



**SULEHAY NATURE RESERVE**  
**Annual Report**  
**2005**

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## Introduction

This is the third Annual Report for the Sulehay Reserve produced by the voluntary wardens. Its aim is to provide a summary of observations and monitoring done by the wardens over the year, with details of any special studies carried out. The management work carried out during 2005 is also described. It is hoped that the ecological studies and monitoring described herein will help to provide ideas for future management policy, and complement the work done by the Limestone Ecology Group under Henry Stanier.

We welcome new wardens Glen and Irene Hall, who live in Yarwell. The volunteer team now comprises:

Wendy Brooks  
Ron Follows  
Glen Hall  
Irene Hall  
Norman Low  
Pam Low  
Nick Owens  
Mike Rogers  
Graham Storey

Nick Owens  
March 2006

## Management Programme 2005

A very major contribution towards the management of the reserve has continued during 2005, with Mike Rogers and Ron Follows carrying out the majority of the tasks. Mike and Ron's efforts have been crucial to the maintenance and management of the site. Mike has coordinated the overall programme through Jane Pearman. Ron and Mike have also been responsible for maintaining and servicing the reserve's machinery and tools. Jane and her team have made a major contribution, with Jane appearing at dawn to pull ragwort on occasions! Cathy Wainright has used her flying flock of sheep to very good effect. Peterborough Conservation Volunteers (PCV) have done some very useful work. The following summarises the main management activities carried out during 2005:

### Sulehay Forest

- Scalloping programme: all scheduled work carried out. The updated schedule is on the website: [www.sulehaynaturereserve.org.uk/scallop\\_programme1.htm](http://www.sulehaynaturereserve.org.uk/scallop_programme1.htm). Mucky ride was cleared of bramble and the lower end widened by cutting back hazel and thorn where it was growing outside the wood bank (some of this in early 2006). All other rides and verges were cut and raked.
- Dry stone wall: PCV helped with the reconstruction, including a badger underpass. Other work was done by Oundle School pupils guided by Nick Owens and John Gillings.
- Ragwort was pulled and cleared to compost area.

### East Field

- Ragwort removed. Sheep grazing in autumn.

### Stonepit Quarry

- Removal of trees and scrub from 'north slope'.
- Removal of ash saplings and scrub from NE corner by PCV.
- Paths maintained.
- Bramble growing through fence on to ride cut back.

### Ring Haw Wood

- Harebell corner: trees cut back from perimeter. Grass cut and cleared.
- Upper glade cleared of bramble.
- Paul's glade widened.
- Section inside pheasant pen coppiced, and fences secured against deer.

### Other parts of Ring Haw

- Calcining banks cut – about one fifth on the rank grass area.
- Glade in lower wood maintained by autumn cutting.
- Ragwort pulled on Walden Lane, Weighbridge Sidings, Calcining Banks and Spur 1.
- Walden Hill cut, baled and cleared to compost area.
- Weighbridge Sidings: bramble cut back and cleared.
- Spur 1: verges and scallops; bramble cut back and cleared.

### Sammocks

- Hay cut in summer, with aftermath grazing by sheep (see separate notes).



Ron & Mike cutting the calcining banks



Ring Haw Long Glade before...

and after



PCV on the wall before...

and after

## Birds 2005

**Lesser spotted woodpeckers** have been the subject of careful searching, with six records in 2005, including a pair near the Field Station at Ring Haw in June. There were 9 records (all in Old Sulehay) in 2004, including two records from Don Jefferies. All the records for this species during the breeding season are sent to the BTO for their scarce woodland bird study. **Lesser whitethroats** held territory in four places on the reserve: along the edge of Sulehay adjacent to East Field, in Stonepit Quarry, the Calcining Banks and in the hedge dividing Sammocks Hill. **Buzzards** were seen regularly and at least two newly fledged buzzards were calling from Sulehay in July. Two were flying well on the north edge of the forest on 16<sup>th</sup> August. **Water rail** was heard calling in Nassington Bottoms Mire on 17<sup>th</sup> July, and one was seen there in December. A juvenile **willow tit** was seen near the calcining banks on 23<sup>rd</sup> June and another was calling near the Field Station on 7<sup>th</sup> July. This is now an uncommon species in the area. Winter flocks of **goldfinches** have numbered up to 30. They often feed on lesser burdock seeds, which seem to persist through to the end of winter. **Woodcock** were present in both Ring Haw (2 on 3<sup>rd</sup> Jan) and Sulehay (1<sup>st</sup> Feb). A female **ring ouzel** was in Stonepit Quarry on 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> November. A **spotted flycatcher** was feeding along the main ride in the forest on 8<sup>th</sup> July, with two there on 9<sup>th</sup> August, one a juvenile. It is likely that these birds bred elsewhere and moved to the forest to feed. A late spotted flycatcher was on the fence posts at Ring Haw on 2<sup>nd</sup> September. Two **green sandpipers** turned up in Yarwell Pits on 6<sup>th</sup> July. **Sand martins** nested on the newly excavated reservoirs on the Rutland Oil site, to the north of the forest. 28 holes were counted on 8<sup>th</sup> July.

**Tawny owls** bred in Sulehay Forest, with two (possibly three) young calling on 22<sup>nd</sup> June. From December 2004 a pair was roosting in ivy close to the centre of the forest. Sometimes two birds roosted side by side in one ivy clump. At other times they roosted in separate nearby sites. They remained in the ivy roosts until late March. On 12<sup>th</sup> June a tawny owl was chased by eight blackbirds as it flew through the trees in daylight hours. Some pellets were collected from beneath the ivy roost, which produced the following contents.

	Date	field vole	bank vole	wood mouse	common shrew	water shrew	bird	toad	no. pellets
TL 063 986	13/03/2005		10	5			1	1	16
TL 063 986	22/03/2005	6	8	3	1	1			12
TL 063 986	25/03/2005	3	11	6			1		12
Totals		9	29	14	1	1	2	1	40

This analysis shows the importance of **bank voles** in the owls' diet. This contrasts with barn owls in the area, whose main prey is field voles. Field voles occur in tussocky grassland in open country favoured by barn owls. Bank voles are abundant in Sulehay with much evidence along the boundary walls and hedges. The presence of **water shrew** and **toad** (skin) may reflect the proximity of Yarwell Pits. A live water shrew was seen by the stone wall adjacent to the forest on 23<sup>rd</sup> February.

## Stonepit Quarry Bird Counts by Anthony Mould and Larry Graham

Regular counts of birds were made in Stonepit Quarry as part of the Limestone Ecology Group's activities. Counts were made between November 2003 and December 2005. The dates of the counts and totals for each species are given in the tables below.

The counts show that Stonepit Quarry is a particularly good habitat for blackbirds, bullfinches (with a maximum of 11), green woodpeckers, robins, song thrushes and willow warblers. Turtle doves seem to have been rather scarce, with only occasional records. In 2002 there were an estimated four pairs in the quarry (see 2003 Annual Report). The absence of cuckoos is also worrying.

A long-eared owl, was seen roosting in thorn bushes on March 14<sup>th</sup> 2004.

Counts are being continued across the whole reserve in 2006, to include Sulehay Forest, Stonepit Quarry, Ring Haw Wood and the lower part of the Ring Haw reserve.

<b>2003</b>	N	N	D	D	<b>Total</b>
	9	30	14	29	
Blackbird	5	14	8	21	<b>48</b>
Blue Tit	1	7		6	<b>14</b>
Bullfinch	3	8	1	4	<b>16</b>
Carrion Crow	4	2		11	<b>17</b>
Chaffinch	4	17		7	<b>28</b>
Coal Tit		1			<b>1</b>
Dunnock		1			<b>1</b>
Fieldfare	50	2		7	<b>59</b>
Goldfinch	4	2	3	10	<b>19</b>
Great tit				3	<b>3</b>
Green Woodpecker		1			<b>1</b>
Greenfinch	11	7		7	<b>25</b>
Jay	1			1	<b>2</b>
Linnet		13			<b>13</b>
Long Tailed Tit		5		4	<b>9</b>
Magpie				2	<b>2</b>
Mistle Thrush	1				<b>1</b>
Redwing		40	7	2	<b>49</b>
Robin	9	6	5	1	<b>21</b>
Song Thrush		1	1	4	<b>6</b>
Sparrow hawk			1		<b>1</b>
Wood Pigeon	2	3	3	3	<b>11</b>
Wren	3	1	1	4	<b>9</b>
Yellowhammer	2	3	1	40	<b>46</b>

<b>2004</b>	J	J	F	M	M	M	A	A	A	M	A	S	O	N	D	<b>Total</b>
	18	25	22	14	21	28	12	18	28	20	22	19	17	21	19	
Blackbird	15	10	5	7	1	7	8	8	8	2	4	2	4	22	18	<b>121</b>
Blackcap							1	2		1						<b>4</b>
Blue Tit	8	5	2	10	3	5	12	8	3		11	9		2		<b>78</b>
Bullfinch	7	1		5	2							2		2	9	<b>28</b>
Buzzard						1										<b>1</b>
Carrion Crow	4		1	2				3		1						<b>11</b>
Chaffinch	1	5	4	6	3	2	14	12	9	5		4	4	11	7	<b>87</b>
Chiffchaff						5	7	6	4			4				<b>26</b>
Coal Tit									1							<b>1</b>
Dunnock	1	5	4	5	4	10	8	4	2	1		4	4	1	10	<b>63</b>
Fieldfare	1						50									<b>51</b>
Goldcrest						1									1	<b>2</b>
Goldfinch														5	1	<b>6</b>
G.S.Woodpecker			1								1					<b>2</b>
Great tit	5	1	2	2		1	2	6			2				1	<b>22</b>
Green Woodpecker	1	2		1		1		1			2	1		1	1	<b>11</b>
Greenfinch	2		7		11	10	3	1	3			3	4	23	2	<b>69</b>
House Martin							2				9	2				<b>13</b>
Jay							2			1	3		1	3	1	<b>11</b>
Linnet											1					<b>1</b>
Long Eared Owl				1												<b>1</b>
Long Tailed Tit						2	1				13	10				<b>26</b>
Magpie	3			2	1	4		2								<b>12</b>
Marsh Tit	1		1											1		<b>3</b>
Meadow Pipit														1		<b>1</b>
Mistle Thrush												3		2		<b>5</b>
Nuthatch													1			<b>1</b>
Pheasant		2														<b>2</b>
Red Kite							2									<b>2</b>
Redwing	3												2	18	5	<b>28</b>
Reed Bunting															1	<b>1</b>
Robin	4	6	3	2	2	11	6	6	4	1	7	9	5	9	4	<b>79</b>
Skylark				1			1									<b>2</b>
Song Thrush	3	2				2				2				1		<b>10</b>
Swallow								1	5		2					<b>8</b>
Turtle Dove										1						<b>1</b>
Whitethroat										1	1	1				<b>3</b>
Willow Warbler							4	6	3	5	4	2				<b>24</b>
Wood Pigeon	1			1			1		2	4	4	1	2			<b>16</b>
Wren	1	3	1			1	3	1	1	1	4	1				<b>17</b>
Yellowhammer	1	2	30									1			2	<b>36</b>

<b>2005</b>	J	F	F	M	M	A	M	J	J	Jy	A	S	S	O	N	D	<b>Total</b>
	6	6	20	6	27	13	8	5	22	10	7	3	5	23	6	4	
Blackbird	10	15	11	7	9	8	5	6		3	4	1	8	4	16	21	<b>128</b>
Blackcap						6	2	1		1	1						<b>11</b>
Black-headed gull															6		<b>6</b>
Blue Tit	3	10	3	2	12	2	8	6	3	1	5	5	6	4		4	<b>74</b>
Bullfinch	6							1	1	2			11	4		2	<b>27</b>
Carrion crow	1													1	1		<b>3</b>
Chaffinch	3	11	3	10	12	2	4	6		2	3		12	12	7	13	<b>100</b>
Chiffchaff					3	2	1										<b>6</b>
Coal tit														2			<b>2</b>
Dunnock	4	5	2	3	5	1	3	6			2	1	4	3	2	1	<b>42</b>
Fieldfare	1				2									85			<b>88</b>
Garden Warbler						1	3	2	1								<b>7</b>
Goldcrest	2							1								1	<b>4</b>
Goldfinch										3		3			19	4	<b>29</b>
Great spotted wood.														1			<b>1</b>
Great tit		4	1	2	3	8	4	1		1	1		1			2	<b>28</b>
Greenfinch		13	1		6	1	3		4	10	5			8	13	23	<b>87</b>
Green Woodpecker								2	4	2	1		1	1			<b>11</b>
Jackdaw															2		<b>2</b>
Jay	1	1			2								2		1	2	<b>9</b>
Kestrel						1					1		1				<b>3</b>
Long tailed tit	4					2		2							2		<b>10</b>
Magpie			1			1					2	1				1	<b>6</b>
Marsh tit		1	1	1	2									1	1		<b>7</b>
Mistle thrush													2				<b>2</b>
Pied wagtail																1	<b>1</b>
Redwing															16	8	<b>24</b>
Reed bunting																6	<b>6</b>
Nuthatch							2										<b>2</b>
Robin	7	12	9	6	8	8	4	5	2		1	3	8	9	5	8	<b>95</b>
Song Thrush	2	4	1		6			4		2	1		2	2			<b>24</b>
Sparrow hawk																1	<b>1</b>
Spotted flycatcher												1					<b>1</b>
Swallow										1	3	5					<b>9</b>
Turtle Dove							1										<b>1</b>
Whitethroat							2	1	1	3	4						<b>11</b>
Willow tit												2					<b>2</b>
Willow Warbler						5	2	2	4		1						<b>14</b>
Wood Pigeon	1				4	2		3	5		7		1	1	3	2	<b>29</b>
Wren	2	3		1	4	2	5	2	2	2	7		1	1		1	<b>33</b>
Yellowhammer			1						4	2							<b>7</b>

## Flowering plants 2005

Twenty **greater butterfly orchids** appeared in the usual place (16<sup>th</sup> April). Six produced flower spikes, but only three survived browsing and produced flowers. Six of the plants were on the wood bank and the others in the scallop. This species seems to grow where it is rather damp. Perhaps the seeds germinate among moss in damp places. **Bee orchids** were quite widespread. Fifteen were found on Waldon Hill by Henry Stanier. A specimen in Stonepit quarry had eight flowers on the inflorescence. Two **pyramidal orchids** were found on the grassland near the railway bridge (Nassington Bottoms Close), one being very large. A single specimen was found in the NE corner of Stonepit Quarry. **Grass pea** appeared again on the Calcining Banks with at least two plants on 9<sup>th</sup> June. **Lesser centaury** was flowering near the Field Station on 24<sup>th</sup> June, and was quite widespread in the Ring Haw area, on very short turf. The plants were usually very tiny – just 3-4cm. The beeches and the wild service in Sulehay did not produce any fruits at all. Oaks produced a fair amount of acorns, some showing knopper galls.

### Sammocks Hill 2005: Nick Owens and Perdita Cawthorne

Both fields were cut and baled in early July, and the bales removed from the site. Sheep arrived for aftermath grazing in early September and stayed into the New Year (2006). The sheep were a mix of Manx Loughton, Hebridean, Ronaldsay and Longwools. There were generally about 35 sheep present.

The plant species list, begun in 2004, was maintained for Sammocks East (SE) and Sammocks West (SW) separately, with the assistance of Perdita Cawthorne. The list is based on casual observations over several visits. Flowering plants (including woody plants in the dividing hedge) and ferns are included, but not bryophytes.

**Wild carrot, alsike clover, yellow rattle** and **kidney vetch** had not previously been found anywhere on the Sulehay Reserve, so almost certainly came from introduced seed. **Cowslip** and **field scabious** may have come from introduced seed or from naturally dispersed seed. The total number of plant species identified so far is 59 (SW) and 64 (SE), as shown in the table. So species diversity is similar for the two fields despite their very different original treatments – SW having been being ploughed and reseeded and SE being treated with introduced straw bales on existing turf (both in the autumn of 2003). The total number of plant species for the two fields combined is 87, showing that their species composition is rather different. Many of the annual arable weeds in SW disappeared in 2005, notably the **charlock** and the **fluellens**, but **creeping thistle** continued to be dominant here. **Ragwort** continued to flourish in both fields and some was spot sprayed. With the loss of arable weeds, SW is currently less diverse than SE.

The impact of the **yellow rattle** from the hay spread on SE was quite marked. In areas with high densities of yellow rattle, the grass was greatly reduced in vigour or even apparently absent altogether. In its place there was a great deal of **ribwort plantain** (not parasitized by yellow rattle) and **red clover**. However, by the year's end there appeared to be quite a good mixed sward developing on these areas, probably helped by the sheep grazing, with **cowslip** rosettes appearing in places.

The sheep seemed to be eating most plants, including grasses, **common knapweed** and plantains. Some sheep were also eating ragwort rosettes, to the extent that none could be seen on East Field (by the Wansford Road) in December. However, ragwort rosettes were still in evidence in Wansford Pasture where Hebridean ewes have been at work at low density for several years. It seems that, given the right conditions,

some sheep will eat ragwort rosettes. The important thing seems to be grazing intensity. The sheep corralled on Walden Hill ate all the ragwort right down into the taproots in January 2006. It remains to be seen to what extent this reduces the coming season's growth.



Manx loghtons on Sammocks West

Plant list Sammocks Hill 2005		Abundance code*	Family	Sammocks West	Sammocks East	Introduced
Hazel	Corylus avellana	C	Betulaceae	1	1	
Hounds tongue	Cynoglossum officinale	R	Boraginaceae	1	1	
Field forget-me-not	Myosotis arvensis	VC	Boraginaceae	1	1	
Elder	Sambucus nigra	VC	Caprifoliaceae	1	1	
Common mouseear	Cerastium fontanum	VC	Caryophyllaceae	1		
Bladder campion	Silene vulgaris	C	Caryophyllaceae		1	
Lesser burdock	Arctium minus	C	Compositae	1	1	
Common knapweed	Centaurea nigra	C	Compositae	1	1	
Creeping thistle	Cirsium arvense	F	Compositae	1	1	
Woolley thistle	Cirsium eriophorum	O	Compositae	1		
Marsh thistle	Cirsium palustre	F	Compositae	1		
Spear thistle	Cirsium vulgare	VC	Compositae	1	1	
Beaked hawk's-beard	Crepis biennis ssp taraxacifolia	VC	Compositae		1	
Smooth hawk bit	Crepis capillaris	VC	Compositae	1	1	
Field scabious	Knautia arvensis	F	Compositae	1		?
Rough hawk bit	Leontodon hispidus	C	Compositae		1	
Oxeye daisy	Leucanthemum vulgare	F	Compositae	1	1	
Bristly oxtongue	Picris echioides	F	Compositae	1	1	
Feabane	Pulicaria dysenterica	O	Compositae	1		
Common ragwort	Senecio jacobaea	C	Compositae	1	1	
Groundsel	Senecio vulgaris	VC	Compositae	1		
Perennial sow thistle	Sonchus arvensis	VC	Compositae	1	1	
Dandelion	Taraxacum agg.	VC	Compositae		1	
Goat's beard	Tragopogon pratensis	F	Compositae		1	
Field bindweed	Convolvulus arvensis	C	Convolvulaceae		1	
Dogwood	Cornus sanguinea	F	Cornaceae	1		
Cuckoo flower	Cardamine pratensis	C	Cruciferae		1	
Charlock	Sinapis arvensis	VC	Cruciferae	1		
Wood sedge	Carex sylvatica	C	Cyperaceae		1	
Teasel	Dipsacus fullonum	C	Dipsacaceae	1	1	
Kidney vetch	Anthyllis vulneraria	C	Fabaceae		1	
Greater birds-foot-trefoil	Lotus pedunculatus	C	Fabaceae		1	
Black medic	Medicago lupulina	VC	Fabaceae	1	1	
Yellow mellilot	Mellilotus altissimus	F	Fabaceae		1	
Lesser trefoil	Trifolium dubium	VC	Fabaceae	1	1	
Alsike clover	Trifolium hybridum	O	Fabaceae	1		
Red clover	Trifolium pratense	VC	Fabaceae	1	1	
White clover	Trifolium repens	VC	Fabaceae	1	1	
Hop trefoil	Trifolium campestre	F	Fabaceae	1	1	
Out-leaved cranesbill	Geranium dissectum	C	Geraniaceae	1		
Soft brome	Bromus mollis	VC	Graminae	1	1	
Sterile brome	Bromus sterilis	VC	Graminae	1	1	
Cock's-foot	Dactylis glomerata	VC	Graminae	1	1	
Tufted hair grass	Deschampsia cespitosa	C	Graminae		1	
Tall fescue	Festuca	C	Graminae		1	
Red fescue	Festuca rubra	VC	Graminae	1		
Yorkshire fog	Holcus lanatus	C	Graminae		1	
Timothy grass	Phleum pratense	C	Graminae		1	
Rough meadow grass	Poa trivialis	VC	Graminae		1	
False oat grass	Arrhenatherum elatius	C	Gramineae	1	1	
Squirrel tail fescue	Vulpia bromoides	O	Gramineae	1		
Hard rush	Juncus inflexus	C	Juncaceae		1	
Wild basil	Clinopodium vulgare	C	Labiatae	1	1	
White dead-nettle	Lamium album	VC	Labiatae		1	
Selfheal	Prunella vulgaris	C	Labiatae	1	1	
Fairy flax	Linum catharticum	F	Linaceae		1	
Ash	Fraxinus excelsior	F	Oleaceae	1	1	
Square stalked willow herb	Epilobium tetragonum	O	Onagraceae	1		
Field poppy	Papaver rhoeas	F	Papaveraceae	1	1	
Ribwort plantain	Plantago lanceolata	C	Plantaginaceae	1	1	
Great plantain	Plantago major	VC	Plantaginaceae		1	
Curled dock	Rumex crispus	VC	Polygonaceae	1	1	
Broad dock	Rumex obtusifolius	VC	Polygonaceae	1	1	
Cow slip	Primula veris	C	Primulaceae		1	?
Scarlet pimpernell	Anagallis arvensis	O	Primulaceae	1		
Old-man's beard	Clematis vitalba	F	Ranunculaceae	1	1	
Meadow buttercup	Ranunculus acris	C	Ranunculaceae	1		
Creeping buttercup	Ranunculus repens	VC	Ranunculaceae	1	1	
Agrimony	Agrimonia eupatoria	C	Rosaceae		1	
Haw thorne	Crataegus monogyna	C	Rosaceae	1	1	
Blackthorn	Prunus spinosa	C	Rosaceae		1	
Dogrose	Rosa canina	C	Rosaceae		1	
Bramble	Rubus sp.	VC	Rosaceae	1	1	
Goosegrass	Galium aparine	VC	Rubiaceae	1		
Upright bedstraw	Galium erectum	C	Rubiaceae	1		
Field madder	Sherardia arvensis	O	Rubiaceae	1		
Eyebright sp	Euphrasia sp.	O	Scrophulariaceae	1		
Sharp-leaved fluellen	Kickxia elatine	R	Scrophulariaceae	1		
Round-leaved fluellen	Kickxia spuria	R	Scrophulariaceae	1		
Yellow toadflax	Linaria vulgaris	O	Scrophulariaceae	1	1	
Red bartisia	Odonites vernus	C	Scrophulariaceae	1		
Yellow rattle	Rhinanthus minor	O	Scrophulariaceae	1	1	
Wall speedwell	Veronica arvensis	C	Scrophulariaceae	1		
Cow parsley	Anthriscus sylvestris	VC	Umbelliferae		1	
Wild carrot	Daucus carota	C	Umbelliferae	1		
Hogweed	Heracleum sphondylium	C	Umbelliferae		1	
Stinging nettle	Urtica dioica	VC	Urticaceae	1	1	
Total species				59	64	

\* VC = very common, C = common, F = frequent, O = occasional, R = rare [based on Gent and Wilson Flora of Northamptonshire]

## Bumblebees: Nick Owens

The presence of *Bombus ruderatus* (large garden bumblebee), was confirmed by Adrian Knowles, who took a specimen on the Calcining Banks on 17<sup>th</sup> July, during the Wildlife Training Workshop. Adrian sent this to Ted Benton for final confirmation. [see note on black bumblebee p.10 of the 2004 Report]. This is an uncommon species nationally ('one of the rarest British bumblebees' : Ted Benton) but not particularly associated with gardens, despite its name. Its ecological requirements are not well understood. It is very similar to *B. hortorum*, and the male genitalia are indistinguishable (Adrian Knowles pers. comm.). Identification requires specialist knowledge.

The main ride of Sulehay proved to be a good hunting ground on the day of the workshop, especially the spear thistles which grew in the cleared scallops. Here *B. ruderatus* was photographed, but not confirmed by taking a specimen. Two further new species for the reserve were confirmed by Adrian from Sulehay main ride, both cuckoo bees, namely:

- *B. rupestris* (hill cuckoo-bee). Specimen taken by Adrian on 17/7/05. *B. rupestris* parasitizes *B. lapidarius*. It has a southern distribution but is spreading northwards.
- *B. barbutellus* (Barbut's cuckoo-bee) [photo of genitalia taken by NWO and sent by e-mail to Adrian for confirmation. Specimen taken 20/7/05]. *B. barbutellus* parasitizes *B. hortorum*. It is a widespread species.



Male *B. rupestris*

We now have ten bumblebee species recorded on the Sulehay Reserve. The complete list is:

- B. hortorum* (garden bumblebee)
- B. pascuorum* (common carder bee)
- B. lapidarius* (red-tailed bumblebee)
- B. terrestris* (buff tailed bumblebee)
- B. lucorum* (white tailed bumblebee)
- B. pratorum* (early bumblebee)
- B. ruderatus* (large garden bumblebee)
- B. vestalis* (vestal cuckoo bumblebee)
- B. barbutellus* (Barbut's cuckoo bumblebee)
- B. rupestris* (hill cuckoo bumblebee)

### **Relationship between bumblebees and flowers on the Sulehay Reserve**

Sulehay has a very good diversity of bumblebees, and it seemed worth enquiring into the plant species on which they are dependent. A comprehensive list of the flowering plants on the reserve was already in place, with 279 species recorded so far (see

website). During 2005, a note was made of all bumblebee visits to flowers seen on the reserve during casual visits. A note was made of the bumblebee species seen, whether the bee was a male, a queen or a worker, and whether it was taking nectar or pollen. The study will be continued in 2006, but some preliminary analysis can be given:

### **Which were the best plant families for bumblebees?**

From the field recordings, the total number of bumblebee species visiting each plant species was counted. For example, lesser burdock was observed to be visited by four bumblebee species, so is given a count of 4. The list below shows the total score for each plant family, and the number in brackets shows the number of members of that family which received bumblebee visits. For example, nine members of the family Compositae were seen to be visited. Each composite species was visited by more than one species of bumblebee (on average over 3 bumblebee species per plant species), giving a total of 29.

Compositae	29 (9) daisy family
Lamiaceae	11 (5) mint family
Rosaceae	9 (3) rose family *
Fabaceae	8 (4) bean family
Boraginaceae	8 (3) borage family
Scrophulariaceae	7 (5) figwort family
Onagraceae	4 (3) willow-herb family
Dipsacaceae	4 (1) teasel family
Hypericaceae	4 (1) Saint John's-wort family *
Geraniaceae	2 (1) geranium family
Salicaceae	2 (1) willow family
Solanaceae	2 (2) nightshade family
Hippocastanaceae	3 (1) horse chestnut family
Campanulaceae	1 (1) bell-flower family
Circubitaceae	1 (1) cucumber family
Fumariaceae	1 (1) fumitory family
Gentianaceae	1 (1) gentian family
Malvaceae	1 (1) mallow family
Ranunculaceae	1 (1) buttercup family
Resedaceae	1 (1) mignonette family
Papaveraceae	1 (1) poppy family
Orobanchaceae	1 (1) broomrape family
Liliaceae	1 (1) lily family
Caprifoliaceae	1 (1) honeysuckle family
Violaceae	1 (1) violet family
Primulaceae	1 (1) primrose family

\* visited for pollen

The flowering plant families on the reserve plant list which have not so far been recorded as receiving visits from any bumblebees are:

Aceraceae, Aquifoliaceae, Araceae, Araliaceae, Betulaceae, Caryophyllaceae, Celastraceae, Chenopodiaceae, Convolvulaceae, Cruciferae (some probably missed), Cyperaceae, Dioscoriaceae, Euphorbiaceae, Fagaceae, Graminae, Grossulariaceae (gooseberry – probably missed), Iridaceae, Juncaceae, Oleaceae, Orchidaceae, Oxalidaceae, Plantaginaceae, Polygonaceae, Rhamnaceae, Rubiaceae, Thymeliaceae, Umbelliferae (hogweed missed).

We see from these preliminary results that 26 flowering plant families are used by bumblebees as a food source on the reserve, with Compositae heading the list by some

way. Not all composites did attract bumblebees, however; creeping thistle in particular did not seem to be used by bumblebees significantly. Twenty seven flowering plant families have not so far been observed being visited by bumblebees, though in at least three of these, visits were probably missed, and will be targeted in 2006. Some of the non-visited families are pollinated by other insects or are wind pollinated (families underlined).

### **Which were the best individual plant species for bumblebees?**

The top plant species for bumblebees on the reserve, with number of species visiting were:

Spear thistle 10 (Compositae)  
Bramble 7 (Rosaceae)  
Viper's bugloss 5 (Boraginaceae)

Bramble was used for collecting pollen as well as nectar. Wild rose was used for pollen only, as was St John's-wort.

### **Which bumblebee species visited the widest range of plant species?**

Inevitably, the more common bumblebee species would tend to be noticed on the widest range of flowers. However, the list below does suggest which bumblebees had the most catholic tastes overall.

<i>B. hortorum</i> (garden bumblebee) *	10
<i>B. pascuorum</i> (common carder bee)*	21
<i>B. lapidarius</i> (red-tailed bumblebee)	23
<i>B. terrestris</i> (buff tailed bumblebee)	17
<i>B. lucorum</i> (white tailed bumblebee)	13
<i>B. pratorum</i> (early bumblebee)	13
<i>B. ruderatus</i> (large garden bumblebee)*	2
<i>B. vestalis</i> (vestal cuckoo bumblebee)	3
<i>B. barbutellus</i> (Barbut's cuckoo bumblebee)	2
<i>B. rupestris</i> (hill cuckoo bumblebee)	1

\* long-tongued species

The red-tailed bumblebee and common carder bee were seen on the widest range of flowers. These two species are the commonest on the reserve. The common carder bee is a long-tongued species, but nevertheless visits a wide range of flower species. It also appears from casual observations to be able to continue feeding in cooler conditions than other species, in early morning and late evening. The red-tailed bumblebee was the only species to feed significantly on ragwort. Ragwort is also an important nectar source for butterflies, such as small tortoiseshells, so perhaps we should not be too keen to clear it away completely!

### **Which plant species were important for queen bees?**

Important plant species for newly-emerged queens in the spring were ground ivy, white dead-nettle, goat willow and horse chestnut. The importance of bluebell is yet to be assessed. Newly hatched queens later in the year (July onwards) were attracted particularly to woolly thistle, spear thistle, teasel and bramble.



Ground ivy is frost tolerant



Ground ivy in Rutland Oil quarry

### **What proportion of plant species on the reserve is visited by bumblebees?**

Fifty two out of 280 flowering plant species have so far been observed being visited by bumblebees, in 26 out of 53 families.

### **Were there special associations between particular bumblebee and plant species?**

- Cuckoo bees were seen especially on thistles. Cuckoo bees are not so active or nimble as other bumblebees, and tend to crawl around flower heads and fly drowsily with a soft buzz, probably preferring massed flowers.
- *Bombus lapidarius* was commonly seen on ragwort. *B. lapidarius* is host to *B. rupestris*, but *B. rupestris* is not found throughout the range of *B. lapidarius*. Maybe it requires good host populations and these in turn may be associated with ragwort!
- *Bombus pratorum* is a small species and tends to work smaller flowers. It was the only species seen on white bryony, great hairy willow herb, toothwort (queen), germander speedwell, deadly nightshade and gromwell.
- Yellow rattle, white dead-nettle and bush vetch were seen to be visited only by the long-tongued species, *B. hortorum* and *B. pascuorum*. Some bumblebees are able to chew through the corolla base and gain nectar usually preserved for long-tongued species. This explains the use of fumitory by *B. pratorum* in addition to the two species above.

### **Why is the Sulehay Reserve so good for bumblebees?**

There was only one plant species which is rare in the county which provided an important nectar source on the reserve, namely viper's bugloss. The significant nectar sources for bumblebees were mostly common species such as thistles, bramble, teasel, ragwort, ground ivy, and burdock. The importance of the reserve may lie in the abundance of such plants, and the extensive derelict quarry land within and adjacent to the reserve. A wide range of plant species on this calcareous habitat offers a succession of nectar sources through the year. Ground ivy may be very important in sustaining newly emerged queens in the spring. This plant thrives on rabbit nibbled turf, as the rabbits do not eat it. Great swathes of purple are seen on the open ground in the quarry areas in the spring.

Sources of pollen should also be considered, since this provides larvae with protein. Wild rose, bramble and St. John's-wort were important pollen sources. Goat willow catkins provided much pollen for queens in the spring. Of these, only St. John's-wort is scarce in the wider countryside. Another factor which is probably significant is the presence of warm, sandy ground with loose stones providing places for nest building. Some species tend to nest under stones, providing extra warmth and protection (eg *B. lapidarius*). Badgers are major predators of bumblebee nests on the reserve, but the bumblebees thrive despite their depredations.

### Butterflies 2005: Ron and Judy Follows

Weekly butterfly transects were continued on the Ring Haw section of the reserve in 2005 by Ron and Judy Follows. The full results are on the website. The most abundant species overall was again meadow brown, followed by gatekeeper. Small skipper took third place, being much more abundant than in 2004. Ringlets also increased, while red admirals were scarce. Marbled white was not recorded during the transects, but two were seen on the Calcining Banks on 7<sup>th</sup> July. Black hairstreak was not seen again, but no search was made by expert Mick Groom. White admiral did not show up in Sulehay Forest, but this canopy species can easily be missed. White letter hairstreak was found by Henry Stanier on the open day near the Field Station.

Butterflies recorded in Sulehay Forest and Stonepit Quarry 2000-2003  
and on the whole reserve including Ring Haw from 2004

	2000	2001	2002	2003	2004	2005
		(incomplete)				
Black hairstreak					*	
Brimstone	*	*	*	*	*	*
Brown argus	*	*	*	*	*	*
Clouded yellow	*			*	*	*
Comma	*		*	*	*	*
Common blue	*	*	*	*	*	*
Dingy skipper	*		*	*	*	*
Essex skipper	*		*	*	*	*
Gatekeeper	*		*	*	*	*
Green hairstreak	*		*		*	*
Green-veined white			*	*	*	*
Grizzled skipper	*		*	*	*	*
Holly blue			*	*	*	*
Large skipper	*		*	*	*	*
Large white	*		*	*	*	*
Marbled white					*	*
Meadow brown	*		*	*	*	*
Orange tip		*	*	*	*	*
Painted lady	*		*	*	*	*
Peacock	*	*	*	*	*	*
Purple hairstreak		*	*	*	*	
Red admiral	*	*	*	*	*	*
Ringlet	*		*	*	*	*
Small copper	*		*	*	*	*
Small heath	*		*	*	*	*
Small skipper	*		*	*	*	*
Small tortoiseshell	*		*	*	*	*
Small white	*		*	*	*	*
Speckled wood			*	*	*	*
White admiral	*	*	*	*		
White letter hairstreak				*		*

The new sheltered glade in Ring Haw lower wood was very attractive to butterflies in early July, with peacocks gathering on the teasels together with red admiral, painted lady, brimstone and comma.



Peacock butterflies on teasel, Ring Haw Lower Wood Glade

Full details of the results of butterfly and dragonfly surveys can be found at:  
[www.sulehaynaturereserve.org.uk/reports/ring\\_haw\\_butterfly\\_annual\\_index\\_-\\_2005.htm](http://www.sulehaynaturereserve.org.uk/reports/ring_haw_butterfly_annual_index_-_2005.htm)  
[www.sulehaynaturereserve.org.uk/reports/ring\\_haw\\_butterfly-dragonfly\\_survey\\_-\\_2005.htm](http://www.sulehaynaturereserve.org.uk/reports/ring_haw_butterfly-dragonfly_survey_-_2005.htm)

### Dragonflies: Ron and Judy Follows

The table shows the dragonfly species recorded by Ron and Judy Follows during their butterfly transects on the Sulehay and Ring Haw reserves. Fifteen species have been recorded so far, out of a total of 20 species present in the county (see website of the Northamptonshire branch of the British Dragonfly Society).

		Sulehay 2002	Sulehay 2003	Ring Haw 2004	Ring Haw 2005
Azure damselfly	<i>Coenagrion puella</i>	*	*	*	
Banded demoiselle	<i>Calopteryx splendens</i>	*	*	*	*
Black-tailed skimmer	<i>Orthetrum cancellatum</i>	*	*	*	*
Blue-tailed damselfly	<i>Ischnura elegans</i>	*	*		*
Broad-bodied chaser	<i>Libellula depressa</i>		*	*	*
Brown hawker	<i>Aeshna grandis</i>	*	*	*	*
Common blue damselfly	<i>Enallagma cyathigerum</i>	*	*	*	*
Common darter	<i>Sympetrum striolatum</i>	*	*	*	*
Emperor Dragonfly	<i>Anax imperator</i>	*	*	*	*
Four-spotted chaser	<i>Libellula quadrimaculata</i>	*			
Hairy Dragonfly	<i>Brachytron pratense</i>	*			
Large red damselfly	<i>Pyrrhosoa nymphula</i>	*	*	*	*
Migrant hawker	<i>Aeshna mixta</i>	*	*	*	*
Ruddy darter	<i>Sympetrum sanguineum</i>	*	*	*	
Southern hawker	<i>Aeshna cynea</i>	*	*	*	*

Hairy dragonfly, four spotted chaser and ruddy darter are relatively uncommon in the county. The first two of these have been recorded in Sulehay but not Ring Haw so far. Full details of the dragonfly results are on the website.

## Moths 2005: Ron Follows and Mike Rogers

Moth trapping continued in alternate months at Ring Haw and Sulehay Forest. Sixteen trapping sessions were held between March and October. Fifty five new macro moth species were recorded in 2005, making a total of 333. Uncommon species recorded in 2005 were:

numbers caught shown in round brackets ( )

previous records on the reserve shown in square brackets[ ]

Festoon (*Apoda limacodes*) Nb (6) [new]

Six-belted clearwing (*Bembecia ichneumoniformis*) Nb (12) [new]

Pauper pug (*Eupethecia egenaria*) RDB3 (1) [1 previous record in 2003]

Rosy footman (*Miltochrista miniata*) Local (1) [new]

Red-necked footman (*Atolmis rubricollis*) Local (2) [new]

Orange footman (*Eilema sororcula*) Local (2) [2 previous records]

Square spotted clay (*Xestia rhomoidea*) Nb (19) [recorded annually]

Concolorous (*Chortodes extrema*) RDB3 (22) [recorded annually]

Four-spotted (*Tyta luctuosa*) Na (2) [2 recorded in 2004]



Six-belted clearwing [a hornet mimic]



Festoon



Orange footman



Rosy footman



Red-necked footman

Full details of the year's moth surveys can be found at:  
[www.sulehaynaturereserve.org.uk/reports/macro\\_moth\\_summary - 2005.htm](http://www.sulehaynaturereserve.org.uk/reports/macro_moth_summary_-_2005.htm)

### **Amphibians and Reptiles: Nick Owens**

**Great crested newts** were observed in April in the pool at the bottom of the cliff adjacent to the western end of the main ride in Sulehay. If the light is good it is possible to see them through binoculars from the path. A **toad** skin was found in a tawny owl pellet from Sulehay Forest. **Common lizards** were seen on the Calcining Banks.



Common lizard, Calcining Banks 2005

Useful web addresses relating to Sulehay are:  
Sulehay nature reserve website home page: [www.sulehaynaturereserve.org.uk](http://www.sulehaynaturereserve.org.uk)  
Website reports index page: [www.sulehaynaturereserve.org.uk/reports.html](http://www.sulehaynaturereserve.org.uk/reports.html)  
The Beds, Cambs, Northants and Peterborough Wildlife Trust web page for Sulehay:  
<http://www.wildlifebcnp.org/reserves/reserve.php?reserveid=80>

