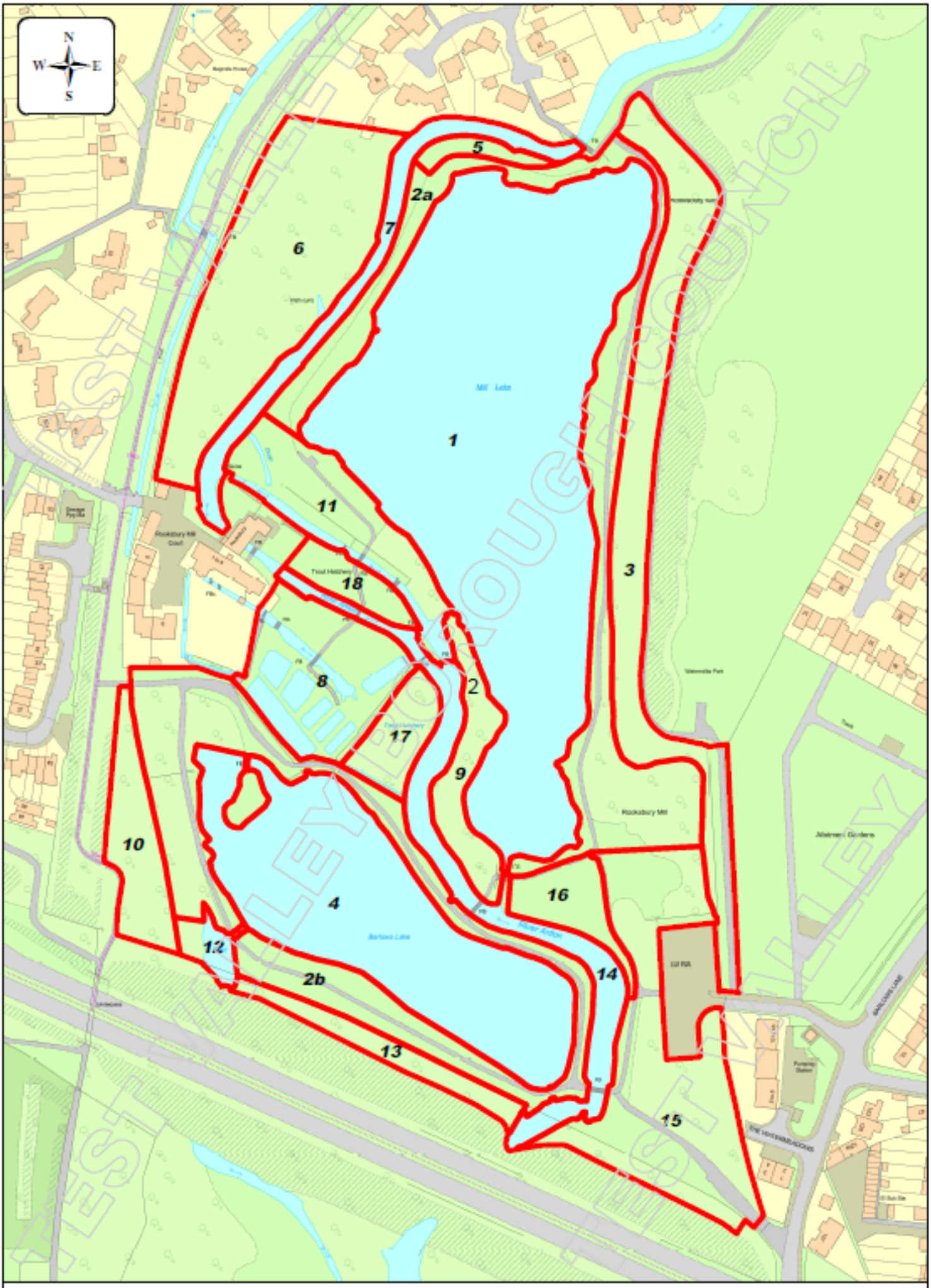
APPENDIX I

Compartment Map
Descriptions
Work Schedule
Task based Risk Assessment









Scale: NTS @ A4 P
Date: 17 January 2024
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Map Showing Rooksbury Mill Local Nature Reserve Compartment Boundaries

Test Valley Borough Council

Compartment 1	*Mill Lake*	• Cut banks yearly to end of the season and remove arisings. Cut on circular rotation - 1 third of bank per year (in accordance to EA regulations on flood prevention) • Areas between lakes become 'quiet' areas with no public access • Where possible, soften edges of lakes by decreasing gradient. • Cut aquatic weed three times yearly in April, June, August or as required and remove from site. • Manage trees around the lake to reduce wind shadow creating turbulent water to assist in the breakdown of amonia and improve oxygen conditions. (See Appendix II - H) • Install Barley straw into the lake twice a year in January and June
Compartment 2a	*Improved pasture*	• Leave gap between paths and lakes • Cut grass to different swards heights. Mow and remove arisings. Where no formal path, cut grass as needed to maintain public access. Divide area into 3 parallel zones. Cut central area adjacent to paths twice yearly (first cut in March, second in October). Cut second zone (2-3 metres) every two years. Cut third zone on a four-year rotation • Control spread of Japanese knotweed using Roundup Biactive in compliance with EA regulations • Control ragwort through hand pulling and removal from site
Compartment 2b	*Improved pasture*	• Manage as in compartment 2a
Compartment 3	*Scrub boundary*	• Dependant on desire lines and entrances for pedestrians. • Coppice/pollard species when necessary • Gap up where possible using native species of local province
Compartment 4	*Barlows Lake*	• Manage banks as in compartment 1. • Increase light into wetland by promotory in Barlows Lake
Compartment 5	*Riparian planting*	• Coppice planted willow 1 in 3 annually from 2018 to maintain low level screening • Coppice planted alder from 2019 2 times annually to maintain low level screening
Compartment 6	*Riparian woodland*	• Remove trees if seen as a danger to the public • Leave as much dead wood as possible • Maintain and enhance emergent vegetation along bank • Remove trees from riverbank to increase light to river system, though leave a small number as bird perches
Compartment 7	*River Anton*	• Coppice overhanging trees • Encourage emergent vegetation by leaving a 2 meter buffer zone adjacent to the banks of the river

Compartment 8	*Meadows and stew ponds*	• Maintain meadow as in compartment 2 • Non-intervention to allow natural succession
Compartment 9	*Scrub*	• Non intervention • Restrict public and maintain no public access • Control breach in lake bank (overflow)
Compartment 10	*Poplar plantation*	• Phase out poplar following establishment of understory planting • Remove tree guards on planting when necessary • Coppice hazel on rotation from 2019
Compartment 11	*Rank fen*	• Maintain as fen. Cut on rotation one side each year • Thin trees as necessary to favour field layer
Compartment 12	*Rank fen*	• Thin trees around pond to increase light
Compartment 13	*Hedgerow*	• Maintain as hedgerow • Gap up where necessary using native trees of local province • Coppice to improve quality to allow for hedge to be laid in future
Compartment 14	*River Anton*	• Manage as in compartment 7 • Cut grass to different swards heights. Mow and remove arisings. Where no formal path, cut grass as needed to maintain public access. Divide area into 3 parallel zones. Cut central area adjacent to paths twice yearly (first cut in March, second in October). Cut second zone (2-3 metres) every two years. Cut third zone on a four-year rotation
Compartment 15	*Unimproved pasture*	• Cut grass twice yearly and remove arisings as in compartment 2 • Continue to remove scrub to favour nationally important ground flora.
Compartment 16	*Orchard*	• Practice regulated pruning on a 2 year rotation to maintain healthy trees and enhance the area for wildlife. Pruning should be conducted between November and the end of March, after the leaves have dropped and fruit has been produced. • Cut grass twice yearly removing arisings
Compartment 17	*Scrubland*	• Non-intervention to allow natural succession
Compartment 18	*Rough grassland*	• Control ragwort through hand pulling and removal from site • Cut and rake grass by hand and remove arising where possible • Control extent of bramble to avoid encroachment

Work Schedule 2024 - 2034

			Year									
Objective	Prescription	Compartment	*2024	*2025	*2026	*2027	*2028	*2029	*2030	*2031	*2032	*2033
Maintain and increase habitat for watervoles	Cut one third of the bank once per year (in accordance with EA regulations on flood prevention	1,4,7,9,14	*	*	*	*	*	*	*	*	*	*
Control Invasive ragwort	Pull by hand and remove from site	Whole Site	*	*	*	*	*	*	*	*	*	*
Make safe any dangerous trees	Remove unsafe trees from site. Leave deadwood on site if possible	Whole Site	*	*	*	*	*	*	*	*	*	*
Conduct surveys where necessary	Undertake surveys at appropriate time of year e.g. water vole, otter, bat, birds, terrestrial and aquatic invertebrates, higher and lower plant and reptile.											
	Bats	Whole Site	*				*	*				*
	water vole/otter		*		*					*		
	Birds	Whole Site		*	*							
	Terrestrial invertebrates	Whole Site		*	*			*				
	Aquatic invertebrates		*	*	*	*	*	*	*	*	*	*
	higher and lower plants	Whole Site	*	*	*			*	*			
	visitor	Whole Site			*				*			
	Butterflies	Whole Site	*	*	*	*	*	*	*	*	*	*

Monitor fishing within Mill Lake	Continue to bailiff fishing on Mill Lake	1	*	*	*	*	*	*	*	*	*	*
	Annual feedback questionnaire, including species list	1	*	*	*	*	*	*	*	*	*	*
Cut grass and remove arisings	Cut to differing sward heights twice yearly (first cut in March and second in October)	2a,2b,15,16	*	*	*	*	*	*	*	*	*	*
Keep footpaths accessible	Where no formal footpath exists cut grass twice yearly in March and October or as needed	2a,2b,8	*	*	*	*	*	*	*	*	*	*
Cut weed within Mill Lake to aid fishing	Cut and remove of site aquatic weed 3 times yearly in April June and September or as required	1	*	*	*	*	*	*	*	*	*	*
Maintain swims for fishing	Cut swims hedges and paths	1	*	*	*	*	*	*	*	*	*	*
	Maintain fishing platforms and replace where necessary	1	*	*	*	*	*	*	*	*	*	*
	Install new platforms on remaining swims (swims 1,3,5, 6, 8, 10, 11,12) one yearly	1	*	*	*	*						
Coppice/pollard	Coppice/pollard species where necessary to maintain healthy trees	6,7,14		*		*		*		*		*

Maintain hedgerow	Maintain and gap up hedgerow where necessary. Lay hedge every 7 years.	2b							*			
		8									*	
		16	*	*				*				*
Reinstate chalk grassland	Maintain scrub at current extent to avoid encroachment	2a,15	*	*	*	*	*	*	*	*	*	*
Maintain fruit trees	Practice regulated pruning to prolong life and maintain good fruit production	16		*		*		*		*		*
	Mulch trees	16	*		*		*		*		*	
Reduce nettles	Reduce the extent of nettles through cut and collection to reduce nutrient loading and encourage increased diversity	16	*	*	*	*	*	*	*	*	*	*
Control non-native species	Remove sycamore trees and saplings	Whole Site	*	*	*	*	*	*	*	*	*	*
	Control spread of Japanese knotweed by injecting with Roundup Biactive in spring or as required	2a	*	*	*	*	*	*	*	*	*	*
	Monitor site for mink and control if necessary	7,14	*	*	*	*	*	*	*	*	*	*
	Control spread of organge balsalm	Whole site					*	*	*	*	*	*
Improve water quality of Mill Lake	Thin trees around lake to reduce wind shadow	1	*	*	*							

Existing and possible future threat of fly tipping	Surveillance of fly tipping	Whole site	*	*	*	*	*	*	*	*	*	*
Litter and dog mess	Continue to encourage removal of litter and dog mess through education and wardening	Whole Site	*	*	*	*	*	*	*	*	*	*
	Litter picks to be conducted weekly or as required	Whole Site	*	*	*	*	*	*	*	*	*	*
Enhance riparian zone	Undertake maintenance of faggots to ensure continued effectiveness	7,14	As required or when material is available									
	Fill in behind faggots using woody debris to encourage silt deposits and the establishment of riparian vegetation	7,14										
Cut grass and remove arisings	Cut grass using Allen Sythe. Rake by hand to encourage dispersal of wildflower seeds (October)	8	*	*	*	*	*	*	*	*	*	*

RISK ASSESSMENT - TEST VALLEY BOROUGH COUNCIL					
SERVICE:	Community and Leisure	**LOCATION:**	Test Valley Borough Council Land		
People Affected*:		**Completed by:**	Charlotte Rimmer	**Date:**	23/06/2020
Name	**Name**				
Volunteers Staff Members of the public Students		**Reviewed by:**	Charlotte Rimmer	**Date:**	As required
			Daisy Kennard		12/04/2021
			Daisy Cameron		15/11/2021
			Catherine Sankey		As required or 17/01/2024
			Daisy Cameron		As required or 16/01/2025
Assessment Seen By:					
Line Manager:					
Name:	Charlotte Rimmer	**Signed:**		**Date:**	
	All staff/volunteers to sign to confirm that they have read, fully understand and will abide by control measures. Group leader will be responsible for ensuring this is the case for anyone where English is not their first language. The practical tasks that we carry out in our Nature Reserves can be strenuous, tiring and involve the use of hand tools that some people may find challenging. Please inform the co-ordinator leading the event if you have any medical conditions or concerns that could be a danger to yourself or other volunteers working around you. We reserve the right to restrict your level of participation in certain circumstances. All children under the age of 16 MUST be accompanied by a responsible adult.				
Workplace Representative:					
Name:	Daisy Cameron	**Signed:**		**Date:**	16.01.2024

+Attach copies of previous risk assessments carried out during the previous 12 months(retain previous risk assessments for 6 years)
Task or Area Description: Litter picking/Tree Guard Removal/Weed pulling (ragwort, balsalm, bracken etc), General maintenance etc.

Hazards Identified and how harm may occur	Control measures in place	Risk Rating H/M/L	Further Action required?	Action by who?	Action by when?	Date Done
Biological – Leptospirosis and Weils disease, Lymes disease, Hep B & C, Tetanus, Avian Influenza	Wear appropriate PPE (plastic or chemical gloves). Keep arms and legs covered. Check for ticks regularly when you are outside and when you get home. Light coloured clothes make ticks easier to see. If you find a tick remove immediately using the correct technique. If symptoms occur see doctor. Cover any wounds. Clean new wounds immediately, then cover. Clean hands with antibacterial hand wash or wipes before consuming food, drinking or smoking. Do not touch needles or waste that may contain bodily fluids. Do not touch dead animals or animal faeces. Refer to up-to-date DEFRA guidance on avian influenza.	M	Advise volunteers on risk and symptoms. Hand out leaflet on Leptospirosis and Lymes disease where appropriate. Up to date Tetanus. Use insect repellent if desired (follow manufacturers guidelines) Brief staff and volunteers on avian influenza and not touching dead animals before starting tasks.	Group Leader/ Countryside Officer.	Before task	
Slips, trips and falls	Be aware of potential uneven ground, rabbit holes etc. Avoid potentially	M	Remind volunteers of control measures.	Group leader/ Countryside Officer	On the day	

	dangerous areas. Wear appropriate footwear with ankle support and good grip. Avoid working in particularly muddy or icy conditions. Beware of litter picking close to water courses (rivers/lakes).					
Tools/ equipment Litter picker/ long handled litter picker/ bags/ hoop/bowsaws/loppers/secaters/ spades/shovels/rakes/wheelbarrow/slashers/ pen knife	Wear appropriate PPE (gloves) to protect from inappropriate usage. If working near road side wear a high visibility jacket with sleeves (refer to Environmental Service risk assessment). Do not leave bowsaws, loppers or secateurs hanging from trees/branches.	M	Correct use of tools to be demonstrated.	Group leader/ Countryside Officer	On the day	
Lifting heavy objects	Do not move objects that are too heavy. Two handed lifts may be appropriate. Break down the load into smaller manageable loads or seek assistance. Use good lifting technique. Ensure volunteers are comfortable carrying out the task and have taken regular breaks.	M	Remind volunteers of control measures. When collecting wet material be sure not to over fill bags.	Group leader/ Countryside Officer	On the day	
Lone working	Do not work alone – Work in pairs. Always inform leader of your location. Report back at regular intervals. Carry a working mobile phone at all times (use a waterproof pocket to protect against water damage) in case of emergency. If approached	L	Remind volunteers of control measures. For staff use Life 360 app to check in on arrival to site. See Lone Working Risk Assessment.	Group leader/ Countryside Officer	On the day	

	by a person showing aggression, move away and if necessary, phone 999.					
Insect bites and stings	Wear long sleeves and trousers to protect from biting insects. Treat if necessary. Do not work near bee, wasp or hornet nests. Be aware of signs and symptoms of anaphylaxis. Phone emergency services immediately if signs/symptoms of anaphylaxis or if sting victim known to be allergic. Those with allergies should have their medication available at all times. Clean sting/bite site immediately.	L	Remind volunteers of control measures. Alert group leader to any relevant allergies.	Group leader/ Countryside Officer	On the day	
Refuse, litter, broken glass – general injury	Pick up only general litter. **Volunteers must not collect medical waste or syringes.** Inspect area for sharps before starting work. Wear gloves where sensible to.	L	Remind volunteers of control measures. Refer medical waste/syringes to group leader. Sharps box and PPE to be used by group leader only.	Group leader/ Countryside Officer	On the day	
Accidents/incidents	Eye wash and fully stocked first aid box available. Trained first aider available.	L	Remind volunteers of control measures and location. Identify trained first aider. All accidents must be recorded in accident book. Be aware of suitable access and location for emergency services in advance of commencement of works (Site details can be found in vehicle glove compartment).	Group leader/ Countryside Officer	On the day	
Trees, shrubs and irritant/dangerous plants –	Awareness of risk. Site inspection before	L	Remind volunteers of controls.	Group leader/ Countryside	Prior to and on	

allergic reaction etc.	commencement of work. Identify hazardous plants and avoid. Use gloves/long sleeves and trousers at all times and wash hands after contact and before eating, drinking or smoking. Bracken control should not be undertaken in the late summer months, during which sporing is taking place, in order to avoid inhalation of potentially cancerous spores		Schedule Bracken control before early August to avoid the sporing season. Volunteers should disclose relevant allergies to the group leader prior to the task if they are happy to.	Officer	the day	
Animals - Dogs	Avoid contact with loose dogs. Seek medical attention if bitten or scratched and report to police/dog warden and task organiser.	L	Up to date Tetanus vaccination. Remind volunteers of control measures.	Group leader/ Countryside Officer	On the day	
Animals - bites	Be aware of the potential presence of animals such as grass snakes and adders. Watch the ground where working and avoid treading in long vegetation. Wear long trousers and sturdy footwear. No open toed sandals and thin trainers. Seek medical attention if bitten.	L	Advise volunteers on the presence of adders, to watch where they are working and to wear sensible, closed footwear.	Group leader/ Countryside Officer	On the day	
Violence and aggression	Awareness of potential for aggressive or difficult members of the public. Withdraw rather than face conflict. Work in pairs. Have functioning mobile phone available.	L	Remind volunteers of control measures. Report incident to group leader. Phone 999 if necessary. Have functioning mobile phone available. Staff should use Life 360.	Group leader/ Countryside Officer	On the day	
Dog faeces (Toxocara)	Inspect work area prior to commencement of task.	L	Remind volunteers of control measures. Hand out leaflet on	Group leader/ Countryside	On the day	

	Wash hands and other areas of contact. Clean hands with soap and water or antibacterial wipes before eating, drinking or smoking. Do not pick up dog faeces.		Toxocara.	Officer		
Adverse weather conditions	Adjust programme to avoid extremes in weather. Stop work if conditions warrant. Wear appropriate clothing, sun screen etc. Take regular breaks and refreshments.	L	Remind volunteers of control measures.	Group leader/ Countryside Officer	On the day	

* Staff, Contractors, Visitors., Public, Disabled

APPENDIX II

Species Records

A Fresh Water Invertebrates
B Floral Records
C Bird Records
D Bioblitz
E Moths
F Butterfly
G Watervoles
H Fish Population Survey
I Invertebrate Survey
H Water Assessment and Management







A - Fresh Water Invertebrates

The data below has been gathered during school visits. A typical collecting day consists of four sessions. Six groups of children in each session collect from the water using nets with 1 mm mesh. These are sorted through in white trays and a selection of animals taken from the trays and put into smaller pots. Animals from all trays are used to compile a list for the day. Towards the end of the session, each group estimates the numbers of particular animal types in their tray. The list below shows the recorded species list for each year from 2014 - 2023.
Although there is considerable variation in the collecting effort and accuracy of each group, the number of repetitions does provide a degree of validity to the data, at least with respect to observing trends, and this is the main reason for gathering the data.

Animals recorded during the school visits

2020 - 2021 ALL SCHOOL VISITS CANCELLED DUE TO COVID

	2014	2015	2016	2017	2018	2019	2022	2023
Hydra								
Flatworm	*	*	*	*	*	*	*	*
Lumbriculus	*	*	*	*				
Fish Leech – Piscicola	*	*		*	*	*		*
Leech – Theromyzon	*	*						
Leech - Erpobdella	*	*		*				
Amber Snail	*	*		*		*		*
Snail - Bythinia	*	*	*	*	*	*		*
Bladder Snail	*		*					
Great Pond Snail	*	*	*	*	*	*		*
Ramshorn Snail	*	*	*	*	*	*		*
Orb Shell	*	*	*	*	*	*		*
Waterflea - Daphnia		*	*	*	*	*		*
Waterflea - Cyclops	*	*	*	*	*	*		
Freshwater Shrimp	*	*	*	*	*	*		*
Hog-louse	*	*	*	*	*	*		*
Mayfly	*	*	*	*	*			
Hawker Dragonfly			*	*		*		
Darter Dragonfly		*	*		*			
Damselfly	*	*	*	*	*	*		*
Water Measurer	*	*	*	*				

	2014	2015	2016	2017	2018	2019	2022	2023
Pond Skater	*	*	*	*	*	*	*	*
Water Cricket				*				
Water Scorpion	*	*	*	*	*	*	*	*
Water Stick insect	*	*	*	*	*			
Saucer Bug	*					*		
Greater Water Boatman	*	*	*	*	*	*	*	*
Lesser Water Boatman	*	*	*	*	*	*	*	*
Caddis - stick case	*	*	*	*	*	*	*	*
Caddis - stone case	*	*	*	*	*	*	*	*
Caddis - green leaf case	*	*	*	*	*	*		
Alderfly	*	*						
Giant Cranefly	*	*						
Phantom midge				*	*			
Bloodworm	*	*	*	*	*	*		*
Biting midge		*	*	*	*			
Non-biting midge	*	*	*	*	*	*		*
Scavenger Beetle		*						
Diving Beetle - Dytiscidae	*	*	*	*	*	*		
Beetle Haliplus	*	*	*	*	*	*		
Diving Beetle - Platambus			*	*				
Diving Beetle - Hyphydrus	*	*		*				
Fish Fry		*	*	*	*	*		*
Pike		*			*			
Common Toad	*	*	*	*		*		
Common Frog	*	*	*		*	*		
Newt Tadpole		*	*	*	*	*		
Smooth Newt Adult	*	*	*		*			
Palmate Newt Adult								

B - Floral Records

Agrimony
Amphibious bistort
Annual Meadow Grass
Apple
Ash
Autumn hawkbit
Barren brome
Bee orchid
Bittersweet
Black horehound
Blackthorn rowan
Blade Medic
Blunt fruited water starwort
Bracken
Bramble
Branched bur reed
Broad leaved bamboo
Broad leaved dock
Brooklime
Buckthorn
Buddleia
Bugle
Bull rush
Butterbur
Buttercup
Cat's ear
Charlock
Chickweed
Cleavers
Cocksfoot
Columbine coltsfoot cowslip
Common bent
Common birdsfoot trefoil
Common broom rape
Common centaury
Common chickweek
Common club rush
Common comfrey
Common couch
Common duck weed
Common figwort
Common horsetail
Common ivy
Common knapweed
Common mallow
Common mouse-ear
Common nettle
Common ragwort
Common sorrel
Common spotted orchard
Common vetch
Compact rush
Cow parsley
Crack willow
Crane's bill
Creeping bent
Creeping buttercup
Creeping cinquefoil
Creeping soft grass
Creeping thistle
Crested dogstail
Cut leaved crane's bill
Cypress spurge
Daffodil
Daisy
Dandelion
Dark mullein
Devil's bit scabious
Dogrose
Dogwood
Elder
Enchanters nightshade
English Elm
Forget me knot
Field horse tail
Fleabane
Floating sweet grass
Flote / pilicate grass
Foxglove
Goosegrass
Greater bird's foot trefoil
Greater plantain
Great horse tail
Great mullein pot
Great willow herb
Grey poplar
Grey willow
Ground elder
Ground ivy
Groundsel
Gypsy wort
Hairy sedge
Hairy St John's wort
Hairy tare
Hard rush
Hart's tongue
Hawthorn
Hazel
Hedge bedstraw
Hedgerow
Hedge woundwort
Hemlock hedge mustard
Hemlock water dropwort
Hemp agrimony
Herb Robert
Himalayan cotoneaster
Himalayan giant bramble
Hogweed
Honeysuckle
Hyp radic

Floral Records

Ivy
Kidney vetch
Knotgrass
Japanese knotweed
Lady fern
Lady's bedstraw
Large bindweed
Lesser burdock
Lesser spearwort
Lesser stitchwort
Lesser trefoil
Lombardy poplar
Manes tail
Marjoram
Marsh bedstraw
Marsh foxtail
Marsh horsetail
Marsh marigold
Marsh ragwort
Marsh thistle
Meadow buttercup
Meadow foxtail
Meadow sweet
Monkey flower
Mugwort
Nipplewort
Oval sedge
Parsnip
Peach leaved bellflower
Perforate St John's wort
Pedunculate oak
Perennial ox eye daisy
Perennial rye grass
Pignut
Pineapple weed
Prickly sow thistle
Pyrimidal orchid
Ragged robin
Ratstail plantain
Red bartsia
Red campion
Red clover
Red fescus
Red-veined dock
Reed sweet grass
Remote sedge
Redshank
Reed canary grass
Ribwort plantain
Rough hawkbit
Rough meadow grass
Russian comfrey
Selfheal
Sharp flowered rush
Sheeps sorrel
Shepherd's purse
Silver weed
Smaller cat's tail
Smoothhawk's beard
Smooth sow-thistle
Smooth-stalked meadow grass
Snowberry
Soft rush
Southern marsh orchid
Spear thistle
Spiked sedge
Spindle
St John's wort (swuare stalked)
Stream water crowfort
Sweet vernal grass
Tall fescue
Tall oat
Tormentil
Traveller's joy
Tufted hairgrass
Upright hedge parley
Wall barley
Walnut
Water betony
Water cress
Water figwort
Water forget me knot
Water mint
Water pepper
Wavy bittercress
Weid
Welted thistle
White bryony
White clover
White dead nettle
White water lily
Wild angelica
Wild carrot
Wild cherry
Wild marjoram
Wild privet
Wild raspberry
Wild teasel
Willow herb species
Winter cress
Wood avens
Wood dock
Wood sedge
Wych elm
Yarrow
Yellow iris
Yellow rattle
Yorkshire fog

C - Bird Records 2013 - 2019

Barn Owl (2015)
Black Cap
Blackbird
Black-headed Gull
Blue Tit
Brambling (2013)
Bullfinch
Buzzard
Canada Goose
Carrion Crow
Cetti's Warbler (2014)
Chaffinch
Chiffchaff
Coal Tit
Collard Dove
Common Crossbill (2016)
Common Gull
Common sandpiper (2013)
Common Turn
Coot
Cormorant
Cormorant (Continental) (2017)
Cuckoo (2013)
Dunnock
Ferel Pigeon
Fieldfare
Firecrest (2016)
Gadwall
Garden Warbler (2014)
Goldcrest
Golden Plover
Goldfinch
Great Black Backed Gull
Great Crested Grebe
Great Spotted Woodpecker
Great Tit
Great White Egret
Green Woodpecker
Greenfinch
Grey Heron
Grey Wagtail
Greylag Goose
Herring Gull
House Martin
House Sparrow
Hybrid Aythya (2013)
Hybrid Black x Mute Swan
Hybrid Duck
Jackdaw
Jay
Kestrel
Kingfisher
Lapwing
Lesser Black Backed Gull
Lesser Redpoll
Lesser Whitethroat
Linnet
Little Egret
Little Grebe
Little Owl
Long tailed Tit
Magpie
Mallard
Mallard (domestic)
Marsh Tit
Meadow Pipit
Mistle Thrush
Moorhen
Mute swan
Nuthatch
Pheasant
Pied Wagtail (yarrellii)
Pied/White Wagtail
Pochard
Radd's Warbler (2013)
Raven
Red Kite (2016)
Red-legged Partridge
Redshank
Redwing
Reed Bunting
Reed Warbler
Ring-necked Duck
Ring Ouzel
Robin
Rook
Sand Martin
Sedge Warbler
Shovelor
Siskin
Skylark
Song Thrush
Sparrow Hawk
Spotted Flycatcher (2014)
Starling
Stock Dove
Stonechat
Swallow
Swift
Tawny Owl
Teal
Treecreeper
Tufted Duck
Water Rail

Waxwing (2013)
Whitethroat (2013)
Wigeon
Willow Warbler (2014)
Woodcock
Wood Pigeon
Wren
Yellow browned warbler (2013)
Yellowhammer

Unidentified gull
Unidentified small gull

English name

Freshwater inverts
Banded damselfly nymph
Beetle larve
Biting midge larvae
Blue winged olive nymph
Bullhead fish
Cased caddisfly larvae
Caseless caddisfly nymph
Flatworm
Freshwater limpet
Freshwater shrimp
Greater water boatnab
Hairworm
Hoglouse
Mayfly nymph
Midge larvae
Pond skater
Pond snail
Ramshorn snail
Signal crayfish
Stick cased caddisfly
Stone cased caddisfly
Stonefly nymph
Wandering snail
Water mite
Water scorpion
Whirlgig beetle

Butterflies
Common blue
Large white
Meadow brown
Painted lady
Red admiral
Small skipper
Small tortoise shell
Small white

Orchids
Bee orchid
Pyramid orchid

Bees
Common Carder Bee
Buff-tailed Bumblebee

Moths
Scarlett tiger moth

Damselflies
Banded Damselfly
Common blue damselfly

Mammals
Otter tracks (on mink raft)

E - Moths identified at Rooksbury Mill LNR

These moths were attracted to two light sources set up just north of the car park by Alison Cross and Mike Wall of Butterfly Conservation (Hampshire). The light sources were run from 21.45 to 23.30. Weather was calm, warm but overcast. There was significant bat activity. The moths were shown to a large group of local residents who enjoyed this event that had been programmed by Hampshire and Isle of Wight Wildlife Trust (NW District) and advertised locally.

English name	Scientific name	Comment
	*Pyrausta aurata	Also seen in daylight
Shuttle-shaped Dart	Agrotis puta ssp.puta	
	Lathronympha strigana	
Mother of Pearl	*Pleuroptya ruralis	Also seen in daylight
	Agapeta hamana	
Brimstone	Opisthograptis luteolata	
Dwarf Cream Wave	Idaea fuscovenosa	
	Dipleurina lacustrata	
Pebble Hook-tip	Drepana falcataria falcataria	
Dun-bar	Cosmia trapazina	
Single-dotted Wave	Idaea dimidiata	
	Paraswammerdamia nebulella	
Yellow Shell	Camptogramma bilineata bilineata	Also seen in daylight
Flame Shoulder	Ochropleura plecta	
	Trachycera advenella	
Dingy Footman	Eilema griseola	
Round-winged Muslin	Thumatha senex	
Red Twin-spot Carpet	Xanthorhoe spadicearia	
	Phyllonorycter emberizaepenella	
The Flame	Axylia putris	
Dark-barred Twin-spot Carpet	Xanthorhoe ferrugata	
Common Carpet	Epirrhoe alternata alternata	Also seen in daylight
Small Magpie	*Eurrhypara hortulata	
	Chrysoteuchia culmella	
Early thorn	Selenia dentaria	
Ruby Tiger	Phragmatobia fuliginosa	
Cloaked minor	Mesoligia furuncula	
Large Yellow Underwing	Noctua pronuba	

English name	Scientific name	Comment
White satin	Leucoma salicis	
	Batia unitella	
Buff Ermine	Spilosoma luteum	
Setaceous Hebrew Character	Xestia c-nigrum	
	Yponomeuta evonymella	
Common Wave	Cabera exanthemata	
	Bryotropha terella	
	Agonopterix heracliana	
	Borkhausenia fuscescens	
Sallow Kitten	Ypsolopha scabrella	
	Furcula furcula	
Riband Wave	Idaea aversat	
Ringed China-mark	*Parapoynx stratiotata	
	Blastobasis adustella	
	Euzophera pinguis	
Smoky Wainscot	Mythimna impura	
	Yponomeuta padella	
	Acleris aspersana	
Yellow-tail	Euproctis similis	Also seen in daylight
	Cnephasia sp.	
Willow Beauty	Peribatodes rhomvoidaria	
V-Pug	Chloroclystis v-ata	
Clouded Border	Lomaspilis marginata	
Elephant Hawkwoth	Deilephila elpenor	Larvae found 22/10/2010

English Name	Scientific Name	Comment
Anticlea derivata	Streamer	
Ectropis bistortata	Engrailed	
Gymnoscelis rufifasciata	Double-striped pug	
Orthosia gothica	Hebrew character	
Anthophila fabriciana	Nettle-tap	
Caloptilia syringella		
Micropterix calthella		
Acronicta rumicis	Knot grass	
Depressaria heraclei	Parsnip moth	
Parapoynx stratiotata	Ringed china-mark	
Callimorpha dominula	Scarlet tiger moth	
Cameraria ohridella	Horse-chestnut leaf-miner	
Celypha lacunana		
Chrysoteuchia culmella		
Dichrorampha sequana		
Timandra comae	Blood-vein	
Ennomos fuscantaria	Dusky thorn	
Hypena proboscidalis	Snout	
Morma maura	Old lady	
Noctua fimbriata	Broad-bordered yellow underwing	
Orgyia antiqua	Vapourer	
Xestia c-nigrum	Setaceous hebrew character	
Xestia xanthographa	Square-spot rustic	

*marked species are Pyralid Moths

This list will be submitted for the National and Hampshire records by the moth experts mentioned above.

List provided by Alison Cross. Elephant Hawkmoth larvae note added by Mervyn Grist.

On this date some additional species of moths were recorded from the footpath underpass (of A303) just west of Rooksbury Mill. These were:

Black Arches *Lymantria monacha*
Large twin-spot carpet *Xanthorhoe quadrifasiata*

Rooksbury Mill Local Nature Reserve Butterfly Survey

Annual Report 2023

A Big Thank You

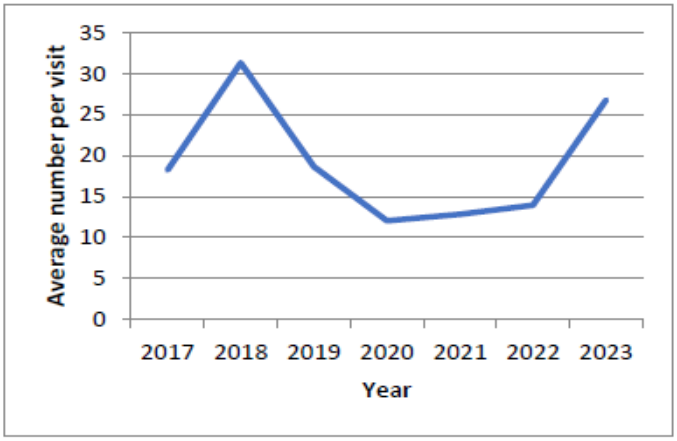
First off, I would like to thank everybody who participated in this years' butterfly surveys. Test Valley Borough council are very grateful to have amazing volunteers who conduct surveys to give us such a wide range of results. Thank you all for collecting such valuable data.

Introduction

The Rooksbury Mill Local Nature Reserve Butterfly transect was set up in 2010 and during this time has had 29 species of butterfly recorded on site. This site has a variety of different habitats which benefit a wide range of species.

Results

This year, a total of 562 butterflies were recorded across 21 visits. An average of 26.76 butterflies were recorded per survey, a 92% increase compared with last year.



This year, butterfly abundances peaked at 97 individuals on 3rd June, an earlier and slightly higher peak than in 2022. This may have resulted from changes in weather conditions between the two years.

The most abundant species this year was the meadow brown, with an average of 6.81 individuals per survey. Meanwhile, the brown argus was recorded for the first time since the transect was set up in 2010. This is a promising finding.

As only 21 surveys were completed this year, the minimum of 24 surveys recommended by the UK Butterfly Monitoring Scheme to enable accurate conclusions to be drawn was not met.

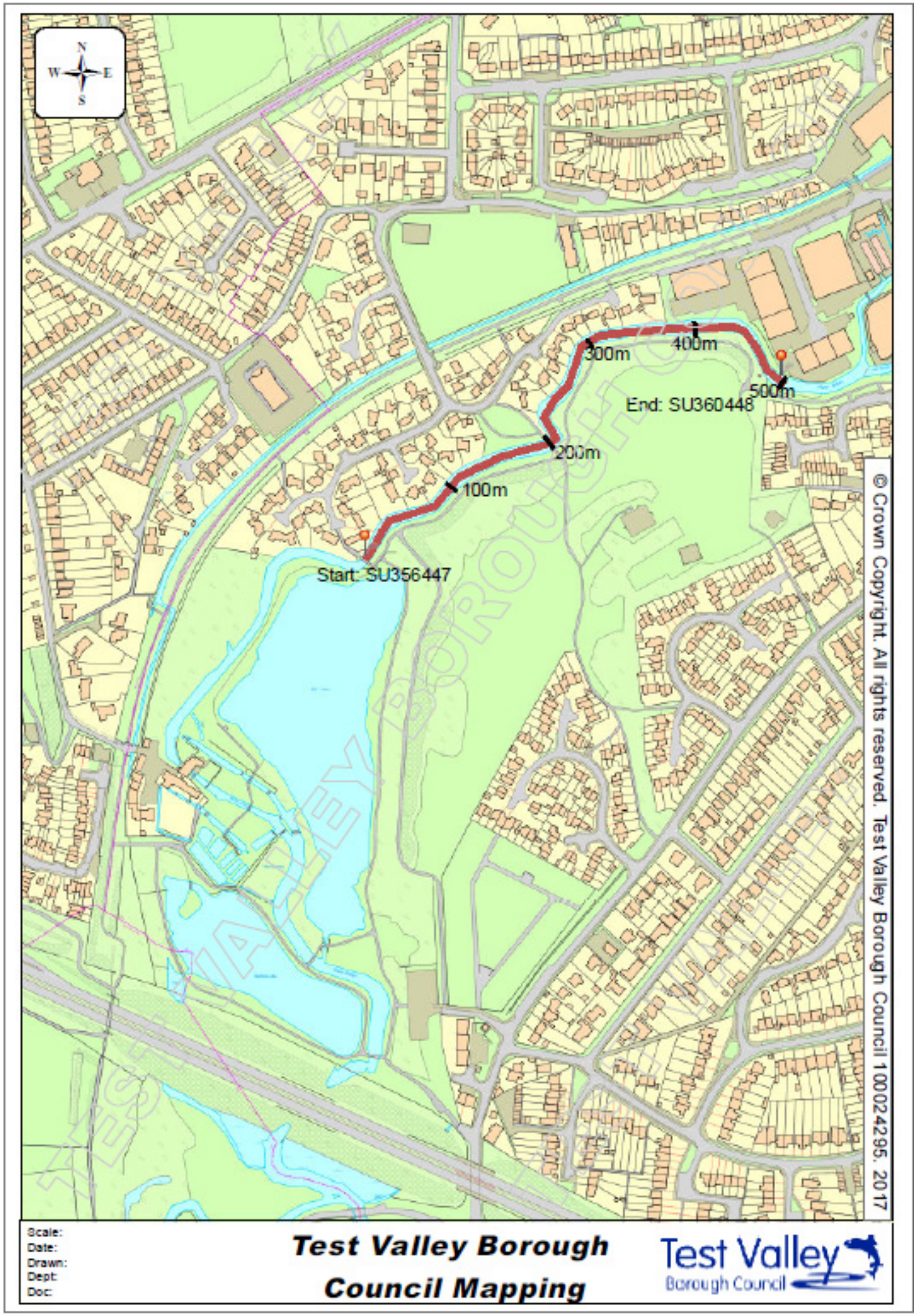
A Full list of species from 2021 can be seen below with the six most common highlighted in **bold:**

Small Skipper	Green-veined White	Holly Blue	Dark Green Fritillary
Large Skipper	Orange Tip	Red Admiral	Speckled Wood
Brimstone	Small Copper	Small Tortoiseshell	Marbled White
Large White	Brown Argus	**Peacock**	Gatekeeper/Hedge Brown
Small White	Common Blue	Comma	**Meadow Brown**

Conclusion

In conclusion, overall butterfly abundances at Rooksbury Mill Local Nature Reserve increased dramatically this year compared with 2022. The meadow brown was the most abundant butterfly species recorded at the site this year and the brown argus was recorded for the first time since surveys began at Rooksbury Mill Local Nature Reserve in 2010. Although the UKBMS requirement of 24 surveys was not quite reached, the results seem to suggest that current site management practices are effective in supporting butterfly populations.

G - Watervole Survey - Map



National Water Vole Monitoring Programme recording forms

people's trust for endangered species

Please ensure you have read the survey guidelines before doing your survey. Please complete the *Site information form* when you do your preliminary visit of your site. You will then need to complete the *NWVMP survey form* when you do your survey in May.

Site information form

1. Site number: Rooksbury Mill LNR

2. Habitat:

Upland ☐ Lowland ☒ Coastal ☐

3. Waterway type:

river ☒ stream/burn ☐ lake/loch ☐ reed bed ☐ marsh ☐ bog ☐

pond ☐ canal ☐ reservoir ☐ ditch/dyke ☐ other ☐

If other please specify: .....

4. Have water voles been been reintroduced at this site?

Yes ☐ No ☒ Don't know ☐

If yes, please specify when the reintroduction happened: .....

5. Total number of transects at site (*usually one*): .....1.....

6. Does mink control occur on this site?

Yes ☒ No ☐ Don't know ☐

Mink surveys undertaken.

Your Transect details

7. Start grid reference (*8 figure grid reference e.g. XX74736789*) ...SU356447.....

8. End grid reference (*8 figure grid reference e.g. XX74736789*) ...SU360448.....

9. **Grid references of each 100m mark along your transect** (*complete as many as is applicable to the length of your transect – you will not be asked to enter this data online*):

100m	200m	300m	400m	500m	600m
SU357447	SU358448	SU358449	SU359449	SU360448	

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National Water Vole Monitoring Programme survey form

Site Number:	Transect No. (if applicable): 2	Bank surveyed (N/S/E/W): Both
Start grid ref: SU356447	End grid ref: SU360448	Transect length: 500m
Survey date: 30/07/2017	Surveyor: Ron Davis and Kate Savage	

Water vole signs in each 100m section of the transect (*complete as many as is applicable to the length of your transect*)						
Field sign	0-100m	100-200m	200-300m	300-400m	400-500m	500-600m
Number of trampled latrines (trodden flat on top)			4	1		
Number of untrampled latrines			*3*	4		
*Please note the location of the **first** latrine that you encounter (Grid Reference or GPS)*			*SU359449*	*SU358449*		
*Please note the location of the **last** latrine that you encounter (Grid Reference or GPS)*			*SU358449*	*SU360447*		
Water vole feeding signs						
Burrows/nests (approximate no.)	☒ None ☐ 1-5 ☐ 6 - 10 ☐ More than 10	☒ None ☐ 1-5 ☐ 6 - 10 ☐ More than 10	☐ None ☐ 1-5 ☒ 6 - 10 ☐ More than 10	☐ None ☒ 1-5 ☐ 6 - 10 ☐ More than 10	☒ None ☐ 1-5 ☐ 6 - 10 ☐ More than 10	☒ None ☐ 1-5 ☐ 6 - 10 ☐ More than 10
Sighting:	☐ No ☐ Yes, if so how many:	☐ No ☐ Yes, if so how many:	☒ No ☐ Yes, if so how many:	☒ No ☐ Yes, if so how many:	☐ No ☐ Yes, if so how many:	☐ No ☐ Yes, if so how many:

Mink/otter signs along the whole transect (only record if you are ***certain*** of your identification and please take a photo including an object to indicate scale)	
Mink	Otter
☐ Scat ☐ Footprints ☐ Sighting	☐ Spraint ☐ Footprints ☐ Sighting
Mink raft present ☐ Yes ☐ No	
Any comments on mink control at the site/transect	

Data should be submitted by the 31st October each year
Please enter all data online at www.ptes.org/watervoles

people's trust for endangered species

Field sign record form *(optional)*

Please record the field sign detected (trampled/untrampled latrine, feeding station, burrow, sighting) and its GPS location			
Field sign	Location (Grid Reference or GPS)	Transect section: e.g. 1st 100m, 3rd 100m	Comments
e.g. *trampled latrine*	*SN6447725383 or Lat: 51.910444 Long: -3.9716113*	*1st 100m section*	*Fresh droppings*

Fish population survey summary:

Rooksbury Mill, River Anton

Background

A fish population survey was carried out on the River Anton at Rooksbury Mill, Andover on the 8th September, 2016. The survey was part of the six-yearly Salmon Action Plan survey programme, aimed at assessing the spatial distribution of juvenile salmon throughout the Test catchment.

Methods

A single electric fishing run was completed over an 85m reach between SU3564844305 and SU3561144378 (Map 1, below). A battery-powered, backpack electric fishing unit was used, with one anode. Two team members captured fish in dip nets and another carried an aerated holding tank. The average width of the survey reach was 5.27m. Captured fish were identified, measured and returned to the river.

Map 1: Survey location

Results

The survey catch consisted of 68 brown trout *Salmo trutta*, 92 bullhead *Cottus gobio* and 4 European eels *Anguilla anguilla*, as shown in the pie-chart below:

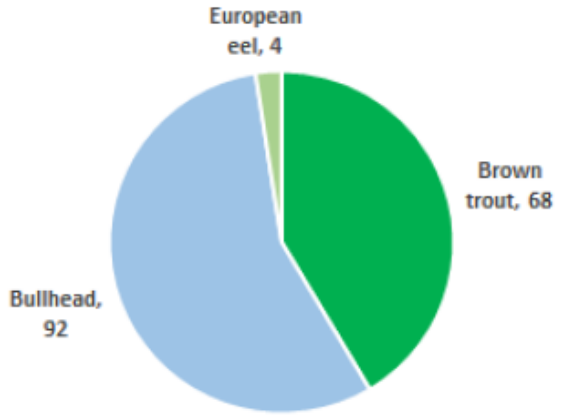

Figure 1: Survey catch

The lengths of the eels captured are given in figure 2, below:

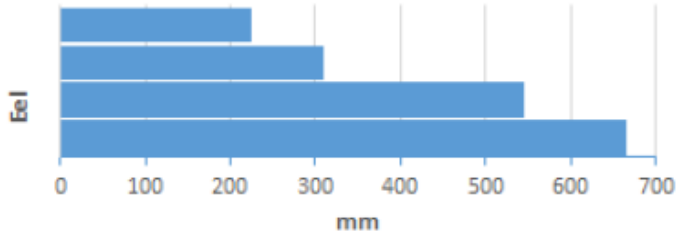

Figure 2: Eel lengths

Figure 3 is a length frequency histogram showing the numbers of trout in each size category.

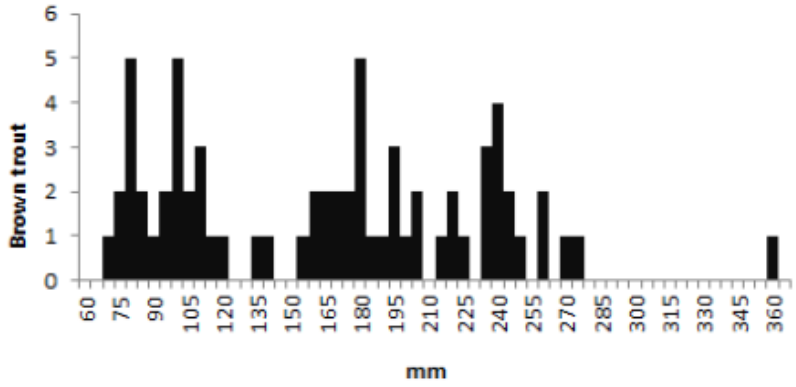

Figure 3: Brown trout length frequency (n=68)

Discussion

The total catch of brown trout in 2016 was lower (68) than when the survey was conducted in 2010 (129). However, the average width of the site was 9.6m in 2010 and a 100m reach was fished, whereas in 2016 the average width was 5.27m and an 85m reach was fished. The reduction in width was probably due to a combination of lower flow and development marginal vegetation. The reach length was reduced in order to align with a suitable upstream stop net position. This means that brown trout density in 2016 was 15.2 per $100m^2$, slightly higher than in 2010 when it was 13.5 per $100m^2$.

Figure 3 indicates fairly even numbers of juvenile, mid-aged and mature brown trout, which is a reflection of good habitat quality and complexity - in order for a reach to support these different life stages, it must meet their varied habitat requirements (i.e. pools, riffles, variable depth & substrate).

The capture of 92 bullhead indicates both good water quality and good substrate (riverbed) habitat. Bullhead are less affected by larger scale habitat features but require complex, stony substrate, ideally with woody debris and vegetated margins.

The eel catch was similar to 2010, when three eels were caught (of similar lengths to 2016). The European eel s critically endangered and abundance, especially in headwaters, has declined substantially in recent decades. The Rooksbury catches demonstrate that the site is accessible to eels migrating upstream from the sea and that it provides suitable habitat quality and food availability to support resident adult eels.

The 2010 survey also recorded nine grayling, one three-spined stickleback, one brook lamprey, one stone loach and three juvenile pike. The absence of grayling from the 2016 catch may reflect the general decline in this species that has been noted in recent years, probably as a result of high temperatures and low flows. The absence of the other species is probably a random feature of the results and not a cause for concern.

INVERTEBRATE SURVEY OF

ROOKSBURY MILL,

ANDOVER

NORTH HAMPSHIRE

NOVEMBER 2019

Dr. Jonty Denton FRES FLS CEcol MCIEEM

31 Thorn lane, Four Marks, Hants, GU34 5BX

Summary

A survey of terrestrial and aquatic invertebrates was carried out across the site in April-September 2019.

Survey date/s: 23rd May, 27th June, 1st, 11th July & 15th August & 10th September 2019

Species total: A total of 364 invertebrate taxa were identified of which 9 had conservation statuses. These are listed below;-

Species	Family	Order		Conservation status
Theridiosoma gemmosum	Theridiosomatidae	Araneae	Ray spider	NS
Paracorymbia fulva	Cerambycidae	Coleoptera	A longhorn beetle	RDB 3
Agelastica alni	Chrysomelidae	Coleoptera	Alder leaf beetle	DD;NR
Plateumaris rustica	Chrysomelidae	Coleoptera	A reed beetle	NS
Drupenatus nasturtii	Curculionidae	Coleoptera	A weevil	[Nb]
Gymnetron veronicae	Curculionidae	Coleoptera	A weevil	Nb
Gymnetron villosulum	Curculionidae	Coleoptera	A weevil	[Nb]
Elodes elongata	Scirtidae	Coleoptera	A marsh beetle	NS
Aquarius paludum	Gerridae	Hemiptera	Large Pondskater	NS

INTRODUCTION

The project brief was to provide baseline records for invertebrates across the site.

METHODOLOGY AND SITE VISITS

The main emphasis of the survey was to find as many rare and notable species as possible within the reviewed groups.

The site was visited specifically for invertebrate surveying on the following dates;- 23rd May, 1st, 11th & 31st July & 18th August 10th & 21st September 2019

Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes etc.

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

Groups covered during the survey were:

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Ephemeroptera (mayflies)
- Odonata (dragonflies & damselflies)
- Plecoptera (stoneflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Trichoptera (caddis flies)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

Measuring the quality of other invertebrate fauna

The invertebrate assemblages present at the site during the survey are assessed using Natural England's Invertebrate Species-habitat Information System (ISIS – 2010 version), as defined in Webb & Lott (2006) and Drake *et al*. (2007). Further developments for the programme are discussed in Lott (2008).

The system was developed for Common Standards Monitoring (CSM) on Sites of Special Scientific Interest (SSSI) but other applications are possible at a range of geographic scales. Lott (2008) describes the essence of ISIS as a database that can be used to recognise invertebrate assemblage types in species lists and evaluate their value for nature conservation.

RESULTS

A total of 364 species of invertebrate were recorded. A full species list with UK statuses is given in Appendix 1. Of these, twenty species have a conservation designation: These are summarised in Table 1. IUCN re-evaluated species have their IUCN criteria given followed by their current UK rarity status in brackets. Those species that have not yet been IUCN re-evaluated have their current statuses in square brackets. The definitions for these criteria are given in appendix 2.

Table 1. list of species with a conservation designation.

Species	Family	Order		Conservation status
Theridiosoma gemmosum	Theridiosomatidae	Araneae	Ray spider	NS
Paracorymbia fulva	Cerambycidae	Coleoptera	A longhorn beetle	RDB 3
Agelastica alni	Chrysomelidae	Coleoptera	Alder leaf beetle	DD;NR
Plateumaris rustica	Chrysomelidae	Coleoptera	A reed beetle	NS
Drupenatus nasturtii	Curculionidae	Coleoptera	A weevil	[Nb]
Elodes elongata	Scirtidae	Coleoptera	A marsh beetle	NS
Aquarius paludum	Gerridae	Hemiptera	Large Pondskater	NS

UKBAP / SPI (NERC S41) species:
Tyria jacobaeae - Cinnabar

SURVEY LIMITATIONS

The moth fauna is always under-represented when only diurnal surveys are employed. Light trapping surveys with 2-3 MV and actinic Robinson type traps would add hundreds of species of moth and additional night flying species (Ichneumonidae, Coleoptera etc.)

ECOLOGICAL ASSESSMENT

Rooksbury Mill continues to support a rich assemblage with excellent river margin habitats.

The excessive algal development in the main lake continues to be a blight on the reserve

REFERENCES

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Hyman, P.S & Parsons, M.S. 1992. *A review of the scarce and threatened Coleoptera of Great Britain*. Part 1. JNCC, Peterborough.

Kirby, P. 1992. *A review of the scarce and threatened Hemiptera of Great Britain*. Peterborough, JNCC.

Merrit, P. 1990. *A review of the Nationally Notable Spiders of Great Britain*. Peterborough, NCC.

APPENDICES

Table 1. Species list 2019

Species	Family	Order	Conservation status
Aceria erinea	Eriophyidae	Prostigmata	common
Acilius sulcatus	Dytiscidae	Coleoptera	common
Adalia bipunctata	Coccinellidae	Coleoptera	common
Agabus bipustulatus	Dytiscidae	Coleoptera	common
Agabus didymus	Dytiscidae	Coleoptera	common
Agabus nebulosus	Dytiscidae	Coleoptera	common
Agabus paludosus	Dytiscidae	Coleoptera	common
Agelastica alni	Chrysomelidae	Coleoptera	DD;NR
Aglais io	Nymphalidae	Lepidoptera	common
Aglais urticae	Nymphalidae	Lepidoptera	common
Agonum fuliginosum	Carabidae	Coleoptera	common
Agriphila geniculea	Crambidae	Lepidoptera	common
Alboglossiphonia heteroclita	Glossiphoniidae	Rhynchobdellida	common
Alianta incana	Staphylinidae	Coleoptera	common
Alnetoidea alneti	Cicadellidae	Hemiptera	common
Altica lythri	Chrysomelidae	Coleoptera	common
Amalorrhynchus melanarius	Curculionidae	Coleoptera	common
Amaurobius fenestralis	Amaurobiidae	Araneae	common
Amblyteles armatorius	Ichneumonidae	Hymenoptera	common
Anacaena globulus	Hydrophilidae	Coleoptera	common
Anasimyia contracta	Syrphidae	Diptera	common
Anaspis fasciata	Scraptiidae	Coleoptera	common
Anaspis maculata	Scraptiidae	Coleoptera	common
Anaspis regimbarti	Scraptiidae	Coleoptera	common
Anax imperator	Aeshnidae	Odonata	common
Anisosticta novemdecimpunctata	Coccinellidae	Coleoptera	common
Anobium punctatum	Anobiidae	Coleoptera	common
Anthocharis cardamines	Pieridae	Lepidoptera	common
Anthocoris confusus	Anthocoridae	Hemiptera	common
Anthocoris limbatus	Anthocoridae	Hemiptera	common
Anthocoris nemoralis	Anthocoridae	Hemiptera	common
Anthonomus pedicularius	Curculionidae	Coleoptera	common
Anyphaena accentuata	Anyphaenidae	Araneae	common
Aphthona euphorbiae	Chrysomelidae	Coleoptera	common
Aphthona nonstriata	Chrysomelidae	Coleoptera	common
Apis mellifera	Apidae	Hymenoptera	common
Aquarius paludum	Gerridae	Hemiptera	NS
Araneus diadematus	Araneidae	Araneae	common
Araneus marmoreus var. pyramidatus	Araneidae	Araneae	local

Archarius salicivorus	Curculionidae	Coleoptera	common
Arge cyanocrocea	Argidae	Hymenoptera	common
Argyresthia pygmaeella	Argyresthiidae	Lepidoptera	common
Asellus (Asellus) aquaticus	Asellidae	Isopoda	common
Athalia rosae	Tenthredinidae	Hymenoptera	common
Atrecus affinis	Staphylinidae	Coleoptera	common
Bibio marci	Bibionidae	Diptera	common
Bithynia tentaculata	Bithyniidae	Littorinimorpha	common
Blepharidopterus angulatus	Miridae	Hemiptera	common
Bombus hypnorum	Apidae	Hymenoptera	common
Bombus lapidarius	Apidae	Hymenoptera	common
Bombus lucorum	Apidae	Hymenoptera	common
Bombus pascuorum	Apidae	Hymenoptera	common
Bombus pratorum	Apidae	Hymenoptera	common
Byturus tomentosus	Byturidae	Coleoptera	common
Calameuta filiformis	Cephidae	Hymenoptera	common
Calameuta pallipes	Cephidae	Hymenoptera	common
Callimorpha dominula	Erebidae	Lepidoptera	local
Calopteryx splendens	Calopterygidae	Odonata	common
Calvia quattuordecimguttata	Coccinellidae	Coleoptera	common
Cantharis cryptica	Cantharidae	Coleoptera	common
Cantharis decipiens	Cantharidae	Coleoptera	common
Cantharis lateralis	Cantharidae	Coleoptera	common
Cantharis nigricans	Cantharidae	Coleoptera	common
Cantharis rustica	Cantharidae	Coleoptera	common
Capsus ater	Miridae	Hemiptera	common
Cartodere nodifer	Latridiidae	Coleoptera	common
Cassida vibex	Chrysomelidae	Coleoptera	common
Celastrina argiolus	Lycaenidae	Lepidoptera	common
Cepaea (Cepaea) hortensis	Helicidae	Pulmonata	common
Cepaea (Cepaea) nemoralis	Helicidae	Pulmonata	common
Ceutorhynchus pallidactylus	Curculionidae	Coleoptera	common
Ceutorhynchus pyrrhorhynchus	Curculionidae	Coleoptera	common
Cheilosia albitarsis	Syrphidae	Diptera	common
Cheilosia illustrata	Syrphidae	Diptera	common
Chloromyia formosa	Stratiomyidae	Diptera	common
Chorisops tibialis	Stratiomyidae	Diptera	common
Chorthippus brunneus	Acrididae	Orthoptera	common
Chrysolina herbacea	Chrysomelidae	Coleoptera	common
Cicadula quadrinotata	Cicadellidae	Hemiptera	common
Cionus alauda	Curculionidae	Coleoptera	common
Cionus scrophulariae	Curculionidae	Coleoptera	common
Cionus tuberculosus	Curculionidae	Coleoptera	common
Cixius nervosus	Cixiidae	Hemiptera	common
Clausilia (Clausilia) bidentata	Clausiliidae	Pulmonata	common

Closterotomus fulvomaculatus	Miridae	Hemiptera	common
Clubiona pallidula	Clubionidae	Araneae	common
Clubiona phragmitis	Clubionidae	Araneae	common
Clubiona stagnatilis	Clubionidae	Araneae	common
Clusiodes albimanus	Clusiidae	Diptera	common
Coccidula rufa	Coccinellidae	Coleoptera	common
Coccinella septempunctata	Coccinellidae	Coleoptera	common
Coenagrion puella	Coenagrionidae	Odonata	common
Colletes hederae	Colletidae	Hymenoptera	common
Conocephalus fuscus	Conocephalidae	Orthoptera	common
Coreus marginatus	Coreidae	Hemiptera	common
Corixa punctata	Corixidae	Hemiptera	common
Corizus hyoscyami	Rhopalidae	Hemiptera	common
Cornu aspersum	Helicidae	Pulmonata	common
Cortinicara gibbosa	Latridiidae	Coleoptera	common
Crepidodera aurata	Chrysomelidae	Coleoptera	common
Crepidodera aurea	Chrysomelidae	Coleoptera	common
Crepidodera fulvicornis	Chrysomelidae	Coleoptera	common
Crudosilis ruficollis	Cantharidae	Coleoptera	common
Cryptocephalus pusillus	Chrysomelidae	Coleoptera	common
Cymus glandicolor	Lygaeidae	Hemiptera	common
Cyphon coarctatus	Scirtidae	Coleoptera	common
Dasineura pustulans	Cecidomyiidae	Diptera	common
Demetrias atricapillus	Carabidae	Coleoptera	common
Deporaus betulae	Rhynchitidae	Coleoptera	common
Deroceras (Deroceras) reticulatum	Agriolimacidae	Pulmonata	common
Dicranopalpus ramosus	Phalangiidae	Opiliones	common
Dictyla convergens	Tingidae	Hemiptera	local
Dictyna arundinacea	Dictynidae	Araneae	common
Dictyna uncinata	Dictynidae	Araneae	common
Dicyphus (Dicyphus) epilobii	Miridae	Hemiptera	common
Dicyphus (Dicyphus) stachydis	Miridae	Hemiptera	common
Discus (Gonyodiscus) rotundatus	Patulidae	Pulmonata	common
Donacia marginata	Chrysomelidae	Coleoptera	common
Donacia semicuprea	Chrysomelidae	Coleoptera	common
Donacia simplex	Chrysomelidae	Coleoptera	common
Donacia vulgaris	Chrysomelidae	Coleoptera	common
Drupenatus nasturtii	Curculionidae	Coleoptera	[Nb]
Drymus (Sylvadrymus) sylvaticus	Lygaeidae	Hemiptera	common
Dytiscus marginalis	Dytiscidae	Coleoptera	common
Elaphrus cupreus	Carabidae	Coleoptera	common
Eledona agricola	Tenebrionidae	Coleoptera	common
Elmis aenea	Elmidae	Coleoptera	common
Elodes elongata	Scirtidae	Coleoptera	NS
Empis livida	Empididae	Diptera	common

Enallagma cyathigerum	Coenagrionidae	Odonata	common
Enochrus melanocephalus	Hydrophilidae	Coleoptera	common
Enochrus testaceus	Hydrophilidae	Coleoptera	common
Ephemera danica	Ephemeridae	Ephemeroptera	common
Episinus angulatus	Theridiidae	Araneae	common
Epistrophe eligans	Syrphidae	Diptera	common
Episyrphus balteatus	Syrphidae	Diptera	common
Epuraea aestiva	Nitidulidae	Coleoptera	common
Epuraea melanocephala	Nitidulidae	Coleoptera	common
Eriothrix rufomaculata	Tachinidae	Diptera	common
Eristalinus sepulchralis	Syrphidae	Diptera	common
Ero cambridgei	Mimetidae	Araneae	common
Erysiphe cruciferarum	Erysiphaceae	Erysiphales	common
Erythromma najas	Coenagrionidae	Odonata	local
Euclidia mi	Erebidae	Lepidoptera	common
Eudonia angustea	Crambidae	Lepidoptera	common
Eupeodes corollae	Syrphidae	Diptera	common
Eurygaster testudinaria	Scutelleridae	Hemiptera	common
Eysarcoris venustissimus	Pentatomidae	Hemiptera	common
Forficula auricularia	Forficulidae	Dermaptera	common
Galba (Galba) truncatula	Lymnaeidae	Hygrophila	common
Galerucella calmariensis	Chrysomelidae	Coleoptera	common
Galerucella nymphaeae	Chrysomelidae	Coleoptera	common
Galerucella tenella	Chrysomelidae	Coleoptera	common
Gallinula chloropus	Rallidae	Gruiformes	common
Gammarus lacustris	Gammaridae	Amphipoda	common
Gastrophysa viridula	Chrysomelidae	Coleoptera	common
Gerris (Gerris) lacustris	Gerridae	Hemiptera	common
Gibbaranea gibbosa	Araneidae	Araneae	common
Gonepteryx rhamni	Pieridae	Lepidoptera	common
Gongylidium rufipes	Linyphiidae	Araneae	common
Grammoptera ruficornis	Cerambycidae	Coleoptera	common
Gymnetron veronicae	Curculionidae	Coleoptera	Nb
Gymnetron villosulum	Curculionidae	Coleoptera	[Nb]
Gymnocheta viridis	Tachinidae	Diptera	common
Gyrinus marinus	Gyrinidae	Coleoptera	common
Gyrinus substriatus	Gyrinidae	Coleoptera	common
Gyrinus urinator	Gyrinidae	Coleoptera	common
Haematopota pluvialis	Tabanidae	Diptera	common
Halesus digitatus	Limnephilidae	Trichoptera	common
Haliplus flavicollis	Haliplidae	Coleoptera	common
Haliplus fluviatilis	Haliplidae	Coleoptera	common
Haliplus lineatocollis	Haliplidae	Coleoptera	common
Harmonia axyridis	Coccinellidae	Coleoptera	common
Harpactea hombergi	Dysderidae	Araneae	common

Helobdella stagnalis	Glossiphoniidae	Rhynchobdellida	common
Helophilus pendulus	Syrphidae	Diptera	common
Helophorus aequalis	Hydrophilidae	Coleoptera	common
Helophorus brevipalpis	Hydrophilidae	Coleoptera	common
Heterogaster urticae	Lygaeidae	Hemiptera	common
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	common
Hydrobius fuscipes	Hydrophilidae	Coleoptera	common
Hydroporus palustris	Dytiscidae	Coleoptera	common
Hydroporus planus	Dytiscidae	Coleoptera	common
Hydroporus tessellatus	Dytiscidae	Coleoptera	common
Hygromia (Hygromia) cinctella	Hygromiidae	Pulmonata	common
Hygronoma dimidiata	Staphylinidae	Coleoptera	common
Hygrotus inaequalis	Dytiscidae	Coleoptera	common
Hylyphantes graminicola	Linyphiidae	Araneae	common
Hypomma bituberculatum	Linyphiidae	Araneae	common
Ilybius fenestratus	Dytiscidae	Coleoptera	common
Ilybius fuliginosus	Dytiscidae	Coleoptera	common
Ischnodemus sabuleti	Lygaeidae	Hemiptera	common
Ischnura elegans	Coenagrionidae	Odonata	common
Isoperla grammatica	Perlodidae	Plecoptera	common
Iteomyia major	Cecidomyiidae	Diptera	common
Javesella obscurella	Delphacidae	Hemiptera	common
Kaestneria pullata	Linyphiidae	Araneae	common
Kateretes pusillus	Kateretidae	Coleoptera	common
Laccobius bipunctatus	Hydrophilidae	Coleoptera	common
Laccobius minutus	Hydrophilidae	Coleoptera	common
Laccophilus minutus	Dytiscidae	Coleoptera	common
Laetiporus sulphureus	Fomitopsidaceae	Polyporales	common
Larinioides cornutus	Araneidae	Araneae	common
Lasius niger	Formicidae	Hymenoptera	common
Lasius platythorax	Formicidae	Hymenoptera	common
Lathys humilis	Dictynidae	Araneae	common
Leiobunum rotundum	Phalangiidae	Opiliones	common
Lejogaster metallina	Syrphidae	Diptera	local
Leptopterna dolabrata	Miridae	Hemiptera	common
Libellula depressa	Libellulidae	Odonata	common
Limacus flavus	Limacidae	Pulmonata	common
Limax maximus	Limacidae	Pulmonata	common
Limnia paludicola	Sciomyzidae	Diptera	common
Linyphia triangularis	Linyphiidae	Araneae	common
Liocoris tripustulatus	Miridae	Hemiptera	common
Lochmaea caprea	Chrysomelidae	Coleoptera	common
Lochmaea crataegi	Chrysomelidae	Coleoptera	common
Longitarsus dorsalis	Chrysomelidae	Coleoptera	common
Longitarsus rubiginosus	Chrysomelidae	Coleoptera	common

Lucilia sericata	Calliphoridae	Diptera	common
Lymnaea stagnalis	Lymnaeidae	Hygrophila	common
Macrophya annulata	Tenthredinidae	Hymenoptera	common
Macrophya ribis	Tenthredinidae	Hymenoptera	common
Malachius bipustulatus	Malachiidae	Coleoptera	common
Maniola jurtina	Nymphalidae	Lepidoptera	common
Megamelodes quadrimaculatus	Delphacidae	Hemiptera	local
Meligethes aeneus	Nitidulidae	Coleoptera	common
Merodon equestris	Syrphidae	Diptera	common
Metellina mengei	Tetragnathidae	Araneae	common
Metellina segmentata	Tetragnathidae	Araneae	common
Micaria pulicaria	Gnaphosidae	Araneae	common
Microlinyphia impigra	Linyphiidae	Araneae	common
Micromus variegatus	Hemerobiidae	Neuroptera	common
Microvelia (Microvelia) reticulata	Veliidae	Hemiptera	common
Misumena vatia	Thomisidae	Araneae	common
Monacha (Monacha) cantiana	Hygromiidae	Pulmonata	common
Myathropa florea	Syrphidae	Diptera	common
Myrmica ruginodis	Formicidae	Hymenoptera	common
Mystacides longicornis	Leptoceridae	Trichoptera	common
Nebrioporus elegans	Dytiscidae	Coleoptera	common
Nedyus quadrimaculatus	Curculionidae	Coleoptera	common
Nemotelus pantherinus	Stratiomyidae	Diptera	common
Nemoura cinerea	Nemouridae	Plecoptera	common
Nemurella pictetii	Nemouridae	Plecoptera	common
Neoascia geniculata	Syrphidae	Diptera	common
Neoascia tenur	Syrphidae	Diptera	common
Neocoenorrhinus aequatus	Rhynchitidae	Coleoptera	common
Noterus clavicornis	Noteridae	Coleoptera	common
Notonecta glauca	Notonectidae	Hemiptera	common
Notonecta viridis	Notonectidae	Hemiptera	common
Nyctia halterata	Sarcophagidae	Diptera	common
Ochina ptinoides	Anobiidae	Coleoptera	common
Ochlodes sylvanus	Hesperiidae	Lepidoptera	common
Ochthebius minimus	Hydraenidae	Coleoptera	common
Oedemera lurida	Oedemeridae	Coleoptera	common
Oedemera nobilis	Oedemeridae	Coleoptera	common
Oligia fasciuncula	Noctuidae	Lepidoptera	common
Opilio parietinus	Phalangiidae	Opiliones	common
Opilio parietinus	Phalangiidae	Opiliones	common
Orchesella cincta	Entomobryidae	Collembola	common
Orius (Heterorius) laticollis	Anthocoridae	Hemiptera	common
Orthops (Orthops) campestris	Miridae	Hemiptera	common
Oxyloma (Oxyloma) elegans	Succineidae	Pulmonata	common
Pachygaster atra	Stratiomyidae	Diptera	common

Pachygnatha clercki	Tetragnathidae	Araneae	common
Paederus littoralis	Staphylinidae	Coleoptera	common
Paederus riparius	Staphylinidae	Coleoptera	common
Paidiscura pallens	Theridiidae	Araneae	common
Palomena prasina	Pentatomidae	Hemiptera	common
Panorpa germanica	Panorpidae	Mecoptera	common
Pantilius (Pantilius) tunicatus	Miridae	Hemiptera	local
Paracorymbia fulva	Cerambycidae	Coleoptera	RDB 3
Paradromius linearis	Carabidae	Coleoptera	common
Pararge aegeria	Nymphalidae	Lepidoptera	common
Pardosa amentata	Lycosidae	Araneae	common
Pardosa saltans	Lycosidae	Araneae	common
Pegomya solennis	Anthomyiidae	Diptera	common
Peponocranium ludicrum	Linyphiidae	Araneae	common
Phaedon armoraciae	Chrysomelidae	Coleoptera	common
Phaedon cochleariae	Chrysomelidae	Coleoptera	common
Pherbellia schoenherri	Sciomyzidae	Diptera	common
Philaenus spumarius	Aphrophoridae	Hemiptera	common
Philodromus dispar	Philodromidae	Araneae	common
Pholcomma gibbum	Theridiidae	Araneae	common
Pholidoptera griseoaptera	Tettigoniidae	Orthoptera	common
Phratora vulgatissima	Chrysomelidae	Coleoptera	common
Phyllobius pyri	Curculionidae	Coleoptera	common
Phyllobius roboretanus	Curculionidae	Coleoptera	common
Phyllobius virideaeris	Curculionidae	Coleoptera	common
Phylloneta sisyphia	Theridiidae	Araneae	common
Phyllopertha horticola	Rutelidae	Coleoptera	common
Physa fontinalis	Physidae	Hygrophila	common
Phytomyza ilicis	Agromyzidae	Diptera	common
Pieris brassicae	Pieridae	Lepidoptera	common
Pieris rapae	Pieridae	Lepidoptera	common
Pinalitus cervinus	Miridae	Hemiptera	common
Pirata piraticus	Lycosidae	Araneae	common
Pisaura mirabilis	Pisauridae	Araneae	common
Piscicola geometra	Piscicolidae	Rhynchobdellida	common
Planorbis carinatus	Planorbidae	Hygrophila	common
Planorbis planorbis	Planorbidae	Hygrophila	common
Plateumaris rustica	Chrysomelidae	Coleoptera	NS
Platycheirus albimanus	Syrphidae	Diptera	common
Platycheirus rosarum	Syrphidae	Diptera	common
Platystethus arenarius	Staphylinidae	Coleoptera	common
Podops inuncta	Pentatomidae	Hemiptera	common
Pogonocherus hispidus	Cerambycidae	Coleoptera	common
Poophagus sisymbrii	Curculionidae	Coleoptera	common
Prasocuris junci	Chrysomelidae	Coleoptera	common

Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	common
Psammoecus bipunctatus	Silvanidae	Coleoptera	common
Psyche casta	Psychidae	Lepidoptera	common
Psylla alni sensu stricto	Psyllidae	Hemiptera	common
Psylliodes affinis	Chrysomelidae	Coleoptera	common
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	common
Psylliodes dulcamarae	Chrysomelidae	Coleoptera	common
Ptilinus pectinicornis	Anobiidae	Coleoptera	common
Ptychoptera contaminata	Ptychopteridae	Diptera	common
Pyrausta aurata	Crambidae	Lepidoptera	common
Pyrrhosoma nymphula	Coenagrionidae	Odonata	common
Radix balthica	Lymnaeidae	Hygrophila	common
Rhagonycha fulva	Cantharidae	Coleoptera	common
Rhagonycha lignosa	Cantharidae	Coleoptera	common
Rhinoncus pericarpius	Curculionidae	Coleoptera	common
Rhizomnium punctatum	Cinclidiaceae	Bryales	common
Rhogogaster viridis	Tenthredinidae	Hymenoptera	common
Rhyzobius litura	Coccinellidae	Coleoptera	common
Robertus lividus	Theridiidae	Araneae	common
Rutpela maculata	Cerambycidae	Coleoptera	common
Salpingus planirostris	Salpingidae	Coleoptera	common
Salticus scenicus	Salticidae	Araneae	common
Scathophaga stercoraria	Scathophagidae	Diptera	common
Scoloposthethus thomsoni	Lygaeidae	Hemiptera	common
Sepedophilus littoreus	Staphylinidae	Coleoptera	common
Sesia bembeciformis	Sesiidae	Lepidoptera	common
Sialis lutaria	Sialidae	Megaloptera	common
Sicus ferrugineus	Conopidae	Diptera	common
Sigara (Subsigara) fossarum	Corixidae	Hemiptera	common
Sisyra nigra	Sisyridae	Neuroptera	common
Sitona lineatus	Curculionidae	Coleoptera	common
Sphaeridium scarabaeoides	Hydrophilidae	Coleoptera	common
Stenus canescens	Staphylinidae	Coleoptera	Nb
Stenus latifrons	Staphylinidae	Coleoptera	common
Stigmella aurella	Nepticulidae	Lepidoptera	common
Stratiomys potamida	Stratiomyidae	Diptera	common
Succinea putris	Succineidae	Pulmonata	common
Synanthedon bembeciformis	Sesiidae	Lepidoptera	common
Tachina fera	Tachinidae	Diptera	common
Tachyporus chrysomelinus	Staphylinidae	Coleoptera	common
Telmatophilus caricis	Cryptophagidae	Coleoptera	common
Telmatophilus typhae	Cryptophagidae	Coleoptera	common
Tetanocera arrogans	Sciomyzidae	Diptera	common
Tetanocera ferruginea	Sciomyzidae	Diptera	common

Tetragnatha extensa	Tetragnathidae	Araneae	common
Tetragnatha montana	Tetragnathidae	Araneae	common
Theridiosoma gemmosum	Theridiosomatidae	Araneae	NS
Thryogenes nereis	Erirhinidae	Coleoptera	common
Tibellus oblongus	Philodromidae	Araneae	common
Trioza urticae	Triozidae	Hemiptera	common
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	common
Valvata piscinalis	Valvatidae	Pulmonata	common
Velia caprai	Veliidae	Hemiptera	common
Vespula vulgaris	Vespidae	Hymenoptera	common
Volucella bombylans	Syrphidae	Diptera	common

Appendix 2. Status categories for rare and Notable species

Red Data Book Category 1 (RDB 1) – Endangered

Definition.
Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

Criteria.
Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition.
Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet

assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria.
Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare

Definition.
Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion.
Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

Nationally Scarce Category A - Notable A (Na)

Definition.
Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition.
Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition.
Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

GB Rarity Status categories and criteria

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

- **Local**. Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Common.** Generally widespread throughout the UK.

MILL LAKE, ANDOVER

Water Assessment and Management

Bernice Brewster BSc (Hons), PhD, FLS, MIFM, CEnv., CBiol., MRSB

Aquatic Consultancy Service

9 Charlton Lane, West Farleigh, Maidstone, Kent ME15 0NX

email: Bernice.aquatic.consultancy@gmail.com

www.berniceaquatic-consulting.guru

t. 01622 815255

m. 07973 323494

MILL LAKE

This report concerns Mill Lake, which forms part of the Rooksbury Mill, Local Nature Reserve, Andover, Grid Reference SU35599 44607. The lake is approximately 2.1ha (5acres), with an inlet on the north bank from the River Anton and outlet on the south west side of the lake. The lake has a mixed coarse fish population but is lightly stocked, with a limited amount of angling permitted. The lake is overwhelmed with fibrous blanket weed, some of which has been removed using a weed cutting boat, but the water surface has large areas of the nuisance algae. Barley straw has also been used to control the blanket weed growth, but the volume of weed has exceeded the capacity of the straw to affect it.

Water analysis

The water chemistry on the lake was assessed using electronic meters for dissolved oxygen, conductivity, total dissolved solids, pH and temperature, a Palintest 7100 photometer was used for chemical assay the results are given in Table 1.

Table 1. Water Analysis, Mill Lake

	Inlet	Outlet
Colour	Clear	Clear
pH	7.1	7.06
Total Ammonia (mg per litre as N)	0.01	0.05
Ammonia as NH^3 (mg per litre)	0.01	0.06
Ammonia as NH^4 (mg per litre)	0.01	0.06
Nitrite (mg per litre as N)	0.046	0.058
Nitrite as NO_2 (mg per litre)	0.151	0.191
Nitrate (mg per litre as N)	10.38	8.76
Nitrate as NO_3 (mg per litre)	45.98	38.8
Phosphate (mg per litre as P)	0.15	0.08
Phosphate as PO_4 (mg per litre)	0.44	0.24
Total Alkalinity (as calcium carbonate mg per litre)	277	286
Total Alkalinity HCO_3^-	338	349
Total Alkalinity CO3-	166	172
Redox (mV)	197	103
Total Dissolved Solids (g per litre)	0.26	0.26
Conductivity (mS)	0.52	0.52

Comments

The main area of concern is the nutrient content of the lake, comprising the nitrogen (nitrite and nitrate) and phosphate content which are causing the water to become eutrophic (nutrient enriched). Using a Trophic State Index, the water in Mill Lake falls

into the category of poor based on the nitrogen and phosphorous content. It is the concentration of these nutrients in the water which are promoting the growth of the nuisance *Cladophora* sp. (blanket weed).

In addition to the *Cladophora*, the dominant phytoplankton was the diatom *Synedra* sp., with small numbers of the Cyanobacteria (blue-green algae), *Lyngbya* sp. and some motile green algae, *Chlamydomonas* sp. The *Lyngbya* sp. was present in very low numbers, less than 10 per ml of water, which does not represent a health hazard, numbers in excess of 20,000 per ml are regarded as serious. I should also add that it is possible to find representative species of Cyanobacteria in most lakes in England.

Cladophora thrives in eutrophic waters, forming the extensive mats which are plaguing Mill Lake, which as they decay cause the water to become anoxic, affecting all freshwater life. This nuisance algae responds rapidly to changes in day length and as soon as the day length noticeably increases in late January, early February, it will start growing again. Although cutting the *Cladophora* is the best current means of control, the algae will grow from any fragments left in the water, which potentially causes the weed to proliferate.

Recommendations

1) Barley straw – In the presence of oxygen, the microbial decomposition of barley straw releases hydrogen peroxide, termed 'algae inhibiting factor', kills the algae. The application of barley straw is roughly 50g per square metre of water surface, ideally loosely packing the barley straw into Christmas tree netting or rafts (Figure 1). At temperatures of 10^0C and below the barley straw will take about 6 – 8 weeks to release the algae inhibiting factor, at temperatures approaching 20^0C the barley straw becomes effective within 2 – 3 weeks, with inhibition of algae lasting about 4 – 6 weeks depending on temperature. Ideally, the barley straw needs to be placed on the lake in late winter, January to February to inhibit the growth of the blanket weed. The best use of barley straw is to create a rolling programmes so that new batches of barley straw are added to the lake before the existing barley straw ceases production of the inhibiting factor. Always remove the expired barley straw as this also becomes subject to decomposition, becoming a further source of nitrogen in the water.

It may be worth creating a single line of barley straw sausages, crossing the lake from shore to shore rather than using circles and possibly rather than a line of sausages a couple of rafts at the inlet.

Rather than using plastic bottles, which are a little unsightly it may be better to using fishing net floats, which can be tied to the barley straw sausages or rafts. The following can supply the floats and the price to give you an idea, as you can see there is variation in price, associated with the weight of the float but worth an internet search:

www.collins.co.uk floats 0.36p each

www.advancednetting.co.uk 0.24p each

www.gaelforcemarine.co.uk 0.64p each

www.coastalnets.co.uk £6.50 per 10

Figure 1. Barley straw raft

2) Planting – Planting is the key to controlling nuisance algae as this is the best means of removing nutrients from the lake. It would be worth planting reeds, possibly common reed (*Phragmites australis*) om either side of the inlet of the River Anton into the lake. The reeds are extremely good at extracting nutrients and any potential pollutants from the water, as it enters the lake. Common reed can be very invasive and needs to be kept under control, I would certainly advocate cutting back the dead stems and flower

heads annually in the autumn. Planting the margins will also help to compete with the algae for available nutrients, fool's watercress *Apium nodiflorum* is a good marginal plant, grows early in the year, competing with the algae and produces white flowers for the insect life. There are already marginal plants on the lake and cuttings of these could be transplanted around the lake shores, this is best undertaken in the spring as the water is warming and allows the plants the summer months to become fully established.

3) Dead heading – All dead plant leaves, flowers and stems which drop into the water also add to the nitrogen and phosphate concentration, which dead heading can reduce but I'm not sure how much impact that might have on terrestrial insect life.

4) Siltex® - Siltex® is a champagne chalk and is excellent for controlling nuisance *Cladophora*, breaking down the organic deposits in the lake and effectively reducing the available nutrients. The use of Siltex® will often promote the growth of the macrophytes on the lake. The application rate is 1 tonne per 0.4ha (1acre), usually it is applied off a boat, to allow the propeller to mix it into the water, Kingcombe Aquacare would be able to undertake the work. The application of Siltex® may be piecemeal over a few years and it may be that treating just part of the lake adjacent to the inlet will have a significant impact on the growth of the *Cladophora.* Treatment is usually undertaken in the autumn or winter, as there is the possibility that as the Siltex® breaks down the organic material it can impact on the dissolved oxygen. The autumn winter are better as oxygen is more soluble in cold water. As a guide, one company charge £252 per tonne of Siltex® including delivery, however Kingcombe Aquacare may have a different source of champagne chalk other than the branded product.

5) Phoslock® - Phoslock® is an extremely effective product for stripping the water of phosphorous and controlling nuisance algae. The phosphorous is chemically locked into the sediment and therefore the algae are unable to grow, macrophytes are unaffected because the root system takes the nutrients from the sediment. It has been successfully used for natural swimming lakes and for treating the Serpentine in 2012 for the triathlon in the Olympic Games. While it sounds like the dream product, it is astronomically expensive.

5) Combination approach – although I have identified several methods of controlling the proliferation of *Cladophora* the best method is a combination. Even if you opt for

using Siltex®, it would be worth combining this with the use of barley straw, especially if the Siltex® is used to treat the lake piecemeal.

Finally, there is no such thing as a quick fix when it comes to the aquatic environment and whatever remedial action is undertaken, it may take several years before the best result is achieved, it may take a few years to finally achieve eradication of the *Cladophora*.

APPENDIX III

Parks & Countryside Event Guide 2024







Anton Lakes LNR, Andover
Grid reference: SU357466

Anton Lakes were formed as a result of gravel extraction. The lake outflow is the headwaters of the River Anton. The springs, lake, river and meadows around the edge of the site provide a mosaic of habitats, including chalk grassland, watercress beds and water meadows. Cattle now graze throughout the summer months and help to support the diverse range of wild flowers. Many birds can also be found on the lakes and streams including kingfishers and water rail.

Ladies Walk, Andover
Grid reference: SU369445

Located on the south eastern edge of Andover, Ladies Walk comprises of three moderately steep north facing meadows. The chalk grassland on site supports a diverse array of butterflies and other invertebrates, as well as vertebrates such as common lizards and slow worms. The meadows are grazed throughout the summer to improve their sward structure. The Ladies Walk which boarders the site dates back to 1785.

Rooksbury Mill LNR, Andover
Grid reference: SU356443

Rooksbury Mill, also formed through gravel extraction and once a trout fishery, now plays host to a variety of wildlife including otters, water voles and kingfishers. Its mosaic of chalk grassland and riparian habitats provide a rich diversity of wildlife.

Harewood Common, Andover
Grid reference: SU357466

Comprising of nearly 10 hectares of chalk grassland, Harewood Common is rich in wildlife and provides a refreshing contrast to the nearby Urban Park. Originally an agricultural field, the common backs onto the ancient woodland of Harewood Forest and is managed through grazing during the summer months. This creates an ideal habitat for insects, birds and bats to thrive.

Ox Drove Meadow, Andover
Grid reference: SU357466

Comprising of just over three hectares of chalk grassland, Ox Drove Meadow is made up of a gently sloping path which encompasses the site. New trees planted around the site are helping to establish a robust hedgerow around its boundary which is important for the sites' inhabitants which include a wide variety of birds and insects as well as the Hazel Dormouse which makes the site its home.

Test Valley Parks and Countryside Team

The team work to maintain and develop the borough's green spaces which include countryside sites, Nature Reserves, parks and cemeteries.
Please contact the countryside officers in advance for more details.
Further information is available on **www.testvalley.gov.uk**

Or contact the the Countryside Officers on **01264 368000**, or email **community&leisure@testvalley.gov.uk**

Local Conservation Groups

The Anton River Conservation Association (TARCA)

Thank you to everyone who has volunteered throughout 2023 to help maintain and enhance our green spaces.

New volunteers, including families, are always welcome to help with the on-going programme of events.

Parks and Countryside

Events and Activities 2024

North Test Valley

TestValleyBC TestValleyBC www.testvalley.gov.uk

Test Valley Borough Council

T.A.R.C.A.

Parks and Countryside Events and Activities Guide 2024

North Test Valley

Date	Time	Task	Venue	Meeting Place
Sat 13 Jan	10am – 2pm	Woody debris mattress creation	Anton lakes LNR	Car Park
Sun 28 Jan	10am – 2pm	Scrub clearance	Ladies walk	Hedge end road playing field SP10 2DH
Sat 10 Feb	10am – 2pm	Coppicing and ditch clearance	Anton lakes LNR	Car Park
Sun 25 Feb	10am – 2pm	Watercress bed maintenance and scrub clearance	Anton lakes LNR	Car park
Sat 9 Mar	10am – 2pm	Tree planting & tree guard removal	Harewood common	P20 Coop car park SP11 6TY
Sun 24 Mar	10am- 2pm	Tree planting & tree guard removal	Harewood common	P20 Coop car park SP11 6TY
Sat 6 Apr	10am – 2pm	Big litter pick, river clean and site maintenance	Rooksbury mill LNR	Car park
Sat 21 Apr	10am – 2pm	Big litter pick, river clean and site maintenance	Anton lakes LNR & Wickes meadow	Car park
Sun 5 May	4:45 am onwards	Dawn Chorus day	Rooksbury mill LNR	Car park
Sun 19 May	10am – 2pm	Anton river clean	Behind ASDA	Car park behind ASDA
Sat 13 Jul	10am – 2pm	Ragwort pull	Swattons	Charlton lakes BMX track car park
Sun 21 Jul	10am – 2pm	Summer walk with optional lunch at the Oak, Smannell	Harmony woods paths around Smannell	East Anton Sports Ground car park SP11 6XU
Sat 3 Aug	10am – 2pm	Free Family Discovery day	Anton lakes LNR	Car park
Sun 18 Aug	10am – 2pm	Non-Native species removal	Rooksbury mill INR	Car park
Fri 6 Sep	7:45 pm onwards	Bat walk	Bury hill meadows	Car park
Sat 7 Sep	7:45 pm onwards	Bat walk	Harewood common	P20 Coop car park SP11 6TY
Fri 20 Sep	7 pm onwards	Bat walk	Rooksbury mill LNR	Car park
Sat 21 Sep	7pm onwards	Bat walk	Anton lakes LNR	Car park
Sat 5 Oct	10am – 2pm	Orchard day	Rooksbury mill LNR	Car park
Sun 20 Oct	10am – 2pm	Riverbank cutting	Behind ASDA	Car park behind ASDA
Sat 2 Nov	10 am – 2pm	Woody debris mattress creation	Anton lakes LNR	Car park
Sun 17 Nov	10am – 2pm	Winter tasks	Rooksbury mill LNR	Car park
Sat 30 Nov	10am – 2pm	Winter tasks	Rooksbury mill LNR	Car park

Important Note

The practical tasks that we carry out on our Green Spaces and Nature Reserves can be strenuous, tiring and involve the use of hand tools that some people may find challenging. Please inform the co-ordinator leading the event if you have any medical conditions or concerns that could be a danger to yourself or other volunteers working around you. We reserve the right to restrict your level of participation in certain circumstances. All children under the age of 16 must be accompanied by a responsible adult.

APPENDIX IV

EDUCATIONAL VISITOR GUIDE







Rooksbury Mill Local Nature Reserve
Educational Visitor Guide
and
Activity Sheets
Habitats
Landscapes
Plant and Animal Lifecycles

Copies can be viewed at :

https://www.testvalley.gov.uk/communityandleisure/naturereserves/free-activity-visit-schools-test-valley-nature-res

Some comments from the Schools Nature Reserve Visit 2019

“The children really enjoyed the visit. Thank you for making it so enjoyable for them. We did some work on pond dipping and understanding of the journey of a river before our visit. We plan to follow up with work around habitats on our return to school.”

“Before our visit we did some work on animal classification and will continue this upon our return.”

“A fantastic half day with patient and engaging leaders. It is great to visit sites in the local area that the children may visit with their family and give them a better insight into the nature and care need to support these places. Thank you for organising these events.”