Rules are there to be broken - not only is there a clear evolutionary trend towards doing away with a metamorphosis so that a female adult of an African genus lays another adult, but in another group of flies the adult is dispensed with and the larva rules okay!

Then the habits of flies are varied beyond measure. In the order we see the whole range of human social strata - the genteel well-healed aristocrats decked in splendid regalia- like the truly noble hoverfly *Caliprobola speciosa*. Then we have the swashbuckling pirates like the magnificent assassin flies *Laphria flava* and *Asilus crabroniformis*. We then descend through numerous strata of increasingly dubious habits including those that first infest mammalian or avian wounds, then the surrounding tissue and finally consume the corpse. Finally after a nightmare journey we reach the catacombs level where the real urchins of the fly world make their questionable living. These are the phorids, guys who go in when the skunks come running out with pegs on their noses- they include the famous Coffin flies and there's nothing in Creation so foul that a phorid would not be interested. Not only do these horrid phorids or scuttle flies have diabolical habits, they also look the part.

In Britain we have around 6000 species of flies (imagine that in comparison to the total for vertebrates, vascular plants and bryophytes with molluscs, Leps and Neuroptera thrown in for good measure!). And most people who study flies gain a reasonable working knowledge of the order as a whole, although most specialise on one or more families. Most families of flies are currently being studied by someone or other, so progress can be made in any family which might take your fancy. As an introduction, I can do no better than to recommend Colyer and Hammond's Wayside and Woodland volume "Flies of the British Isles" backed up by the AES Dipterist's Handbook. If you wish to go further join the Dipterists' Group organised by Alan Stubbs of the NCC.

Why study flies though? Many reasons –

a). Conservation - site surveys are the in-thing these days and time is at a premium. Henry Disney puts the interesting argument that the best group to collect for site evaluation is the Diptera because as a group they cover the largest array of ecological niches. A rich and diverse fly fauna indicates a plethora of niches.

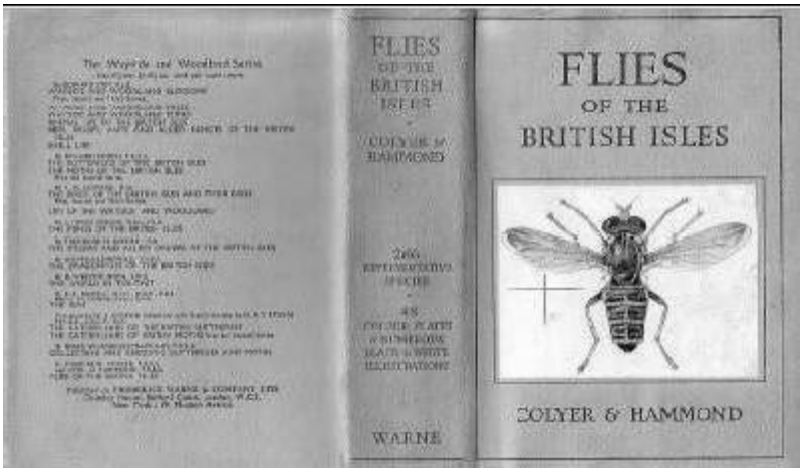
b). Aesthetics- this might seem a slender one - flies! what have they to do with aesthetics. In fact many are exquisitely beautiful- vying with the loveliest of living things.

c). Humanitarian reasons. So many flies are of economic importance as crop pests, or carriers of disease in man and animal that we should find out as much as possible about them.

d). Personal interest and Job satisfaction. This I find the most compelling reason, and this is the one in my case.

By the age of 10, a keen member of Oldham Natural History Society, I decided that there were too many people interested in birds and there was no room for interesting discoveries, and I moved into the world of Lepidoptera - butterflies I bypassed completely - nothing there. But moths were nice. At 13 though, attending the Manchester Entomological Society, I soon came to the conclusion that the study of the larger moths was flogging a very dead horse and I tried to get into micro-leps. But I liked beetles and wanted to know more about flies.

On Christmas Day, 1951, my sister gave me a present, which had the most profound effect on my entomological career- Colyer & Hammond's *Flies of the British Isles*.




On Christmas afternoon, I was out in our garden, looking for flies. Under a sheet of corrugated iron, I found four dingy little jobs, which I found from Colyer & Hammond were pointed winged flies- Lonchopterids. At the next meeting of the Oldham Nats, I showed them to Leonard Kidd of the Werneth Park Museum. He pronounced them males of *Lonchoptera furcata* - about the third record for Britain and about the fifth world record. I'd hit the jackpot straight away with the first shot! Pretty smartish I was in the garden again searching for an action replay- but to this day I have never again taken a male *furcata* - thousands of females of course. But whilst my second sortie for *furcata* was abortive, I made another interesting discovery. I found some weird little things, like legless woodlice, and out of these hatched some female *Lonchoptera*. Back to Leonard Kidd only to learn that lonchopterid larvae had only been described once before in the literature, many years previously on the Continent. I needed no further encouragement- my future lifetime devotion to the study of flies was assured.

I've had some marvellous times pursuing flies, and met some wonderful characters. Through the late 50s and 60s we had a traditional pilgrimage to Windsor Forest after its magnificent hoverflies. Cyril Hammond (illustrator of the C & H duo there, usually with Andrew Low and myself. Back at the boozer in the evening we would discuss the day's

catch, then Andrew would try to start a riot by distributing political pineapples and circulating from table to table as the arguments appeared to be abating. Then there was the other half of the C & H duo, Charles Colyer, - a great sense of humour too. I recall him telling me at a Verrall meeting (annual 'ento noshup' in London started at the turn of the century by George Verrall, father of British dipterology) that he always found neighbours very peculiar people. It transpired that his was the only flat in the very plush North London block, which had a vat of pig dung as a permanent outside fixture for rearing the horrid phorids in which CC was the world authority. Sadly CC is no longer with us- in fact he is well past the phorid stage- but the seat of master of Phoridology has passed into the very capable hands of Henry Disney of Malham. After a colonial career in West Africa, Henry found himself living in the sedate city of Bath, where casting around for some avenue of study he suddenly stepped into, or was struck by, the one commodity in copious quantity on the pavements and parks of Bath, which was absent from the West African shanty towns, namely the dog dung mountain! Realising the enormous dipterous potential of this studied habitat he whisked off home with quantities of the priceless commodity placing each dollop in its very own jam jar on the living room window sill overlooking the street. He spent many a happy evening watching the good citizens of Bath craning their necks as they passed by to see what was in the neat row of assorted jars. I gather his was the only house in that street where dog dung replaced the more traditional floral displays. And there have been many other wonderful characters- like the guy who travelled the length and breadth of the country studying the fly fauna of public toilets in search of the near apocryphal Urinal fly. Once apparently common in places, this beast has not been seen for ages- ah, things aren't what they used to be!

The Diptera beggar description - marvellous little beasts - and their study calls for a special type of individual - and some Dipterists unquestionably fall into that category. Obviously the punk era has had something to do with the recent great increase in the number of people taking up Diptera. Clearly in Oliver Wendell Holmes' day, it was unspeakable to even consider the habits of flies, let alone mention Diptera, in respectable poetry.

If you were to rewrite that line now, would it read:

Lepidoptera and Neuroptera for little folks, Coleoptera for the man in the street and Diptera for the superheroes?

**Editor's note**: The above article was found amongst papers left by Peter Skidmore, perhaps the basis for a lecture to Field Studies Council students in the early 1980s, by Martin Limbert and Paul Buckland. It had not been published during Peter's lifetime but has appeared in the Bulletin of the Dipterists Forum number 70. We are very grateful to Martin and Paul for their permission to publish it here.

# Pip's Pasture - an update

Pip Seccombe

*And then I came to a field where the springing grass*
*Was dulled by the hanging cups of fritillaries,*
*Sullen and foreign looking, the snaky flower,*
*Scarfed in dull purple, like Egyptian girls.....*
From 'The Land', Vita Sackville-West

Back in 1983 I wrote an item in Volume 1 of the Doncaster Naturalist about a small population of Fritillaries which I stumbled across in 1974, and my efforts to ensure their survival. In the intervening years many of you will have been to Owston and seen them for yourselves.

First a bit of background.


Fritillary flower. See also Plate II, centre pages.

### Where did the name come from?

According to the Oxford English Dictionary, *Fritillaria meleagris* was first mentioned in English text in 1578 by Lyte "*Flos meleagris .... some do also call this flower Fritillaria*". Then in 1597 it appeared in Gerarde's Herball in which he says "*It hath been called Fritillaria, of the table or boord vpon which men plaie at chesse, which square checkers the flower doth very much resemble, some thinking that it (the chess-board) was named Frittillus."* This description refers to the textured pattern of the flower head which can be a deep brownish purple through to dark pink in colour with pure white forms also occurring in most populations. Meleagris is the specific name for the Guinea Fowl and reflects the chequered pattern of the feathers of the bird and the flower of the Fritillary. The vernacular name, Snake's Head Fritillary, originates from the resemblance of the flower to a snake at various times during its flowering and fruiting. Grigson (1958) lists many local

names including Chequered Lily, Guinea Hen Flower and Leopard's Lily, referring to the pattern on the petals, with a host of others reflecting the bell shape of the flower and the dull purple colour, such as Dead Mens' Bells, Doleful Bells of Sorrow and Death Bell. However, Lyte (1578), in his translation of Dodoens' herbal wrote: "*The nature and vertue of these flowers, are yet unknowen, nevertheless they are pleasant and beautifull to look upon."* Gerard (1597) said: "*Of the faculties of these pleasant flowers there is nothing set downe in the ancient or later writers, but* (they) *are greatly esteemed for the beautifieng of our gardens, and the bosomes of the beautiful*."

My personal favourite is the Dutch Koevitsbloem which translates as Flower of the Lapwing and according to Parish (1979) refers to the resemblance of the pattern on the lapwings eggs to that of the flower, but I think the most likely explanation is that flowering coincides with the dramatic display of the lapwing. (Compare the name Cuckoo Flower for many species which flower about the time of the arrival of the Cuckoo e.g. Lady's Smock, Red Campion, Greater Stitchwort and many others. Grigson 1958).

### Is it native to Great Britain?

The Fritillary is a native of Northern Europe. Polunin (1969) says it occurs in "*most of Europe (except Poland, Ireland, Iceland, Albania, Greece, Turkey and Bulgaria*)". There has been much discussion as to whether it was introduced to Great Britain by the Romans, escaped from Tudor gardens or maybe it was already present in Southern Britain before the formation of the English Channel. Arguably the first record of wild Fritillaries in Britain was in 1736 when it was noted as having been "*growing for more than 40 years in Maud Fields near Ruislip Common in Middlesex.*" Grigson (1958)

However Oswald (1992) believes that Fritillaries may have been recorded in Wiltshire in the 17th century. He quotes from a manuscript not published until 1847, but written by John Aubrey (1626 - 1697) "*In a ground of mine.....growes abundantly a plant called by the people hereabouts Crow-bells, which I never saw anywhere but there*." Crow-cup is among the many vernacular names for the Fritillary.

Grigson regards it as impossible that if Fritillaries were growing wild in Britain prior to 1700, they could have been overlooked by botanists of the stature of Gerard, Johnson, Ray etc. However, Mabey (1996) argues convincingly that this could indeed have been the case owing to their short flowering period early in the year and according to Oswald, Mabey himself in his pre-botanising days, spent 3 years in Oxford where he often walked in Magdelen Meadows (recognised as one of the best known sites in England), without ever noticing a Fritillary. Lees (1888) comments "*Denizen; hardly a native*?". Johns (1909) refers to it as "*a British species*". Stuart and Sutherland (1987) say it is "*a native plant, though this was not recognised until the 18th century*." Akeroyd (1999) has it as *"apparently native*". My inclination is

that it probably is native partly because of the reasons given above and partly because of the sheer plethora of local names only a few of which have been quoted above.

### British distribution

The Fritillary is a flower of damp meadows and is declining as farming practices change and many of these fields have been drained and ploughed or 'improved' by the addition of chemicals and fertilisers.
According to Perring and Farrell (1977) in the first British Red Data Book, "*before 1930 it was present in 116 10-kilometre squares in 27 (old) counties. By 1970 it was found, only in any quantity, in 15 squares in 9 (old) counties.*" In Suffolk for example there are now 4 sites but over 20 were known in 1889. The most well known British sites are in Wiltshire, Oxfordshire and Suffolk. North Meadow at Cricklade in Wiltshire which is owned by Natural England and has been a National Nature Reserve since 1973, "*contains almost 80% of the total British population*" of Fritillaries according to their 1977 publicity leaflet.

### Fritillaries in Yorkshire

In his Flora of West Yorkshire published in 1888, Lees gives the first Yorkshire record as being near Tadcaster in 1830 in damp pasture by the Wharfe "*solitarily and very sparingly*". His only other record is at Sandbeck Park near Maltby "*In more than one place in open turf.....abundant in places; known to Rev. G.E. Smith in 1845*." There are still Fritillaries in Sandbeck Park but they were moved from their original site which was ploughed up many years ago.

More recently, a paper in the North Western Naturalist (Dallman 1935), listing notable botanical records of the early 1930s, reported *Fritillaria meleagris* in a "*low lying damp field within two miles of Hatfield. Appears quite wild here but only seems to flower sparingly.*" According to Colin Howes (1991), two local naturalists attempting to relocate Dallman's site discovered a colony of Fritillaries "*in a rough pasture near Hatfield*." They go on to say "*It has been known locally in this station for at least 40 years. The locality is situated some distance from the village and is not parkland or ground where there is any reason to suspect introduction. As in other wild populations of this species, several albinos are present.*" (Sledge 1947). The Yorkshire Wildlife Trust now own Hopyard Hay Meadow which is possibly the Hatfield Fritillary site. At present there are management problems because of a neighbouring landfill site and local gypsies who frequently graze their ponies there. Although Fritillaries have not been recorded recently from the area it is a prime candidate for reintroduction if the management problems can be resolved.

There is anecdotal evidence for one more site in the area. In 1975 I came across a couple in the field at Owston but not before they had picked all four of that year's flowers. They admitted knowing what they were, having seen them growing in a

meadow about two miles away between the wars. They couldn't remember the exact location but said the field had been ploughed up during the war.

**The history of the Owston site.**

When I first saw the fritillary the field was 'Glebeland' and as such belonged to the present incumbent of the parish. However church law has since changed and all Glebe now belongs to the Diocese. The meadow and two adjacent fields were designated as a Site of Special Scientific Interest and were eventually bought by the Yorkshire Wildlife Trust and now called Owston Hay Meadows. The earliest map to include the fritillary meadow which I have been able to find in the local Archives dates from 1780. It was shown as Parsonage Ing, as it was on the Tithe Map of 1842. On both maps it was under grass. It is about three acres in area and is species rich with a current list of around 140 vascular plants including:-

| | |
|---|---|
| *Ajuga reptans* | Bugle |
| *Cardamine pratensis* | Lady's Smock |
| *Eupatorium cannabinum* | Hemp Agrimony |
| *Filipendula ulmaria* | Meadow Sweet |
| *Listera ovata* | Twayblade |
| *Ophioglossum vulgatum* | Adder's Tongue |
| *Primula veris* | Cowslip |
| *Rhinanthus minor* | Yellow Rattle |
| *Sanguisorba officinalis* | Great Burnet |
| *Silaum silaus* | Pepper saxifrage |
| *Stachys officinalis* | Betony |
| *Succisa pratensis* | Devil's Bit Scabious |
| *Thalictrum flavum* | Meadow Rue |

Other wet-loving species like Ragged Robin (*Lychnis flos-cuculi*) and Water Avens (*Geum rivale*) were present in the meadow when I first began recording but have not been seen since the mid 1980s. I believe this is due to a large amount of agricultural drainage which began in the early 1980s and the creation of a golf course adjacent to the site which again involved drainage. In the late 1970s, I had a chance meeting with an officer from the Ministry of Agriculture, Fisheries and Food who was checking the water table in the meadow and told me the soil was waterlogged from a depth of 18 inches. A bore hole sunk in 1996 found the water table at a depth of 3 feet. When I first started monitoring in the meadow it was being managed by a tenant farmer who cut it for hay and grazed the aftermath. He applied a light application of lime each spring. Since 1981 a Management Agreement has been in place which prohibits liming and stipulates that mowing should be delayed until after July 1st. Aftermath grazing should take place between August and the end of October. Most importantly from the point of view of the Fritillaries, the roadside hedge was to be allowed to grow to 6 feet and maintained at that height.

## Fritillaries on the site

The earliest first hand record of Fritillaries on the Owston site is from a retired miner who vividly remembers his father taking him to the meadow to see the 'Wild Tulips' (which is actually a name for the Fritillary in parts of the country), in the early 1930s. He has taken an interest in them ever since especially since his retirement. He is unable to say for how long his father had been aware of their presence, but probably since the early 1920s.

My first sighting in 1974 was of one solitary flower. The next few years were very depressing as until the roadside hedge grew tall enough to screen the flowers, they were picked year after year. In 1981 I met a girl who had first seen them in 1969 when there were 3 flowers which she picked and she admitted to having picked all the flowers for most of the intervening years. Picking remained a real problem until 1985 when the hedge became tall enough to screen the flowers from passers by.

Annual Summaries from 1975 - 1986 (NFP = Non-flowering Plant)

1975 4 Flowers (2 dark, 2 white), all picked. 10 NFP
1976 5 Flowers (3 dark, 2 white), 4 picked.
1977 4 Flowers (2 dark, 2 white), 4 picked.
1978 4 Flowers, one knocked off in bud, 3 dark picked.
1979 3 Buds, decapitated by the chain harrow (harrowing delayed by wet weather). 7 NFP
1980 3 Flowers, 2 picked. 17 NFP
1981 8 Flowers, one knocked off in bud, one mole damaged, 5 picked. 14 NFP
1982 8 Flowers (4 dark, 4 white), 5 picked. 25 NFP
1983 9 Flowers (7 dark, 2 white), 2 animal damaged, 4 did not set seed. 20 NFP
1984 9 Flowers (6 dark, 3 white), 2 animal damaged, 4 did not set seed, 2 picked. 13 NFP
1985 10 Flowers (7 dark, 3 white), 3 animal damaged, 4 did not set seed. 19 NFP
1986 7 Flowers (4 dark, 3 white), 1 animal damaged, 1 did not set seed. 20 NFP

It will be seen that despite the fact that very few individual flowers produced seeds over those 12 years, the small colony was gradually increasing.

## With a little help from our friends!

Although there is no public access to the meadow, I have made it known that I am prepared to show interested people round the site during the short flowering season and as a result there have been a number of visitors over the years. One was the late Dunstan Adams, President of the YWT, who was very keen to try propagating seed from the site and reintroducing the resulting plants.

In the summer of 1982 I sent Dunstan a capsule containing ripe seeds from a dark flower. The following year he wrote to me in some detail as to exactly how he had treated the seeds and of their progress. The following year I sent him a few more

seeds, not as many as some had already been shed. On April 6th 1986 he brought me three pots of Fritillary seedlings, two from the 1982 seeds and one from 1983. I planted them in the meadow causing as little disturbance as possible and about 40 yards further into the field than the original plants. This group have prospered over the years and it has been possible to follow their progress in some detail.

One of the pots from 1982 contained two plants with leaves and one single broad leaf blade. The other 1982 pot had one plant with leaves, three with broad single blades and two with narrow single blades. I have no explanation for the different stages of growth as all these plants came from the same seed capsule. Both groups included mature plants with leaves and plants with only single blades. The pot from 1983 contained three single narrow blades.

The following year (1987) two of the plants with leaves (one from each pot) produced dark flowers, both of which went on to produce seeds. Four of the rest of the plants from 1982 and all three from 1983 were still single blades. It is interesting to note that it took five years with optimum conditions from germination to flowering, but only two from a possible nine produced flowers.

Subsequent Annual Summaries for this Group:

| | | | |
|---|---|---|---|
| 1988 | 4 dark flowers | 4 seeded | 11 NFP |
| 1989 | 1 dark flower (hadn't flowered before) | 0 seeds | 14 NFP |
| 1990 | 1 dark flower | 0 seeds | 15 NFP |
| 1991 | 4 dark flowers | 1 seeded | 12 NFP |
| 1992 | 4 dark flowers | 1 seeded | 12 NFP |
| 1993 | 5 dark flowers | 0 seeds | 12 NFP |
| 1994 | 9 dark flowers | 3 seeded | 9 NFP |
| 1995 | 7 dark flowers | 0 seeds | 3 NFP |
| 1996 | 4 dark flowers | 3 seeded | 10 NFP |
| 1997 | 6 dark flowers | 3 seeded | 15 NFP |
| 1998 | 7 dark flowers, 1 white flower | 1 seeded | 12 NFP |
| 1999 | 9 dark flowers, 1 white flower | 9 seeded | 8 NFP |
| 2000 | 14 dark flowers, 1 white flower | 13 going to seed | 3 NFP |

Seeding success seems to lead to a population increase in the next few years.
In fact in 2009 there were only 8 flowers but 40 NFPs.

Another group of plants which has been closely monitored and had a little help was first seen in 1987 as a single dark flower, growing some distance away from any others. It flowered again for the next five years, in two of which I pollinated it with pollen from white flowers. The only year in which it produced seed was in 1991. In 1993 it wasn't seen at all and a summary of its subsequent progress follows:

| | | |
|---|---|---|
| 1994 | 1 dark flower | 2 NFP |
| 1995 | 1 dark flower | 3 NFP |
| 1996 | 1 dark flower | 6 NFP |
| 1997 | 1 dark flower, 1bud felled, possibly by a slug, | 2 mature NFP, 9 single blade NFP |
| 1998 | 1 dark flower, 1 white flower | 4 mature NFP, 6 single blade NFP |
| 1999 | 2 dark flowers, 1 white flower | 8 NFP |
| 2000 | 4 dark flowers, 1 white flower | 4 mature NFP, 9 single blades |

By 2011 there were 16 flowers and 24 NFPs. Unfortunately 6 of the flowers were eaten, possibly by rabbits, but most of the rest did produce seeds.

The only other plant in the population which has received assistance (apart from protection against bird damage described later) was dug up by a mole and left exposed on the surface, so I replanted it about forty-five yards further into the field away from the roadside hedge. This plant which produces a white flower was part of the original group first seen in 1974. It has flowered on 16 occasions but only produced seed 5 times. Six times the flower either lacked a stigma, failed to mature or withered early during flowering. It has always remained a solitary plant and was last seen in 2007.

### All on their own

Another plant, which has had no outside assistance, was first seen as a dark flower in 1984 about eleven yards from its nearest neighbour and has remained as a solitary plant for the next 23 years although it appears to be a robust and healthy individual. It has flowered in every year except two but only been pollinated six times out of those 21 flowering years and only went on to produce ripe seeds on two occasions. In 2002 it produced 2 flower heads on the one stem but has not been seen since 2007. It does tend to flower later than the rest of the population and as Fritillaries are protogynous and do not self-fertilise, (according to Zhang 1983), that would explain the low pollination rate. The usual pollinator is a bumblebee so weather conditions during the flowering period can be a factor.

Another instance where I have been able to monitor the progress of individual plants is about two yards away from the original group. I first saw two non-flowering plants in 1980 which came up every year till 1987 when one of them produced a white flower but the other was still only a single blade. The flowering plant produced a flower the following year and again in 1993, while the other plant continued to appear as a single blade until 1993 when it had three leaves and it eventually produced a dark flower in 1998. Across the whole site there is an extremely high casualty rate between flowering and the production of ripe seeds. In the early years the reason for this was the picking of the flowers. More recently bird damage has been a significant factor. Trist (1981) in his paper on Fritillary populations in Suffolk, writes about damage to the flowers in the bud and flower stages by Pheasants and

Wood Pigeons. Both species are frequently seen at Owston as is the damage described by Trist. "*The most common form of damage is the loss of the whole perianth, which is severed by a clean cut at about the centre of the curved neck of the stem...*", although I have not observed the alleged culprits in action. Zhang (1983) also cites Pheasants and Pigeons as well as small mammals as causing damage to Fritillaries at all stages of their growth.

In the past I have experimented with twigs, pea sticks, milk bottle tops, pieces of rag and black cotton in an attempt to discourage the birds. In 2000, for the first time I protected all the flowering plants with pea sticks and black cotton and there was no bird damage at all. Other suspects are slugs and rabbits whose numbers are steadily increasing. In 2008 most of the flowers were destroyed in bud, the main suspect being the lily beetle. No evidence could be found despite diligent searches in the soil surface around the base of the flowering stems but the damage was consistent with a lily beetle attack.

### Some comparisons with other Fritillary populations

Zhang has studied a Fritillary population on a nature reserve on the outskirts of Uppsala in Sweden for a number of years. His findings (1983) suggest that the Fritillary can survive to a "considerable age", although he declines to give examples. He also comments that "*it probably needs at least five years for a seed to develop into a reproductive adult under field conditions*" which agrees with my experience.

Zhang's study suggests that irregularity of flowering is due to a variety of factors and that the reproductive potential for one year is influenced by the previous year. The plant is only able to photosynthesise for the short time during which parts of it are above ground. Non-flowering plants die back quickly as do flowering individuals which are not pollinated. By the time that the seeds are ripe on the remaining plants there are no green parts surviving. The bulb goes through a period of dormancy until the autumn when new roots begin to develop. The shoot bud starts elongating and approaches the soil surface and then enters a second period of dormancy which lasts through the winter. In spring, usually early March at Owston, the foliage leaves begin to sprout. Food reserves are built up during the time the plant is above ground, so the more favourable the conditions, the healthier and larger the bulb will be for producing the following year's growth. Following a poor year, waterlogging for instance, the plant may not appear above ground at all, but may survive underground until conditions improve. (Zhang and Hytteborne 1985). Zhang says much remains to be discovered about the factors controlling Fritillary behaviour. Sexual reproduction appears to be more successful than vegetative propagation. He has found small bulblets associated with reproductive bulbs but the competition for light and nutrients is probably too great to be successful. I have never contemplated interfering with the plants at Owston to the extent of digging them up to look at the dimensions etc. of the bulbs, but if vegetative reproduction was occurring one would expect to see close clusters of plants, which I have not observed. It is also surprising

that if vegetative reproduction was happening, that some of the plants I have been observing over many years would not have remained solitary.

Work at North Meadow in Wiltshire in 1985 looking at Fritillary distribution, gives percentage figures for the number of plants producing flowers. Two areas of slightly different topography were studied but no significant difference was found between the densities in the two contour ranges, but in one area only 12% of the plants produced flowers and in the other just 13%. (Payne and Tickner 1985).

The Cricklade and Uppsala sites are both subject to seasonal inundation from adjacent rivers which is not a factor at Owston. The only year the Owston population has been under water during flowering was in 1983 when three of the nine flowering plants went on to produce seeds and there were nine flowers the following year, so it had no detrimental effect. The underlying rock at Owston is Upper Permian Marl and the soils are made up of silty clay alluvium deposits (Site Management Plan 1999).

I have no information of the pH values on the Swedish or Wiltshire sites but samples taken from the Owston in 1978 when there was still an annual application of lime, gave a figure of 6.5 for the area near the roadside hedge where the Fritillaries grow and values of 8.5 for two separate areas further into the meadow. Readings taken in February 2000 show the pH to have remained at 6.5 near the hedge but further into the field the figure has dropped to 6.9. This is presumably because there has been no lime application since 1981 and could be an explanation as to why the Fritillaries which had no human interference were restricted to the part of the field near the hedge if that area was not being limed. The farmer was not aware of the presence of Fritillaries until I drew his attention to them so I cannot explain why he avoided the hedge area when liming unless he was thinking of drift affecting people walking along the road (Seccombe 1986).

## In conclusion

My observations over the years have raised many questions and work done by experts in other places show that the Fritillary does not give up its secrets easily.
Our medieval forebears associated these mysterious flowers with snakes and sorrow, disease and death which to them were part of everyday life. These days, if we are fortunate we can delight in the displays of these glorious flowers for three short weeks in early spring as they dance around in the breeze attracting the Bumble Bees as they emerge from their over wintering nests.

*I know what white, what purple fritillaries*
*The grassy harvest of the river-fields,*
*Above by Ensham, down by Sandford, yields;*
*And what sedged brooks are Thames's tributaries.*

Matthew Arnold - from his poem 'Thyrsis'

## References


Akeroyd J. (1999) The Encyclopaedia of Wild Flowers Bath Paragon.

Aubrey J. (1685) Memoires of Naturall Remarques on the County of Wilts. edited by Britton J. (1847) London Wiltshire Topographical Soc.

Dallman A.A. (1935) West Yorkshire Flowering Plants. N.W. Naturalist, 10 No3. p265-266

Grigson G. (1958) The Englishman's Flora Bungay Chaucer Press

Howes C.A. (1991) Hopyard Hay Meadow Report for Environmental Services. Doncaster Museum and Arts Service.

Johns Rev C.A. (1909) Flowers of the Field London Geo Routledge and Sons.

Lees F.A. (1888) The Flora of West Yorkshire London Lovell Reeve

Mabey R. (1996) Flora Britannica London Reed International Books

Marren P. (1999) Britain's rare Flowers London T and A.D. Poyser

Oswald P. (1992) The Fritillary in Britain. A Historical Perspective British Wildlife 3 (4)

Payne K. and Tickner M. (1985) Frillaria meleagris at North Meadow NNR Report for Nature Conservancy Council.

Polunin O. (1969) Flowers of Europe London Oxford University Press.

Seccombe P.A. (1983) Pip's Pasture The Doncaster Naturalist Vol.1 No3 (1986) The Distribution of the Fritillary at — Hay Meadows SSSI Report for Nature Conservancy Council

Sledge W.A. (1948) YNU Annual Report for 1947 (Flowering Plants) Naturalist 824 p25-27

Stuart D. and Sutherland J. (1987) Plants from the Past - old Flowers for new Gardens London Penguin Books.

Trist P.J.O. (1981) Fritillaria meleagris L. Its Survival and Habitats in Suffolk, England Biological Conservation 20 Applied Science Publishers.

Zhang L. (1983) Vegetation Ecology and Population Biology of *Fritillaria meleagris* L at the Kungsangen Nature Reserve, East Sweden. Uppsala Acta Phytogeographica Suecica. 7

Zhang L. and Hytteborn H (1985) Effect of ground Water Regime on development and distribution of *Fritillaria meleagris* Copenhagen Holarctic Ecology.

# The fascination of plant galls

Tom Higginbottom

Why do some naturalists become fascinated by the great variety of lumps, pimples, leaf rolls, strange swellings and other unusual growths which are known as plant galls? A gall is produced by a plant under the influence of the gall causer. The key feature in the definition of a gall is that there must be an abnormal growth, stimulated by the causer, which involves the enlargement and/or an increase of the host cells. Essentially, the gall causer is a parasite which stimulates the plant or host to form the gall structure. The gall then provides both shelter and food for the gall causer, where it lives and completes its life cycle. The main gall causers are viruses, fungi, mites and insects. Other insects and birds may seek out the gall causer as a source of food. Insect parasites may seek out the gall causer as a host, and yet another group, the inquilines, may also colonise the gall structure becoming 'squatters', without being a threat to the gall causer. It is the unusual and fascinating life cycles of the gall causers, together with the amazing variety of gall structures, which enthral cecidologists, the naturalists who study plant galls.

Most plant galls are fixed in form, shape and colour, and as galls on the whole tend to be host specific, once the plant is identified, even the more unusual galls can be identified. In 2011 three new publications about plant galls are helping naturalists to record and understand the intriguing life cycles of galls. A useful guide for beginners is *Britain's Plant Galls - A photographic guide*, by Michael Chinery, published by WILD*Guides*. More dedicated researchers will find the new Field Studies Council key to *British Plant Galls* invaluable because of its comprehensive information, and additional descriptions of galls which have appeared since the first edition in 2002. Margaret Redfern's highly regarded *Plant Galls,* a recent New Naturalist publication, provides so much information that it will, no doubt, become the standard work on plant galls for years to come.

Some of the rust fungi which produce orange blisters on plants can be gall causers. In spring *Melampsora populnea* distorts the leaf stalk and the leaves of dog's mercury. Most rust fungi at different stages in their life cycle live on an alternate host; in the case of *Melampsora populnea* the alternate host may be white poplar or aspen. Another spring rust fungi *Puccinia urticata* can have a dramatic effect, distorting the stem of stinging nettle. Sloes, the fruits of the blackthorn, suffer strange distortions caused by another fungus *Taphrina pruni* and are often known as "pocket plums".

One of the most common aphid galls is the leaf roll on wych elm caused by *Eriosoma ulmi;* the leaf roll provides shelter for the waxy green aphids. An even more dramatic but less common aphid gall, also found on wych elm, is *Tetraneura ulmi* (Plate II ,

centre pages). The aphids produce a stalked, club shaped gall on the upper surface of the leaf. However, one of the most common aphid galls is caused by the woolly aphid *Pemphigus spyrothecae,* which produces the twisted spiral on the leaf petiole of poplar species.

The Eriophyidae is the mite family with the most gall forming species. Mites feed by piercing and sucking the surface of a leaf. They may suck for a few minutes, a few hours or even one to two days. The longer the feeding the more elaborate the gall which is finally produced by the host plant. Mites may cause erinea or felt like patches on the underside of leaves. Under a hand lens these often look like small patches of sugar crystals. *Aceria pseudoplatani* is a good example and is frequently discovered on the lower surface of sycamore leaves. Another common characteristic of mite galls are leaf rolls, one of the commonest examples being the mite gall *Phyllocoptes goniothorax* which rolls the edge of hawthorn leaves. Gall mites also enlarge new buds like *Phytoptus avellanae* on hazel which can often be seem in spring. However, the keen gardener may often have cursed the effects of *Cecidophyopsis ribis,* and the damage caused by the big bud on the blackcurrant bushes. It is therefore not surprising that many mite gallers are regarded as plant pests.

Gall midges belong to the Cecidomyiidae, one of the largest families of Diptera, the two- winged flies. All feeding in gall midges occurs in the larval stage; the adults do not feed. The larvae feed on fluids, on plant sap or the contents of fungal hyphae or animal prey, and ingest by suction. Most gall midges feed on only one species or genus of host plants, which aids identification. Some midge galls are the most unusual structures, like the dogwood "rivet gall" *Craneiobia corni,* which used to be quite common at Anston Stones Wood near Rotherham, but has not been seen in recent years. Another intriguing midge gall is *Didymomyia tiliacea* (Plate II, centre pages) which galls the leaves of lime, where a cylindrical inner gall protrudes from the cone of an outer gall. The bright yellow larva is contained within the inner gall which falls to the ground leaving a hole in the outer gall.

Many plant gall enthusiasts become fascinated by the intricate life cycles of the oak galls. Gall wasps cause the vast majority of galls on oak and gall the roots, leaves, buds, catkins and acorns. The gall wasps have a life cycle involving a fixed alternation between two different generations each year. One generation is the sexual generation which produces male and female gall wasps, while the agamic generation produces only females. The two generations usually gall different parts of the oak. One of the easier galls to observe in both generations is *Neuroterus quercusbaccarum.* The spring generation, the sexual generation, forms currant-like galls on either the catkins or leaves of oak and both male and female gall wasps emerge from these galls. The females of this generation lay eggs in oak leaves which induce the formation of the flat, disc-like spangle galls on the under surface of the leaf later in the summer. The adults which emerge from the larvae from this

generation are all females and over-winter in the leaf litter once the leaves have fallen in autumn. Another gall wasp, *Andricus quercuscalicis* causes the green and sticky acorn gall (Plate II, centre pages). Sometimes almost the whole acorn crop on a tree may be affected. Interestingly, in early spring the gall wasps which emerge from the galled acorns on the common oak (*Quercus robur)* lay their eggs in the male catkins of another oak, the Turkey oak *(Q. cerris).* It was the introduction of the Turkey oak into the United Kingdom which brought the gall wasp *A. quercuscalicis* here. Many naturalists will remember the phenomenal spread northwards of this gall wasp in the 1960s and 1970s, so that even in the press there were features on this threat to our native oaks. Happily the threat was exaggerated. Other gall wasp species on oak, where the first generation is on Turkey oak and the later summer generation on common oak, are also moving quite rapidly northwards from the south of the country. Towards the end of summer a large spherical gall appears on the lower surface of oak leaves. This is the cherry gall, *Cynips quercusfolii*. On the common oak (*Q. robur)* the galls have a smooth surface, while on the other English oak *(Q. petraea)* the surface is rather warty.

Plant gall enthusiasts from across the UK are collecting records for the British Plant Gall Society database. This will provide information about the distribution of galls and help to give some answers about the significant changes and fluctuations in their occurrence. With so many enthusiasts involved in the search for galls it is not surprising that new galls are being discovered, particularly in the south of the country. Some galls appear to be moving northwards. In 2006 *Urophora carduii*, a common gall on creeping thistle in the southern half of the country, was finally discovered in Yorkshire near Fishlake. In 2009 the spiky gall on the buds of common oak Andricus *grossulariae* were found on oaks on Brodsworth Tip and in Bawtry Forest, but it was 2011 before the distinctive first generation was first recorded on the catkins of Turkey oak in Skellow. Also in 2011 during his entomological searches on Lindholme Bill Ely discovered an example of the bud gall *A. aries,* another new Yorkshire record.

There are so many different aspects to the study of plant galls that any keen naturalist, if they wish, could have a life time of study ahead of them.

*Diplolepis nervosa* Rose Pea gall.

# American Floating Pennywort in the River Don and South Yorkshire Navigation in the Doncaster region

Louise Hill & Colin Howes

Through the summer and autumn of 2010 and 2011 members of the Doncaster Naturalists' Society have been monitoring the progress of the newly arrived, highly invasive and notifiable American Floating Pennywort (*Hydrocotyle ranunculoides*) (see Plate III, centre pages) in the River Don and South Yorkshire Navigation in the Doncaster region.

In 2010 substantial populations were encountered at Sprotbrough Locks, the course of the old River Cheswold at Crimpsall (see Figure 2) and in the Canal basin opposite St George's Minster in central Doncaster (see Figure 3). Smaller colonies were noted on the Don at Sprotbrough Falls, Hexthorpe (opposite the allotment dog-leg), Crimpsall Rock Chute and in the canal at Strawberry Island and Long Sandall.

In addition to these sites, Geoffrey Wilmore (YNU Alien Plants recorder) knew of the plant in South Yorkshire back in 2000 when Jeff Lunn reported it the Barnsley Canal at Wilthorpe. In West Yorkshire Geoffrey Wilmore and Jill Lucas monitored its appearance in a small brook in Huddersfield in 2005, and its colonisation of the Calder and Hebble Navigation, notably the 'Figure of Three' Locks at Horbury and riverside flashes in the Ossett and Horbury areas.

In 2010 British Waterways allocated £20K for Pennywort control, with a further £10K coming from the Flood Risk Management team at the Environment Agency (EA). As a result in 2010 it targeted Pennywort control on the Rivers Don, Rother and Calder. During 2010 the EA employed a contractor to spray with herbicide any Floating Pennywort colonies that could be found from the Rother all the way down the Don and South Yorkshire Navigation to Crimpsall (Doncaster prison). The EA also surveyed the Rother (by canoe!) all the way up to Chesterfield to try to find the source of the infestation.

The Environment Agency, with various partner organisations including British Waterways, Doncaster and Wakefield Councils, the Don Rivers Trust and the Colne & Calder Rivers Trust has formed the 'Yorkshire Pennywort Forum'. Its aims are to provide a co-ordinated response to this invasive weed, to record and monitor its spread in Yorkshire and to tackle it in key areas.

The following brief review of local sites undertaken on 14 September 2011 showed that though some colonies had been removed, the plant was still very much in evidence.

**South Yorkshire Navigation**

St George's basin. 2-3 rafts emerging from the north bank at the angling pegs seen developing during previous weeks but had been removed by the 14 September.

Sprotborough Lock. None seen in canal dead-end, where present last year.

Cheswold Cut between SY Navigation to River Don (adjacent to Doncaster Prison)

Upstream of prison bridge.

1) Narrow triangular population (5m x 1m) aggregated around oblique shallow barrier extending out from western bank.
2) Small circular population (c. 1m diam.) just off western bank. [This is a considerable improvement on the seven colonies photographed in 2010].

Downstream of prison bridge.

1) Rectangular population (5m x 2m) on north eastern end of concrete chute. [A new site in 2011. Grey wagtail present].

**River Don**

Above Crimpsall Rock chute.

1) Small population in second angling peg below the junction with SY Navigation (on Crimpsall Island bank).

Adjacent to Sprotbrough Lock (Down-stream of Sprotbrough Bridge.

1) North bank. Large colony (9m x 3m) just downstream of large Crack Willow.
2) South bank. Small population (1m x 1m) downstream of dead Alder (These are new sites for 2011).

Between Sprotbrough Falls and Orange floats (navigation barrier).

1) North bank. Three progressively larger rafts (3m x 2m; 3m x 2m; 5m x 5m) between from falls to barrier.
2) South bank. Large colony (10m x 3m) at south end of Falls.

Above Sprotborough, just above Orange floats (Navigation barrier)

1) South bank. Colony (3m x 2m).

The canal at Strawberry Island and at Long Sandall was not re-inspected in 2011.

The Lead Officer in the 'Yorkshire Pennywort Forum', and the person to whom all colonies of the plant should be notified, is Andrew Virtue, biodiversity officer for the Environment Agency (Contact Email: andrew.virtue@environment-agency.gov.uk).

A useful website on American Floating Pennywort in the UK is:
https://secure.fera.defra.gov.uk/nonnativespecies/maps/index.cfm

# Review of Japanese Knotweed in Doncaster

**C.A. Howes** colinhowes@blueyonder.co.uk

## Japanese Knotweed (*Fallopia japonica)*

Due to its ability to cause structural damage and to **overwhelm local wildlife habitats, the control and disposal of Japanese Knotweed now comes under the requirements of the Wildlife and Countryside Act (1981) and the Environmental Protection Act (1990). Landowners, land managers and developers have a responsibility for the appropriate control and legal disposal of this vigorous and easily spread weed (see Doncaster Council's website for advice at http://www.doncaster.gov.uk/Environment_and_Planning/Recycling_Rubbish_and_Waste/Recycling/Japanese_Knotweed.asp).**

To keep local records up to date and available to the public, the following records have been shared with the Doncaster Biological Records Centre which has a Japanese Knotweed database.

## The Rise and Rise of Japanese Knotweed in the Doncaster region

Although not as abundant as in neighbouring Sheffield and Rotherham (as graphically demonstrated on the train journey from Doncaster to Sheffield), the history of its spread through the Doncaster region has none the less been impressively dynamic since the 1970s. The plant (Plate III, centre pages) is readily spread to new localities by fragments of roots and rhizomes being moved in loads of soil, on the tyres and tracks of construction machinery and by fly-tipping of garden waste. On riverbanks, colonisation is assisted by flash floods uprooting plant fragments and depositing them down stream. The June-July floods of 2007 will no doubt lead to new colonies forming along local river and drain systems.

Field surveys undertaken for this project in autumn 2006, summer 2007 and summer 2008 located 112 Japanese knotweed colonies across the Doncaster Metropolitan Borough. Although traditionally found on railway land, canal and riverbanks, many local colonies were associated with urban demolition and 'brown-field' development sites. Colonies ranged in size from small patches of $1m^2$ to the largest site of $1,740m^2$. Collectively through the Doncaster Metropolitan Borough these covered an area of some $9,853m^2$.

The 2008 survey showed that control measures had reduced coverage by $3,330m^2$. Most of the remaining colonies, constituting $6,523m^2$ of coverage, are on private land, railway land, river or canal banks.

The table below lists Doncaster's affected districts in alphabetical order and lists the number of Knotweed colonies, the size of the largest colony and the total area

covered in each neighbourhood during the 2006-07 and 2008 field surveys. It also highlights those areas that are most heavily colonised and where the plant is most likely to cause problems to current and future building or engineering developments.

The Doncaster Metropolitan Borough Council is always keen to receive additional records from members of the public. Please forward records to the Doncaster Biological Records Centre at: **brc @doncaster.gov.uk** Tel: 01302 734891

**Japanese Knotweed: Doncaster MB Area Review**

| District (Alphabetical order) | Number of Colonies 2006-07 | Number of Colonies 2008 | Largest local colony ($m^2$) | Area sub-total 2006-07($m^2$) | Area sub-total 2008($m^2$) |
|---|---|---|---|---|---|
| Askern | 9 | 8 | 500 | 1,239 | **1,079** |
| Balby | 4 | 0 | 300 | 495 | **0** |
| Bentley | 2 | 1 | 3 | 4 | **3** |
| Bughwallis | 1 | 1 | 30 | 30 | **30** |
| Carcroft | 1 | 1 | 100 | 100 | **20** |
| Conisbrough | 26 | 23 | 575 | 1,568 | **1,528** |
| Cusworth | 1 | 0 | 50 | 50 | **0** |
| Denaby Main | 5 | 5 | 500 | 661 | **631** |
| Doncaster, Belle View | 1 | 1 | 300 | 300 | **6** |
| Doncaster, Hexthorpe | 5 | 5 | 60 | 200 | **183** |
| Doncaster, Hyde Park | 5 | 4 | 15 | 43 | **42** |
| Doncaster, Marshgate | 3 | 3 | 800 | 1,410 | **1,410** |
| Doncaster, Waterfront area | 4 | 1 | 300 | 324 | **300** |
| Doncaster, West Bessacarr | 2 | 1 | 75 | 81 | **6** |
| Doncaster, Wheatley | 7 | 4 | 1,740 | 1,845 | **83** |
| Edlington | 2 | 2 | 3 | 4 | **4** |
| Fishlake | 2 | 0 | 3 | 7 | **0** |
| Hampole | 1 | 1 | 3 | 3 | **3** |
| Harlington | 1 | 1 | 140 | 140 | **35** |
| Mexborough | 25 | 23 | 120 | 674 | **631** |
| Norton | 1 | 1 | 17 | 17 | **1** |
| Old Denaby | 4 | 4 | 150 | 246 | **246** |
| Skelbrooke | 1 | 1 | 3 | 3 | **3** |
| Sprotbrough | 3 | 3 | 130 | 272 | **272** |
| Stainforth | 9 | 0 | 50 | 129 | **0** |
| Sykehouse | 1 | 0 | 1 | 1 | **0** |
| Tickhill | 2 | 2 | 4 | 7 | **7** |

# Were the seeds of the invasion of South Yorkshire by Himalayan Balsam sown in Balby?

**Sheila Hill**

A person of my acquaintance has memories from his childhood in Balby some 70 years ago. He recounts that his father, not by nature a gardener, sowed some seeds in the back-yard 'garden' of his home in Balby. They germinated well, and the back-yard (about 10' x 20' in size) became a jungle of plants, above a child's head height. They had beautiful pink flowers (see Plate III, centre pages), but the main attraction was their explosive seed dispersal mechanism. Children came from all around to experience the delight of triggering the ripe seed pods to explode. They probably came away with a few of the seeds in their pockets, to sow in the own gardens. I doubt if anybody knew what they were, but it could have been the start of something big!

Where did the seeds come from? Well that is a matter of guesswork. His father worked at that time at the Picture House cinema, (now demolished), on Doncaster's High Street. Adjacent, at No. 11 High Street, were the premises of Pennell & Sons, Nurserymen and Seed Merchants, with whom he had regular contact in the course of his job. (One of Pennell's Advertising slogans, at that time, claimed that they sold 'Seeds which Succeed') It seems quite possible that he was given, or bought, a packet of novelty seed which nobody else was likely to have. Next year everybody within range would have had them!


Himalayan Balsam by Elizabeth Farningham

The garden in question was located very near Balby Carr. Perhaps stray seeds made their way onto the damp low-lying area of the Carr. Thus, a local population of Himalayan Balsam could have had its roots in Balby, illustrating the manner in which alien species can, quite innocently, be introduced into the environment.

## Dorothy Bramley at 90

Dorothy, the previous editor of The Doncaster Naturalist, and a botanist and artist, celebrated her 90th birthday in style. She was guest of honour at a party thrown by the Doncaster Naturalists in the Museum. Some 50 friends were present, representing the many naturalists she had influenced during her active life. Several, including Professor Mark Seaward, Roger Mitchell, Geoffrey Wilmore, DNS President Louise Hill and Sue Woffinden of the Three Counties Art Group all spoke warmly of her abilities, her infectious humour, and her skills. Examples of her beautiful botanical illustrations, which enlivened previous editions of The Doncaster Naturalist, were displayed and can be seen in the above photograph of Dorothy at the event.

We wish her well.

## Elizabeth Farningham

We are very sad to report the death, in June, of Elizabeth Farningham, a long standing member of the Nats. Apart from a few indoor meetings, poor health prevented Elizabeth's active involvement over the last few years, but she was there behind the scenes assisting Colin with much of his manic fieldwork and assisting in writing up some of the numerous projects which he had on the go (for example the Wall Rue study in the Doncaster Churchyard publication).

Her funeral service included a tribute to 'a life full of creativity and appreciation of culture and the natural world.' Elizabeth was a talented botanical illustrator and studied under Valerie Oxley. She had a classical education and background and was keenly interested in the iconography of gravestones and monuments. Elizabeth enjoyed a wide range of music and the arts generally and will be greatly missed by her large family and close friends.

**Pip Seccombe**

**Editor's note:** Colin Howes has made some of Elizabeth's delightful botanical illustrations available to the Doncaster Naturalist, of which two are shown on p40 and Plate IV (centre pages).

---

## Frank Devine

Frank was born in 1937 in Hull, from where the family were evacuated during the War. They settled in the Halifax area and it was here that Frank began his engineering career, completing an apprenticeship at Asquith Machine Tools. He had a love of animals from an early age and his best friend and companion as a child was his dog Moss.

He was called for National Service at 21 and went on to complete 4 years in the RAF before deciding to return to civvy street. In the early 1960's he gained employment in Doncaster at British Nylon Spinners, which later became ICI Fibres. Frank remained there until he retired as Engineering Inspector in August 1992.

Never one for sitting down and relaxing, Frank spent his retirement working tirelessly for three charities close to his heart, the Samaritans, the Doncaster M25 Housing Support Group and Remap. He also found time to indulge his passion for nature and championed a number of local nature and conservation issues. Frank was a keen member of the Doncaster Naturalists for many years, and truly enjoyed time spent

with the group, whether surveying bats or failing miserably at the group quiz nights!

Frank would be the first to admit he could never remember the name of anything, but was endlessly fascinated by the flora and fauna around him. Sometimes the object of his fascination would get the better of him, and on one memorable occasion for his children, demonstrated the ability of a mole to hang suspended by its teeth from his bleeding thumb.

Frank died suddenly on the 11th of June 2010, following a brain haemorrhage. Married to Brenda and carer for his mother Grace, Frank was also a dedicated father, brother and grandfather. He is very sadly missed by his family and many friends, and by the numerous groups and organisations he supported.

**Helen Devine (daughter)**

*Frank's family generously donated £100 to the DNS in Frank's memory. We have decided to use it in the production of the next issue of The Doncaster Naturalist which will feature the Don Gorge, Frank's local patch.*

---

## The spread of the Bird's Wing moth

**Sheila Hill & Colin Howes**

The distribution of the Bird's Wing moth (*Dypterygia scabriuscula*) in Northern England is described in the Field Guide to the Moths of Great Britain and Ireland as very local. It now appears to have spread in increasing numbers across the border into South Yorkshire from Lincolnshire and Lancashire, where it had previously been recorded.

Records show the following sightings:

1984 One moth at Rossington VC63 on 12.06.84 (R I H )
1987 One moth at Rossington VC63on 29. 06 87 (R.I.H.)
1995 It has spread to VC 61(South-east Yorkshire) by 16.06.95.
1996 It is now in VC62 (North-east Yorkshire) 21.07.96.
2001 Recorded at Hatfield Moor on 16.06.01.(P.S.) and at Rossington on 5. 07.01. (R.I.H.)
2002 Beaumont reports that it has consolidated its position and has been recorded at several localities in the south of the County. Recorded at Rossington on 18.07.02.(R.I.H.)
2005 Recorded as 'frequent' between 16.06.05 and 26 07 05 (R.I.H.)
2006 Described as 'common' in Rossington. (Frost 2006)

Recorded in Wheatley Hills VC63 on 12. 07. 06. (S.H.)

2007 Two moths recorded in Wheatley Hills, one on 17.06.07. and another on 28.06. 07.(S.H.)

2008 Recorded on several occasions in Rossington between 22.5 and 23.7.08 (R.I.H.)

Whilst establishing itself in South Yorkshire, this moth has moved north into the York area (eg Escrick, Elvington and Haxby), and into East Yorkshire around Holme on Spalding Moor and North Cliffe Wood near Market Weighton. It now seems to be a permanent feature of Yorkshire's fauna, at least in the eastern half of the county..

For up-to-date information on where this species has been seen in the last few years, visit the Bird's Wing page of the National Biodiversity Network (NBN) website: http://data.nbn.org.uk/imt/?mode=SPECIES&species=NBNSYS0000006397

**References**

Beaumont, H. B. and Sutton, S. L. (1989) Butterflies and Moths of Yorkshire: Distribution and Conservation. YNU, Doncaster (p. 285).

Beaumont, H. E. (2002) Butterflies and Moths of Yorkshire: A Millennium Review. YNU Weymouth. (p. 114).

Frost, H. M. (2006) Yorkshire Lepidoptera 2005. YNU/ Butterfly Conservation Yorkshire.

Frost, H. M. (2007) Yorkshire Lepidoptera 2006. YNU/ Butterfly Conservation Yorkshire.

Frost, H. M. (2008) Yorkshire Butterflies and Moths 2007. YNU/ Butterfly Conservation Yorkshire.

Frost, H. M. (2009) Yorkshire Butterflies and Moths 2008. YNU/ Butterfly Conservation Yorkshire.

Bird's Wing moth. Photo: S.Hill

**The Doncaster Naturalist** is produced by the Doncaster Naturalists' Society on an occasional basis. This issue has been edited and designed by Paul Simmons, and printed by Kall Kwik, Armthorpe.

**Doncaster Naturalists Society** welcomes members who have interests in the natural history of Doncaster and district. It has served this function since 1880. The officers of the Society are:

President: Louise Hill
Secretary: Sheila Hill
Recorder: Pip Seccombe

The Society's website is: www.doncasternaturalhistorysociety.co.uk
The secretary can be contacted through: doncasternats@talktalk.net

## Events programme

The Society runs a very full programme of indoor and outdoor meetings. Forthcoming events can be seen at www.doncasternaturalhistorysociety.co.uk/ events
All are welcome to attend.

## Membership

The current membership fee is £7 per year. Contact the secretary for details.

# The Doncaster Naturalist
Volume 2 Number 2
October 2011

## Contents



ISSN 0264-0651