

LEICESTERSHIRE RED DATA BOOKS

BEETLES



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LEICESTERSHIRE MUSEUMS
ARTS & RECORDS SERVICE



LEICESTERSHIRE
and RUTLAND

The Leicestershire Red Data Book is a joint project between
Leicestershire County Council Museums Arts and Records Service
and Leicestershire and Rutland Wildlife Trust.

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INTRODUCTION

Beetles in Leicestershire

Beetles are amongst the better, studied invertebrate groups. 52,000 records from Leicestershire (including Rutland), are currently held by the Leicestershire Biological Records Centre. There are approximately 4,000 species recorded in the British Isles, of which over half have at some time been recorded in Leicestershire.

The large numbers of species coupled with the fact that many of them are rare and have strict ecological requirements means that beetles are sensitive to environmental change and they are a useful group for site evaluation and monitoring the effects of land management. The use of beetles as indicators of site quality is well established for ancient woodlands and wetlands. Their use is also being developed for river systems and grasslands.

In the National context Leicestershire is not normally regarded as a hotspot of interest for wildlife. However nationally scarce beetles are well represented in the county. Leicestershire has a wide variety of inland habitats both manmade and semi-natural, with a long list of regionally important sites.

Leicestershire can be described as a typical lowland English county containing an island of upland represented by the Charnwood Forest area. Due to its central position, it is a useful indicator to the nation's environment. All the modern pressures on wildlife can be found operating here. Intensification of agriculture, urbanisation, road building, mineral extraction, replanting of woodlands, river management and land drainage are all important factors currently affecting the natural environment in the county. What becomes rare in Leicestershire today may well become rare in the rest of the country tomorrow. These factors coupled with the wealth of accessible biological data held in the county records centre make it an ideal place for monitoring the effects of environmental change on wildlife.

How to use this book

The Red Data Book of Beetles has three main aims:

- To identify which Leicestershire beetles are endangered or seriously declining,
- To gather together information both on Threat and ecology relevant to individual species and their habitats in order to help conserve them,
- To promote nature conservation in Leicestershire.

The first part of this book lists each species together with information about its status, habitat requirements, Threat and conservation. The second part summarises all this information for the communities associated with each major habitat.

Those involved with active management of conservation sites should find information about individual red data book species, which are known to occur on their sites in the first section of the book. This will help them to form management plans for their preservation. For information about habitats of known interest they can refer to the second section. The list of important references will help them access further information.

Those involved in strategic planning can find information on priorities for action in the second section. The most important habitats and those most in need of special conservation measures can readily be ascertained together with key sites for each habitat, recommended strategies and priorities for further research.

Those involved in the promotion of nature conservation can find facts and figures throughout both sections of the book which can be used to demonstrate that Leicestershire is a county with abundant wildlife which needs to be valued and protected.

Acknowledgements

I am grateful to those who have kindly sent in beetle records to the Leicestershire Biological Records Centre run by the Leicestershire Museums, Arts and Records Service. Records in this book have been collected with the help of the Balfour-Browne Club, the Loughborough Naturalists Club, the Rutland Natural History Society and the National Trust. Significant records have been contributed with the aid of the following individuals:

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English Nature

Friends of Moira Furnace

Leicestershire County Council Museums service

Ministry of Agriculture Fisheries and Food

National Rivers Authority

Finally, I am grateful to Michael Jeeves for reading through the text and making useful comments.

Important reference books.

Foster, G.N. & Eyre, M.D., (1992). 'Classification and ranking of water beetle communities.' UK Nature Conservation 1. JNCC, Peterborough.

Harding, P.T. & Rose, F., (1986). 'Pasture-Woodlands in Lowland Britain.' ITE, Huntingdon. (ancient woodland indicators).

Hyman, P.S (revised & updated by Parsons, M.S.) (1992). 'A review of the scarce and threatened Coleoptera of Great Britain, part 1.' UK Nature Conservation 2. JNCC, Peterborough.

Hyman, P.S (revised & updated by Parsons, M.S.) (1994). 'A review of the scarce and threatened Coleoptera of Great Britain, part 2.' UK Nature Conservation 12. JNCC, Peterborough.

Kirby, P., (1992). 'Habitat Management for Invertebrates: a practical handbook.' JNCC Peterborough.

Koch, K.C., (1989-). 'Die Kafer Mitteleuropas. Okologie. (3 vols.) Goecke & Evers, Krefeld.

Shirt, D.B. (Ed), (1987). 'British Red Data Books: 2 Insects' NCC Peterborough.

Speight, M.C.D., (1989). 'Saproxyllic invertebrates and their conservation.' Nature & Environment Series no 42. Council for Europe, Strasbourg.

Further enquiries on beetles and their conservation in Leicestershire can be made to Leicestershire Museums Service, The Rowans, College St, Leicester LE2 0JJ.

SECTION 1

RED DATA BOOK SPECIES LIST

Criteria for inclusion of species

Five criteria have been used to select species for this book. Species have been included if they qualify according to any of these criteria, although many species qualify for inclusion on several grounds.

Rarity

Species recorded from three or fewer 1-kilometre squares on the national grid since 1970 qualify for inclusion.

Endangered sites and habitats

Species which, are confined to endangered sites and habitats, are also included. Also included are species, which might be expected to be adversely affected by modern management practices such as flood alleviation schemes and intensive agriculture.

Declining species

There are many species which do not qualify for inclusion on grounds of rarity, but which nevertheless have declined in Leicestershire to an extent whereby their continued survival is doubtful if present trends continue. Species which, can be shown to have significantly declined in numbers to the point where they are at risk, are included.

National Red Data Book species

Species which, are listed in the national red data book of insects, (Shirt 1987) qualify for inclusion in this book.

Nationally scarce species

A list of beetles designated as nationally scarce by the Joint Nature Conservation Committee (Hyman 1992, 1994). All these species qualify for this book.

Selection of species

The Leicestershire Red Data Book list has been compiled from over 52,000 Leicestershire records, which are held in BIOSPIN, a computerised data base maintained by Leicestershire Museums Service. These records have been put together from published sources and records kindly sent in by a number of coleopterists who have worked in the county.

It includes 342 species out of a total of 1,628 species reliably recorded in Leicestershire and Rutland since 1970. Because some groups of beetles have been better studied than others, the method of selection of red data book species has varied from group to group.

ground beetles (family: Carabidae)

This family has been well studied in Leicestershire with over 12,000 records and all the criteria listed in the introduction are used. Three species, *Bembidion quinquestriatum*, *Pterostichus macer* and *Laemostenus terricola*, which qualify for inclusion in the list on the grounds of rarity, are excluded because their habits have probably led to them being under-recorded. This leaves 48 species listed in the Leicestershire Red Data Book out of a total of 159 species recorded since 1970.

water beetles (families: Haliplidae, Hygrobiidae, Noteridae, Dytiscidae, Gyrinidae, Hydrophilidae, Hydraenidae, Dryopidae, Elmidae)

These families contain certain species, which are aquatic in their larval and adult stages. However, some species are characteristic of water margins and it is impossible to make any sharp distinction between truly aquatic and terrestrial species. Water beetles have been well studied in Leicestershire with nearly 7,000 records and all the criteria listed in the introduction are used, except that those strictly terrestrial species in the Hydrophilidae, which would qualify only on grounds of local rarity, have been excluded because they have received little attention in Leicestershire. This leaves 57 species, which are listed in the Leicestershire Red Data Book out of a total of 149 species of water beetles and allies recorded in Leicestershire since 1970.

other beetles

Present knowledge of the remaining families is not sufficiently advanced to draw up a sensible list of species on grounds of rarity in Leicestershire. Therefore, the final section includes mainly those species which have been designated nationally scarce or which have been included in the national Red Data Book for insect. The inclusion of some wetland and riverbank rove beetles on grounds of local rarity can be justified by the large volume of recent work carried out in these habitats. Some, species which are known to be specifically associated with heathland, are also included on the grounds that heathland is an endangered habitat in Leicestershire. Finally, the glow-worm *Lampyris noctiluca* is included because a special survey has shown it to be a declining species. This gives a further 237 species.

Format of species accounts

Each species is given a separate entry with a standard format. The common and scientific names of the species are found in the first line of each entry. The second line contains the criteria, which the species fulfils for inclusion in the book. These criteria are coded as follows:

R	Rare species with records from less than 3 1km squares
E	Species associated with endangered sites or habitats
DD	Seriously declining species
Na	Nationally scarce (projected national distribution covering less than 30 10km squares on the national grid)
Nb	Nationally scarce (projected national distribution covering less than 100 10km squares on the national grid)
N-	Nationally scarce (grade unknown)
RDB1	Designated 'endangered' in national red data book
RDB2	Designated 'vulnerable' in national red data book
RDB3	Designated 'rare' in national red data book
pRDB	New red data book status proposed by Hyman (1992,1994)
pRDBK	Probably of red data book status (1992,1994)
()	Change of status proposed by (1992,1994)

Information on each species is then related under three headings. Under 'Habitat, Ecology and Status' details, of the local, and where relevant, national distribution and known ecological requirements are given. Under 'Threat' details of any identified Threat to each species are given. Finally details of suitable conservation measures are given under 'Conservation'.

Species accounts

Carabidae – Ground Beetles

Cicindela campestris Linnaeus (Green Tiger Beetle) R

Habitat, Ecology & Status - This brightly coloured and active species is confined to sandy areas in Leicestershire. It requires extensive bare areas, where the larvae make burrows, from which they prey on small ground living animals. The adults hunt prey by running over the same areas in sunshine. In recent years *C. campestris* has only been recorded from Bradgate Park, where it was first recorded 150 years ago, and two disused quarries (Acresford Sandpit and Newell Wood).

Threats - Lack of grazing in many otherwise suitable areas leads to the growth of rank vegetation, which destroys its habitat. In Leicestershire it often depends on disturbance caused by quarrying activities to create bare patches of ground.

Conservation - Bradgate Park is a country park. Here erosion caused by heavy public usage is probably beneficial because it maintains bare sandy areas. Its quarry sites need to have areas kept at an early stage of vegetational succession in order to maintain bare patches necessary for its survival.

Carabus monilis Fabricius Nb

Habitat, Ecology & Status - A large species with sculptured wing cases. Recorded in Leicestershire from scattered localities apparently favouring wet alluvial meadows. Holwell Mouth, from where *C. monilis* was recorded in 1963 possibly no longer contains suitable habitat for it. More recent records come from the LRTNC nature reserve at Rutland Water, the verge next to Saddington Reservoir and SSSI's at Loughborough Big Meadow and Seaton Meadow. It is believed to have declined nationally but the Leicestershire records are too sparse to confirm any local decline.

Threats - Drainage, possibly agricultural improvement of alluvial grassland.

Conservation - This species appears to depend on damp alluvial meadows, which should be protected from drainage and reseeded.

Notiophilus germinyi Fauvel R

Habitat, Ecology & Status - A heathland and moorland species common in the north and west of the British Isles. It has been recorded in recent years from three disused quarries in east Leicestershire and Rutland. Old records come from Bradgate Park, but it has not been recorded there since 1927.

Threats - The continuing deterioration of Charnwood heaths threatens any remaining populations there, but *N. germinyi* is favoured by quarrying activities in limestone areas.

Conservation - The east Leicestershire site, Browns Hill Quarry is a LRTNC reserve. One of the Rutland sites, Ketton Quarry, is an SSSI. These sites need to be maintained in an early stage of vegetational succession in order to benefit this species.

***Blesthia multipunctata* (Linnaeus) D Nb**

Habitat, Ecology & Status - A wetland species with a scattered distribution in Britain. Yorkshire and east Midlands appear to have yielded more records of this species than other areas of the country. In Leicestershire it has most often been recorded from reservoir margins. It was recorded from three sites in the 1960s, but has only been recorded from two areas in the last ten years, a period of more intense study. Although often found at Saddington reservoir between 1909 and 1962 it has not been seen there in recent years despite visits by several entomologists.

Threats - *B. multipunctata* appears to be declining more than other wetland Carabidae, but the reason is not known.

Conservation - Cropston Reservoir, one of the two sites, is part of an SSSI. The other modern site is at Lockington Marsh, where it occurs both within and outside of the SSSI boundary.

***Dyschirius globosus* (Herbst) R**

Habitat, Ecology & Status - Common in marshes over much of Britain, but unaccountably rare in Leicestershire. It seems to have declined since the 1960s.

Threats - The cause of any decline of this species is unknown.

Conservation - Two of the recent records come from SSSI's, namely Lount Meadows and Bortcheston Bog.

***Trechus discus* (Fabricius) Nb**

Habitat, Ecology & Status - Recorded in summer months from the banks of the River Soar and two dry sites on limestone in the east of the county. It may be partly subterranean in its habits.

Threats - None known.

Conservation - More information is needed about the requirements of this species.

***Asphidion flavipes* (Linnaeus) RE**

Habitat, Ecology & Status - What was known as *A. flavipes* has recently been discovered to consist of three separate species in this country, so old records are suspect. Indeed, nearly all, old specimens that have been checked have been referred to *A. curtum*. The genuine *A. flavipes* appears to be rare and always found near running water. The only undoubted Leicestershire record comes from a soft eroding bank on the River Trent near Sawley.

Threats - Regrading of riverbanks during river management operations.

Conservation - The retention of suitable habitat needs to be built in to river management plans.

***Bembidion obliquum* Sturm D Nb**

Habitat, Ecology & Status - Associated with bare expanses of waterside mud. In Leicestershire it has been recorded as abundant on various reservoir margins from the 1890s until 1964, when it was reported from Blackbrook reservoir. Since then, it has only been found twice, both times from the River Soar, despite an increased level of recording.

Threats - The reasons for the apparent decline of this species are unknown.

Conservation - More information is needed about the requirements of this species.

***Bembidion decorum* (Zenker) RE**

Habitat, Ecology & Status - Not uncommon on shingle banks throughout northern and western Britain. The only known locality in Leicestershire is the last remaining, large unmodified shingle bank in Leicestershire, which is on the River Trent near Cavendish Bridge.

Threats - Modification of shingle banks either during river management operations or by adjoining landowners. Siltation is currently causing deterioration of shingle banks along the Trent.

Conservation - The retention of suitable habitat needs to be built in to river management plans.

***Bembidion fluviatile* Dejean RE Nb**

Habitat, Ecology & Status - A riverbank species. The only known Leicestershire record comes from a soft eroding bank on the River Trent near Sawley where it was found with *Aspidion flavipes*.

Threats - Regrading of riverbanks during river management operations.

Conservation - The retention of suitable habitats needs to be built in to river management plans.

***Bembidion stephensi* Crotch R**

Habitat, Ecology & Status - Rediscovered in Leicestershire in 1990 at Tixover Quarry after a gap of 133 years. It is found on bare sand and clay by water. Mainly recorded from coastal habitats in Britain and very rare in the midlands.

Threats - Likely to be adversely affected by the filling of disused quarries in Rutland or allowing them to scrub over.

Conservation - The survival of this species is dependent on maintaining quarry pool margins in an early stage in the vegetational succession.

***Bembidion quadripustulatum* Serville R Nb**

Habitat, Ecology & Status - Normally found on damp bare clay or mud. Recorded from the edge of a pond in Mountsorrell and one locality at the margins of the Ashby Canal (both D.G. Goddard).

Threats - Until more is known about the habitat requirements of *B. quadripustulatum* it is difficult to identify any Threat precisely.

Conservation - More information is needed about the requirements of this species.

***Bembidion gilvipes* Sturm Nb**

Habitat, Ecology & Status - In Leicestershire this species is found in river valleys in variety of habitats. Consequently, it is often found in flood refuse. It is widespread and common in the lower Soar valley.

Threats - The drying out of flood plain habitats with subsequent conversion of pasture to arable cultivation and hedgerow removal must have an adverse effect on *B. gilvipes*. These changes are an inevitable consequence of the lowering of water tables following river improvement schemes.

Conservation - *B. gilvipes* has been recorded from all three SSSI's in the lower Soar valley.

***Bembidion clarki* (Dawson) E Nb**

Habitat, Ecology & Status - Occurs amongst lush vegetation, often shaded, on damp mud by ponds and lakes and often in river valleys. Seems to be confined to undisturbed sites and is sensitive to heavy grazing.

Threats – Wetland drainage and the 'cleaning up' of reservoir margins and other suitable habitats are potential threat to this species.

Conservation - One site at Loughborough Big Meadow is part of an SSSI. At all sites the value of undisturbed wetland should be recognised for this and other species which require minimal management activity.

***Bembidion fumigatum* (Duftschmid) Nb**

Habitat, Ecology & Status - Recorded from the marshy margins of Saddington and Swithland Reservoirs and a variety of sites in the lower Soar Valley.

Threats - The disturbance of wetlands is a potential threat to this species.

Conservation - Swithland Reservoir is part of an SSSI.

***Bembidion doris* (Panzer) RE**

Habitat, Ecology & Status - Abundant at the marshy margins of Saddington Reservoir, but only known from two other sites elsewhere in Leicestershire.

Threats - The drainage and disturbance of wetlands pose potential threat to this species.

Conservation - This species is sensitive to disturbance of its habitat and requires minimal management activity.

***Tachys parvulus* (Dejean) now *Elaphropus parvulus* (Dejean) Nb**

Habitat, Ecology & Status - This pioneer species has spread out over large areas of the south-eastern England in recent years. In Leicestershire it was recorded in 1992 in a variety of urban demolition sites and disturbed riverbanks.

Threats - none.

Conservation - This species benefits from the disturbance associated with largescale engineering works.

***Pterostichus angustatus* (Duftschmid) now *Pterostichus quadriveolatus* (Letzner) RNb**

Habitat, Ecology & Status - An immigrant species first recorded in Leicestershire in the 1960s at four heathland and woodland sites in Charnwood Forest, when it appeared to be common in the area. Following its initial abundance, it seems to have declined. Last recorded in 1984 in a pitfall trap in coniferous woodland at Charnwood Lodge Nature Reserve. Its ecological requirements are not well understood at present.

Threats - Until more is known about the habitat requirements on *P. angustatus* it is difficult to identify any threat precisely.

Conservation - All records of this species come from SSSI's. The local status and requirements of this species need to be investigated.

***Pterostichus anthracinus* (Panzer) E Nb**

Habitat, Ecology & Status - Occurs at the marshy margins of Saddington Reservoir, and has recently been discovered at three sites in the Soar Valley. May be sensitive to grazing.

Threats - The drainage and disturbance of wetlands pose potential threats to this species. The two ponds at Sileby have been threatened by gravel extraction plans.

Conservation - The conservation of undisturbed wetland should be considered in the design of management plans and the designation of protected areas.

***Pterostichus gracilis* (Dejean) E Nb**

Habitat, Ecology & Status – Occurs in undisturbed marshes at Saddington Reservoir, the margins of Stanford Reservoir, Lockington Marsh and other undisturbed sites in the soar valley.

Threats - The drainage and disturbance of wetlands.

Conservation - Some of the sites at Lockington Marsh lie within the SSSI boundary. These sites need to be protected from disturbance either by grazing stock or cleaning out.

***Pterostichus rhaeticus* (Heer) R**

Habitat, Ecology & Status - Only recently been recognised as distinct from the common *P. nigrita*. Despite examining nearly one hundred specimens of *P. nigrita* only two Leicestershire specimens of *P. rhaeticus* were discovered, both from the Charnwood area, until it was found abundant at Seaton Meadow SSSI in 1994. The species is probably associated with fen and wet grassland.

Threats – Land drainage

Conservation – All three of its known sites (Buddon Brook, Colony Reservoir and Seaton Meadow) are within SSSI's.

***Pterostichus vericolor* (Sturm) now *Poecilus versicolor* (Sturm) R D**

Habitat, Ecology & Status – There are several older records of this species, but modern records are confined to three unimproved floodplain sites in the Soar valleys.

Threats – Agricultural improvements especially to alluvial grasslands.

Conservation – The species seems to be fairly common at Loughborough Big Meadow and Seaton Meadow, both SSSI's.

***Calathus ambiguus* (Paykull) R Nb**

Habitat, Ecology & Status – First recorded from Leicestershire in 1987 when it was found on derelict land at Essendine Railway Sidings in Rutland. It prefers dry sparsely vegetated habitats.

Threats – The development or scrubbing over of derelict land in Rutland will remove sites suitable for this species.

Conservation – This species is not currently known from protected sites in Rutland. *C. ambiguus* would benefit from the maintenance of selected derelict sites at an early stage of vegetational succession.

***Calathus erratus* (Sahlberg) R**

Habitat, Ecology & Status – Known in Leicestershire from derelict land at Leicester and Holwell near Melton. There is a 1960's record from heathland at Charnwood Lodge Nature Reserve. It's scarcity in Leicestershire is puzzling because it is not uncommon elsewhere in Britain. Like its close relative *C. ambiguus* it prefers dry habitats.

Threats – The development or scrubbing over of derelict land will remove sites suitable for this species.

Conservation – It is not known whether this species still occurs at Charnwood lodge or any other heathland sites. *C. erratus* would benefit from maintenance of selected derelict sites at an early stage of vegetational succession.

***Platyderus ruficollis* (Marsham) R Nb**

Habitat, Ecology & Status – Predominantly south-eastern in its British distribution. Local records are confined to Geeston Quarry in Rutland in 1989 and Rawdykes Power Station, Leicester 1992.

Threats – The infilling of quarries and the development of waste ground will reduce the number of sites for this species.

Conservation – *P. ruficollis* will probably benefit from maintaining its sites in an open condition.

***Agonum livens* (Gyllenhal) now *Batenus livens* (Gyllenhal) R**

Habitat, Ecology & Status – Confined to undisturbed wetland sites and sensitive to heavy grazing. Recorded from Saddington Reservoir and several sites in the lower Soar valley.

Threats – Wetland drainage and the ‘cleaning’ up of reservoir margins and other suitable habitats.

Conservation – Sites at Loughborough Big Meadow and Lockington Marsh are within SSSI’s. At all sites the value of undisturbed wetland should be recognised for this and other species which require minimal management activity.

***Amara anthobia* (Villa) R**

Habitat, Ecology & Status – An immigrant species found in 1982 in flood refuse by the River Soar. There is also an older unlocalised record for Leicestershire. Its ecology is not well understood.

Threats – None known.

Conservation – More information is required about the requirements of this species.

***Amara consularis* (Duftschmid) R Nb**

Habitat, Ecology & Status – This species was recorded at two Charnwood heathland sites in the 1960’s, but since then it has only been seen once on the Drift in east Leicestershire.

Threats – This is probably another species that has suffered from the deterioration of Charnwood heathlands.

Conservation – Sites where it occurs need to be managed in order to retain areas of bare ground.

***Amara convexiuscula* (Marsham) R now *Curtonotus convexiusculus* (Marsham)**

Habitat, Ecology & Status – The habitats traditionally ascribed to this species are coastal, but in recent years there have been several inland records from urban waste ground. One of these inland records comes from Leicester in 1982.

Threats – The large-scale development of derelict urban sites and the omission of early successional, sparsely vegetated areas from urban nature areas will probably be detrimental for this species.

Conservation – The local status of *C. convexiusculus* needs to be investigated and management plans for urban nature areas need to include provision for the maintenance of areas in an early stage of vegetational succession.

***Amara montivagus* (Sturm) R now *Amara montivaga* (Sturm)**

Habitat, Ecology & Status – An immigrant species associated with disturbed ground. The only Leicestershire record comes from an urban demolition site in Leicester.

Threats – The large-scale development of derelict urban sites and the omission of early successional, sparsely vegetated areas from urban nature areas will probably be detrimental for this species.

Conservation – Management plans for urban nature areas need to include provision for the maintenance of areas in an early stage of vegetational succession.

***Amara ovata* (Fabricius) R**

Habitat, Ecology & Status – Recorded from Bradgate Park in the 19th century. The only recent record is from an urban derelict site in Leicester in 1988. It prefers dry open sites.

Threats – This species has probably suffered from the deterioration of Charnwood heathlands. The development of scrubbing over of derelict land will remove new sites which are suitable for this species.

Conservation – A renewal scheme for Charnwood heathlands needs to be instituted. Management plans for urban nature areas need to include provision for the maintenance of areas in an early stage of vegetational succession.

***Amara praetermissa* (Sahlberg) R Nb**

Habitat, Ecology & Status – reported from Clipsham Old Quarry in 1974. No other records from Leicestershire are known.

Threats – The infilling or scrubbing over of disused limestone quarries will remove sites suitable for this species.

Conservation – Sites where it occurs need to be managed in order to maintain areas of bare ground with ruderal plants.

***Amara tibialis* (Paykull) R**

Habitat, Ecology & Status – This species has been known from Bradgate Park for 150 years. In recent years it has been found in two urban derelict sites in Leicester.

Threats – The deterioration of Charnwood heathlands may have affected this species in Charnwood.

Conservation – Disturbed areas in early stages of vegetational succession may provide this species with an alternative habitat to its traditional heathland sites.

***Harpalus azureus* (Fabricius) R Nb now *Ophonus azeurus* (Fabricius)**

Habitat, Ecology & Status – Known from three disused limestone quarries in Rutland.

Threats – The infilling or scrubbing over of disused limestone quarries will remove sites suitable for this species.

Conservation – Ketton Quarry, one of the sites for *H. azureus*, is an SSSI. Its sites need to be managed in order to maintain areas of bare ground with ruderal plants.

***Harpalus latus* (Linnaeus) R**

Habitat, Ecology & Status – Although widespread and not uncommon over much of Britain, this species is known only from two sites since 1970.

Threats – Unknown

Conservation – King Luds Entrenchments, the only known site since 1980 has unfortunately lost its status as a nature reserve. The species requires areas of bare ground and ruderal plants on whose seeds it feeds.

***Harpalus obscurus* (Fabricius) R Na (RDB1) now *Ophonus ardosiacus* (Fabricius)**

Habitat, Ecology & Status – Until recently the last known British record for this species was believed to have been from Dorset in 1926. In 1988 it was discovered at Geeston Quarry (I.M. Evans) and subsequently specimens were found in the museum collection from Ketton Quarry in the late 1940's. In a recent review of British Beetles (Hyman 1994) the species was upgraded to provisional red data book status – category 1, endangered.

Threats – The infilling or scrubbing over of disused limestone quarries will remove sites for this species.

Conservation – Currently Geeston Quarry has no legally protected status. Geeston and other quarries in the area need to have areas maintained in an early stage of vegetational succession. The ground beetle faunas of potential sites for this species need to be investigated.

Harpalus schaubergerianus* (Puel) R Nb now *Ophonus schaubergerianus

Habitat, Ecology & Status – Recorded from three disused limestone quarries in Rutland.

Threats – The infilling or scrubbing over of disused limestone quarries will remove sites for this species.

Conservation – Ketton Quarry, one of the sites for *H. schaubergerianus*, is an SSSI. The species requires areas of bare ground and ruderal plants on whose seeds it feeds.

***Harpalus tardus* (Panzer) R**

Habitat, Ecology & Status – Although widespread and not uncommon over much of Britain this species is known in recent times only from three derelict limestone sites in Rutland.

Threats – The infilling or scrubbing over of disused limestone quarries will remove sites for this species.

Conservation – *H. tardus* requires areas in an early stage of vegetational succession with ruderal plants on whose seeds it feeds.

***Anisodactylus binotatus* (Fabricius) R**

Habitat, Ecology & Status – A damp grassland species only recorded once since 1946 when it was found in a gravel pit near Hemington.

Threats – Although it is obviously rare in the county there appear to be no immediate threats to this species.

Conservation – More information is needed on the local distribution of this species and its habitat requirements.

***Bradycellus ruficollis* (Stephens) R Nb**

Habitat, Ecology & Status – This species seems to be confined to the vicinity of heather, where it occurs at a number of sites in Charnwood and north-west Leicestershire.

Threats – Areas dominated by heather have declined in recent years due to the invasion of bracken and scrub following the cessation of grazing. A combination of these processes will undoubtedly affect this species.

Conservation – A strategy for conserving heathlands and their invertebrates in Charnwood and North-west Leicestershire need to be developed.

***Acupalpus consputus* (Duftschmid) R Nb now *Anthracinus consputus* (Duftschmid)**

Habitat, Ecology & Status – Occurs at water margins usually in more open situations than species such as *Bembidion clarki* and *Pterostichus gracilis*. It has been recorded only once from the River Soar but is known from two reservoirs namely Blackbrook and Saddington.

Threats – There appear to be no immediate threats to this species, although it remains unclear why *A. consputus* seems to have such a localised distribution in Leicestershire.

Conservation – None of the sites where this species has been recorded receive any statutory protection although Saddington Reservoir is recognised as a site of regional importance for invertebrates.

***Licinus depressus* (Paykull) R Nb**

Habitat, Ecology & Status – Within the county this species seems to be confined to limestone sites in Rutland where single specimens have been recorded at Clipsham Old Quarry and Essendine Railway Sidings.

Threats – The infilling or scrubbing over of disturbed habitats on limestone will remove sites for this species.

Conservation – This species requires areas in an early stage of vegetational succession with ruderal plants on whose seeds it feeds.

***Badister dilatatus* (Chaudoir) RE Nb**

Habitat, Ecology & Status – Recorded in Leicestershire for the first time in 1994 by a neglected pool at Gravel Hole Spinney near Melton.

Threats – The drainage and disturbance of wetlands pose potential threats to this species.

Conservation – Large scale disturbance of any sites supporting *B. dilatatus* should be avoided.

***Badister unipustulatus* Bonelli RE Nb**

Habitat, Ecology & Status – Recently discovered in Leicestershire by a neglected pool at Gravel Hole Spinney near Melton.

Threats – The drainage and disturbance of wetlands pose potential threats to this species.

Conservation – Large scale disturbance of any sites supporting *B. unipustulatus* should be avoided.

***Chlaenius nigricornis* Bonelli R Nb**

Habitat, Ecology & Status – Associated with bare mud at the margins of lakes, reservoirs and rivers, but very rarely recorded. Typically for this habitat it is somewhat ephemeral in its habits. The records

suggest that after colonising a site it only lasts for a few years until conditions become unsuitable. Also recently recorded from wet grassland at Seaton Meadow.

Threats – There appear to be no immediate threats to this species.

Conservation – Any management operation which creates areas of sparsely vegetated damp mud is likely to benefit this species.

***Chlaenius vestitus* (Paykull) R**

Habitat, Ecology & Status – A southern species associated with the bare margins of rivers, gravel pits and quarry pools.

Threats – None

Conservation – This species benefits from both natural disturbance along rivers and streams and also human disturbance in the formation of quarry pools.

***Dromius angustus* Brulle R**

Habitat, Ecology & Status – Normally found under the bark of conifers. The only authenticated Leicestershire record, however comes from under Beech bark in the grounds of a school in Great Glen.

Threats – None

Conservation – More information is required about the distribution of this species in Leicestershire.

***Metabletus foveatus* (Fourcroy) R now *Syntomus foveatus* (Fourcroy)**

Habitat, Ecology & Status – Usually found in areas with bare ground. Recorded at High Sharpley and Essendine Railway Sidings with old 19th century records from Bradgate Park.

Threats – Vegetational succession is detrimental to this species.

Conservation – Appropriate sites should be managed to retard vegetational succession.

Haliplidae

***Haliplus fulvus* (Fabricius) R**

Habitat, Ecology & Status – An open water species which is common throughout much of Britain, but which appears to be rare in Leicestershire and only known reliably from the Oakham Canal at Teigh.

Threats – The local rarity of this species may be linked to a distaste for the clay and muddy substrates prevalent in Leicestershire.

Conservation – *H. fulvus* may be naturally rare in Leicestershire.

***Haliplus heydeni* Wehnke Nb**

Habitat, Ecology & Status – A species recorded in open water from a variety of ponds, ditches and watercourses throughout much of the county.

Threats – There appears to be no threat to this species in Leicestershire.

Conservation – This species will benefit from a sympathetic maintenance of field ponds in the wider countryside.

***Haliplus laminatus* (Schaller) Nb**

Habitat, Ecology & Status – An open water species occurring in the slow flowing stretches of rivers, often where they have been impounded. Within Leicestershire it has been recorded from the Soar, the Lin and the Avon.

Threats – There is no known threat to this species in Leicestershire.

Conservation – This species appears to have benefited from the common practice of impounding rivers and streams in Leicestershire.

***Haliplus mucronatus* Stephens R RDB3**

Habitat, Ecology & Status – A species associated with disturbed ground. The only record for Leicestershire comes from a shallow pool on a disused railway line at Thorpe Satchville.

Threats – Although it appears to be rare, there is no obvious threat to this species in Leicestershire, except perhaps from landscaping schemes which remove unsightly puddles from derelict and disturbed ground.

Conservation – *H. mucronatus* probably benefits from activities such as quarrying which leave pools on disturbed ground.

Noteridae

***Noterus crassicornis* (Muller) R Nb**

Habitat, Ecology & Status – This species is flightless and ill-suited to colonise new sites in a rapidly changing landscape. Consequently, it tends to have a scattered and relict distribution in Britain. In Leicestershire records are confined to the Trent valley.

Threats – The large-scale changes of land use in the Trent valley. The effects of gravel extraction on this species are unknown.

Conservation – Most Leicestershire records come from the water course on the northern boundary of Lockington Marsh SSSI, but its precise requirements there are unknown.

Dytiscidae – Diving Beetles

Hydroglyphus geminus (Fabricius) Nb

Habitat, Ecology & Status – A local species seemingly more common in the east of the county than the west. It is found in shallow pools on bare mineral substrate such as quarry pools and silt ponds on farmland. It has also been recorded in shallow pools on shingle banks beside the River Soar.

Threats – None

Conservation – This species benefits from activities such as quarrying which will leave shallow pools on disturbed ground.

Hygrotus decoratus (Gyllenhal) RE Nb

Habitat, Ecology & Status – Confined in Leicestershire to the sphagnum area at Great Bowden Pit, a site which it shares with a number of other locally rare fen and bog species.

Threats – Eutrophication resulting from agricultural run-off and pollution originating from a newly constructed bypass.

Conservation – Great Bowden Pit needs constant monitoring in view of its vulnerability to pollution.

Hydroporus longulus Mulsant RE Nb

Habitat, Ecology & Status – An uncommon species mainly associated with spring-fed flushes. *H. longulus* used to occur in the flush at Old John Watering in Bradgate Park, but this flush became badly affected by siltation in the late 1980's. It has also occurred at Ulverscroft Nature Reserve and Holwell Mouth.

Threats – Modification of springs, land drainage and inappropriate pond creation as a well-meaning but ill-advised conservation exercise.

Conservation – Spring-fed flushes are an important but often neglected habitat for beetles and their small size makes them vulnerable to any changes on adjacent land use.

Hydroporus obsoletus Aube RE Na

Habitat, Ecology & Status – Another spring-water species, though more subterranean and less dependent on flushes than *H. longulus*. It has only been recorded once in Leicestershire.

Threats – Land drainage and modification of springs.

Conservation – The status of this and other spring species needs to be established by a thorough survey of spring-lines and spring-line marshes.

***Hydroporus tristis* (Villa) R**

Habitat, Ecology & Status – An acid water species which is generally uncommon in the south of Britain. Curiously neither of its two known Leicestershire sites (Great Bowden Pit & Big Pits Pond) are in Charnwood and one of them is a pool on a spoil tip in a disused limestone quarry!

Threats – Eutrophication and siltation.

Conservation – This species lives among permanently thick vegetation rather than open water. Fenny conditions should be maintained at its sites.

***Stictonectes lepidus* (Olivier) R Nb**

Habitat, Ecology & Status – A rare species associated with newly created base-poor habitats. In recent years only recorded from Frying Pan Pond on Beacon Hill where it is a poor swap for the acid water fauna that existed there before it was cleaned out and walled. Further records in the 1970's from the Vale of Belvoir require confirmation.

Threats – None

Conservation – This species appears to have benefitted from the kind of disturbance which is harmful to a more established acid water community.

***Graptodytes granularis* (Linnaeus) R Nb**

Habitat, Ecology & Status – recorded from two small weedy ponds in Leicestershire. Further records in the 1970's from the Vale of Belvoir require confirmation.

Threats – Cleaning out of ponds.

Conservation – Well established ponds should be maintained to preserve their marginal vegetation.

***Porhydrus lineatus* (Fabricius) R D**

Habitat, Ecology & Status – Recent records are confined to Colony Reservoir in Leicestershire and it was also recorded in the 1970's in the Vale of Belvoir survey. Old records suggest that it was once much more common.

Threats – Cleaning out of ponds.

Conservation – Colony Reservoir is in Charnwood Lodge Nature Reserve and is part of an SSSI.

***Potamonectes assimilis* (Paykull) R now *Nebrioporus assimilis* (Paykull)**

Habitat, Ecology & Status – A lake species with recent records from the Trent Valley and the Grantham Canal. It seems to avoid the newly created lakes which are such a feature of the modern countryside.

Threats – Probably none.

Conservation – This species is probably naturally rare in Leicestershire.

***Scarodytes halensis* (Fabricius) Nb**

Habitat, Ecology & Status – This species has increased its British range in recent decades by spreading out from East Anglia into the midlands. In Leicestershire it occurs in rivers and quarry pools and has even been recorded from a metal cattle trough.

Threats – None.

Conservation – This species seems to require no special conservation measures.

***Copelatus haemorrhoidalis* (Fabricius) R now *Lioporus haemorrhoidalis* (Fabricius)**

Habitat, Ecology & Status – A southern fen species which has been recorded from just two sites since 1970. It occurs in good numbers in Great Bowden Pit and has been found in the well-vegetated margins of the Oakham Canal at Teigh.

Threats – Removal of vegetation from mires and ponds with mossy edges to create fishing ponds, watering for stock or even as part of a misguided conservation exercise.

Conservation – This species requires permanently wet, well vegetated fen.

***Agabus biguttatus* (Olivier) R N**

Habitat, Ecology & Status – Recorded just twice from unremarkable streams in East Leicestershire. This species is associated with springs and is believed to be mostly subterranean and usually recorded after it has been washed out of its preferred habitat.

Threats – Land drainage and modification of springs.

Conservation – The status of this and other spring species needs to be established by a thorough survey of spring-lines and spring-line marshes.

***Agabus chalconatus* (Panzer) N now *Ilybius chalconatus* (Panzer)**

Habitat, Ecology & Status – Known from sixteen sites since 1989 as compared to one in the previous twenty years. There has obviously been a substantial increase in the local population. It is found in shallow silty ponds and slow flowing streams. Old records of this species may refer to *A. melanocornis*, with which it was formerly confused.

Threats – None.

Conservation – This species benefits from the maintenance of shallowly silty pools.

***Agabus melanocornis* Zimmerman R now *Ilybius melanocornis* Zimmerman**

Habitat, Ecology & Status – An acid water species with two recent Leicestershire records from Lount and Nanpantan. It is less restricted in its habitat requirements than most other acid water species.

Threats – Unknown.

Conservation – The site at Lount is a nature area created by British Coal on an old spoil tip.

***Ilybius fenestratus* (Fabricius) Nb**

Habitat, Ecology & Status – Associated with man-made habitats. In Leicestershire it is found in large open water sites such as canals and gravel pits, where it is widespread and common and known from 26 1km squares.

Threats – None.

Conservation – This species obviously benefits from the abundance of large man-made water bodies in Leicestershire.

***Ilybius subaeneus* Erichson Nb**

Habitat, Ecology & Status – An immigrant species which may still be increasing in Leicestershire, where it has been recorded from six silt ponds on farmland, including two which had recently been cleaned out. In 1983 three larvae were found in a pupation site in a tussock of grass, *Dactylis glomerata*, by a temporary pool on improved grassland next to the River Soar. It has also been recorded from a light trap within Swithland Wood some distance from any known suitable habitat.

Threats – None.

Conservation – This species seems not to have suffered from recent changes in farming methods.

***Rhantus exoletus* (Forster) R**

Habitat, Ecology & Status – Modern records in Leicestershire are confined to two reservoirs Cropston and Saddington. It is consistently the most common diving beetle in samples taken from Saddington.

Threats – Changes in recreational use and management at its known sites.

Conservation – Cropston Reservoir is part of a SSSI. Management plans which take into account invertebrate interest are being formulated for Saddington Reservoir.

***Rhantus suturalis* (Macleay) R Nb**

Habitat, Ecology & Status – A silt pond species which is a strong flier and good at colonising new areas. Recent records from Leicestershire are from a light trap at Wanlip Gravel Pits and a farm pond at Hungarton.

Threats – None.

Conservation – Although it is obviously rare in Leicestershire, this species probably does not require any particular conservation measures.

***Dytiscus circumcinctus* Ahrens R Na**

Habitat, Ecology & Status – The only known Leicestershire record comes from a pond in the Trent valley near Castle Donington.

Threats – Changes of land use in the Trent valley. The pond that this species was recorded in 1981 has already been filled in.

Conservation – A survey of the water beetles of the Trent valley is required in order to evaluate the status of this species.

***Dytiscus circumflexus* (Villa) R Nb**

Habitat, Ecology & Status – This species has expanded its range in Britain in the late 1980's. There are three Leicestershire records which originate from a fishing pond, a field pond and a quarry pool, all to the east of Leicester. Near the quarry pool at Tixover in Rutland a pupa was found in unvegetated clay spoil.

Threats – Probably none.

Conservation – This species probably does not require any conservation measures.

Gyrinidae – Whirlygig Beetles

***Gyrinus aeratus* Fabricius R Nb**

Habitat, Ecology & Status – Associated with large open water-bodies. The only Leicestershire record comes from the Grand Union Canal near Kilby Bridge.

Threats – The reason for its rarity in Leicestershire is unknown.

Conservation – A survey targeted on this species is required to evaluate its local status and habitat requirements.

***Oretrochilus villosus* Stephens R E**

Habitat, Ecology & Status – A nocturnal species of fast flowing streams. It spends the day under stones on the river bank. In Leicestershire it has only been recorded from the River Lin, the River Chater and North Brook in Rutland.

Threats – Never a widespread habitat in Leicestershire, the remaining streams suitable for this species are threatened by river engineering and changes in the use of adjacent land.

Conservation – This species requires suitable habitat on the bank as well as a suitable fast flowing stream.

Hydrophilidae

***Hydrochus elongatus* (Schaller) R RDB3**

Habitat, Ecology & Status – Before 1977 this species was confused with *H. ignicollis*. The true *H. elongatus* appears to be associated with man-made habitats. In Leicestershire it has been recorded from the shallow margins of Kilby Pit and the Serpentine in Stanford Park.

Threats – There appears to be no obvious threat to this species.

Conservation – Both Leicestershire sites have access for cattle and they may be important in regulating the growth of marginal vegetation.

***Helophorus dorsalis* (Marsham) RDB3**

Habitat, Ecology & Status – A woodland species, often in shallow temporary pools along rides. The national distribution appears to be centred on the midlands. Recorded from four east Leicestershire sites including a plastic washing up bowl put out during a drought for deer in Owston Wood and a trickle by a pond on farmland in Hungarton.

Threats – The laying of hard core on woodland rides may be detrimental to this species.

Conservation – Shallow pools and puddles in woodland rides should be retained for this species.

***Helophorus flavipes* Fabricius RE**

Habitat, Ecology & Status – Although common in suitable habitats over most of Britain, within Leicestershire, this acid water species is only known from two sites in Charnwood Lodge Nature reserve.

Threats – There are few suitable acid water sites left in Charnwood.

Conservation – *Sphagnum* moss and rushes along the edges of its two sites should be maintained.

***Helophorus nanus* Sturm R Na**

Habitat, Ecology & Status – A water margin species recorded from two sites in Leicestershire. It is especially abundant on the margins of Saddington Reservoir.

Threats – The site at Lockington Marsh is threatened by gravel extraction.

Conservation – This species seems to benefit from a lack of disturbance. It obviously tolerates large fluctuations in water levels.

***Cercyon atricapillus* (Marsham) R N- now *Cercyon nigriceps* (Marsham)**

Habitat, Ecology & Status – A dung species recorded in Leicestershire only from deer dung in Bradgate Park where it was first recorded in 1895.

Threats – None.

Conservation – This species seems to require no special conservation measures.

***Cercyon bifeneistratus* Kuster R Nb**

Habitat, Ecology & Status – Associated with sparsely vegetated sandy margins of gravel pits and rivers. A single specimen has been found from a large number of samples from exposed deposits of sand and silt along the River Soar, where it appears to be extremely rare and much less common than the related *C. marinus*. It is unclear whether a permanent population is yet established in Leicestershire.

Threats – It is unlikely that modern river management will be detrimental to this species.

Conservation – This species is favoured by natural disturbance along the riverbank. It may also benefit from new gravel workings.

***Cercyon convexiusculus* Stephens Nb**

Habitat, Ecology & Status – Associated with the well vegetated margins of river cut-offs, ponds, lakes and reservoirs. It is widespread and common in Leicestershire, being recorded from 37 1km squares.

Threats – Cleaning out and infilling of cut-offs and ponds.

Conservation – In the long term the lack of conservation value attributed to river cut-offs could prove detrimental to this species.

***Cercyon lugubris* (Olivier) R N- now *Cercyon obsoletus* (Olivier)**

Habitat, Ecology & Status – A species of dung and rotting vegetation which has been recorded from pasture along the River Soar and Buddon Brook and from Buddon Wood.

Threats – Probably none.

Conservation – This species seems to require no special conservation measures.

***Cercyon tristis* (Villa) R**

Habitat, Ecology & Status –

Threats –

Conservation –

***Amara anthobia* (Illiger) Nb**

Habitat, Ecology & Status – Similar to *C. convexiusculus* with which it often occurs. It has been recorded from 40 1km squares.

Threats – As *C. convexiusculus*

Conservation – As *C. convexiusculus*

***Cercyon ustulatus* (Preyssler) Nb**

Habitat, Ecology & Status – Similar to *C. convexiusculus* and *C. tristis* except that it is more often found around ponds and along ditches than river cut-offs and reservoirs. It has been recorded from 33 1km squares.

Threats – Infilling of ponds.

Conservation – This species has been recorded from 10 SSSIs.

***Anacaena bipustulata* (Marshall) Nb**

Habitat, Ecology & Status – Associated with man-made habitats. In Leicestershire it appears to be widespread and common in gravel pits. It has been recorded from 15 1km squares.

Threats – None.

Conservation – This species has benefitted from the proliferation of gravel extraction in the county.

***Laccobius sinuatus* Motschulsky R Nb**

Habitat, Ecology & Status – Confused in the past with the common *L. striatulus*. The three definite Leicestershire records come from a stream near Hallaton, a pool associated with the River Wreake at Hoby and a fishpond near Teigh.

Threats – Until more is known about the habitat requirements of this species it is difficult to identify any threats.

Conservation – Further work is needed on this species in Leicestershire.

***Helochaeres lividus* (Forster) Nb**

Habitat, Ecology & Status – A silt pond species which is often found in recently excavated ponds. Modern records come from twelve sites.

Threats – None.

Conservation – This species is one of those which benefits from pond creation schemes.

***Hleochaeres punctatus* Sharp RE Nb**

Habitat, Ecology & Status – This is an acid water species. Like *H. flavipes* records in Charnwood Forest are confined to Charnwood Lodge Nature Reserve, but there is an additional site in a *Sphagnum* pond at Newfields Colliery in North-west Leicestershire.

Threats – There are few good quality acid water sites left in Leicestershire.

Conservation – A survey of acid water sites in Charnwood and North-west Leicestershire is required in order to evaluate remaining sites. Sites with *Sphagnum* moss should be protected from drying out, infilling and overuse by stock. Charnwood Lode Nature Reserve is owned and managed by LRTNC and Newfield Colliery is managed by Friends of Moira Furnace as a nature reserve.

***Enochrus coarctatus* (Gredler) RE**

Habitat, Ecology & Status – Recorded from two acid water sites at Charnwood Lodge Nature Reserve and the mossy edges of two ponds at Teigh.

Threats – The cleaning out of ponds and their overuse by grazing stock.

Conservation – Well established field ponds with mossy edges should be recognised as of enhanced value for water beetles.

***Enochrus melanocephalus* (Olivier) Nb**

Habitat, Ecology & Status – Associated with the margins of usually large open water sites, often recently created, such as gravel pits. Recent records come from 6 1km squares.

Threats – None.

Conservation – This species probably benefits from the abundance of large man-made water bodies in Leicestershire.

***Enochrus ochropterus* (Marsham) RE Nb**

Habitat, Ecology & Status – Confined to Great Bowden Pit site in Leicestershire which it shares with a number of other locally rare fen and bog species.

Threats – Eutrophication resulting from agricultural run-off and pollution originating from a newly constructed by-pass.

Conservation – Great Bowden Pit is an SSSI and LRTNC nature reserve. This site needs constant monitoring in view of its vulnerability to pollution.

***Cymbiodyta marginella* (Fabricius) E Nb now *Cymbioyta marginellus* (Fabricius)**

Habitat, Ecology & Status – Recorded from a variety of mires and well-established ponds with mossy edges. Recent Leicestershire records come from 4 Leicestershire 1km squares all to the east of Leicester.

Threats – The cleaning out and infilling of well-established ponds.

Conservation – One of the recorded sites, Great Bowden Pit is a LRTNC reserve and SSSI. Fish ponds with mossy edges should be recognised as of enhanced value for water beetles.

***Chaetarthria seminulum* (Herbst) R Nb**

Habitat, Ecology & Status – A small species of just over 1mm in length. Often found in moss either in mires or at the edges of ponds. Known in Leicestershire from small ponds on a clay spoil tip at Big Pits Quarry and an arable field near Swallowhole Covert, Croxton Kerrial. Both ponds have mossy edges.

Threats – Cleaning out of ponds.

Conservation – Ponds with mossy edges attract interesting beetles and should be maintained carefully.

***Berosus luridus* (Linnaeus) R Nb**

Habitat, Ecology & Status – Rare throughout Britain. The only recorded site in Leicestershire is an established deep sandy pool in a disused quarry at Neville Holt.

Threats – Possibly natural succession at its site at Neville Holt.

Conservation – More information is needed about the status and requirements of this species in Leicestershire.

***Berosus signaticollis* (Charpentier) R Nb**

Habitat, Ecology & Status – Characteristic of shallow pools with wide fluctuations in water levels. Recently rediscovered at Saddington reservoir after a gap in the Leicestershire records for over 100 years. This is its only known site in the midlands.

Threats – The local population probably exists in very low numbers at Saddington and is therefore likely to be very sensitive to inappropriate management.

Conservation – Management plans which take into account invertebrate interest are being formulated for Saddington Reservoir.

Histeridae

Plegaderus dissectus Erichson Nb

Habitat, Ecology & Status – A species of rotten wood considered to be associated with ancient woodland sites. In Leicestershire it has been recorded from birch, oak and lime at four sites.

Threats – Removal of old tree and dead branches.

Conservation – Three of its sites (Donington Park, Owston Wood and Swithland Wood) are SSSIs. This species requires the retention of dead wood in the form of large uncut trunks and branches.

Abraeus granulum Erichson R Na

Habitat, Ecology & Status – A rare species of rotten wood considered to be strongly associated with ancient woodland sites. In Leicestershire it has been recorded from a young poplar tree near burley Wood and a mature field ash in Cotes, so it may not be so closely tied to ancient woodland in this area.

Threats – Removal of old tree and branches.

Conservation – This species requires the retention of large uncut trunks and branches.

Hydraenidae

Ochthebius bicolon Germar Nb

Habitat, Ecology & Status – Seemingly widespread in Leicestershire along the margins of rivers and streams and recorded from 13 1km squares.

Threats – Inappropriate river management may be a threat to this species.

Conservation – More information is required about the habitat requirements of this species.

Ochthebius exsculptus Gemar RE Nb

Habitat, Ecology & Status – Confined to clear fast flowing streams. First recorded from the River Lin in Bradgate Park in the 19th century where it is still common in streamside gravel. The nearest other modern record comes from the Peak District.

Threats – Pollution and disturbance of its only remaining site.

Conservation – Bradgate Park is a country park and SSSI. A survey of the whole length of the River Lin is required to discover the true distribution of this and other rare species associated with gravel deposits along this stream.

***Hydraena gracilis* Germar R**

Habitat, Ecology & Status – A species of small fast flowing streams recorded from the River Lin and the Wood Brook in Charnwood Forest.

Threats – Impoundment, siltation and organic pollution.

Conservation – The stretch of the River Lin where this species was recorded runs through Lea Meadows Nature Reserve.

***Hydraena nigrita* Germar Nb**

Habitat, Ecology & Status – A headwater species of gravelly trickles which often dry out in the summer. Known from 8 1km squares in Leicestershire including Ulverscroft Nature Reserve, Swithland Wood and the River Chater.

Threats – Conduiting of small headstreams. This species does not seem to survive the conversion of headstreams to straighten runnels.

Conservation – This species requires the retention of a gravel substrate at its sites.

***Hydraena testacea* Curtis R Nb**

Habitat, Ecology & Status – Found in a wide variety of habitats. Modern Leicestershire records come from a field pond in Hungarton, a quarry pool in Thistleton and the margins of Stanford reservoir, all to the east of Leicester.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species in Leicestershire.

***Limnebius nitidus* (Marsham) Nb**

Habitat, Ecology & Status – A stream species recorded from 5 1km squares in Leicestershire including Bradgate Park, the River Chater and the LRTNC reserve at Wymeswold.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species in Leicestershire.

***Limnebius papposus* Mulsant Nb**

Habitat, Ecology & Status – Recorded from a variety of habitats in 10 mainly eastern 1km squares in Leicestershire including streams, springs and ponds.

Threats – Unknown.

Conservation – This species appears to require no special conservation measures in Leicestershire.

Ptiliidae

***Nossidium pilosellum* (Marsham) R N-**

Habitat, Ecology & Status – A species of rotten wood and bracket fungi. In Leicestershire it has been recorded from oak, poplar and cedar.

Threats – Removal of mature timber.

Conservation – Two of its sites, Bradgate Park and Burley Wood are SSSIs. A healthy resource of rotten wood and its associated fungi should be retained at all sites.

***Ptenidium brenskei* Flach Re N-**

Habitat, Ecology & Status – A species of fine gravel by rivers and streams. The only record from the whole of the east midlands is from the River Lin at Bradgate Park

Threats – Recreational disturbance, river straightening and siltation.

Conservation – The small stretch of the River Lin where *P. brenskei* occurs is one of the last remaining stretches of natural meandering upland stream in Leicestershire. It is a major priority that this site should be protected from the threats listed above.

***Ptenidium gressneri* Erichson RDB3 (N-)**

Habitat, Ecology & Status – A species of tree cavities considered to be associated with ancient woodland. Recorded in Leicestershire from four sites including Donington Park, Burley Wood and Skeffington Wood.

Threats – The removal of mature trees.

Conservation – Mature trees with intact cavities as opposed to split trunks should be retained.

***Acrotrichis lucidula* Rosskothen E pRDBK**

Habitat, Ecology & Status – A species of spring fed flushes and seepages. Recorded in Leicestershire from the Chater Valley, Lea Meadows, Tilton and Hallaton Castle.

Threats – Water abstraction, land drainage, unsuitable pond construction, intensive agricultural or forestry practice.

Conservation – Small scale spring fed flushes need to be recognised as an important invertebrate and protected habitat and protected from unsuitable disturbance.

Leiodidae

***Hydnobius punctatus* (Sturm) R N**

Habitat, Ecology & Status – Possibly associated with underground fungi in a variety of habitats. Recorded in Leicestershire from North Luffenham Quarry.

Threats – Agricultural or building developments.

Conservation – More information is needed about the requirements of this species.

***Leiodes macropus* (Rye) R RDBK**

Habitat, Ecology & Status – Probably associated with underground fungi in a variety of habitats. Recorded in Leicestershire from North Luffenham Quarry.

Threats – Agricultural or building developments.

Conservation – More information is needed about the requirements of this species.

***Leiodes rugosa* Stephens R N-**

Habitat, Ecology & Status – Probably associated with underground fungi in a variety of habitats. Recorded in Leicestershire from North Luffenham Quarry.

Threats – Agricultural or building developments.

Conservation – More information is needed about the requirements of this species.

***Choleva glauca* Britten R N-**

Habitat, Ecology & Status – Probably associated with mammal nests in a variety of habitats. Recorded in Leicestershire from Stonesby Quarry and Brooksby.

Threats – None.

Conservation – More information is needed about the requirements of this species.

***Catops longulus* Kellner R N-**

Habitat, Ecology & Status – Associated with mammal nests usually in woodlands. Recorded in Leicestershire from Donington Park, Bradgate Park and Ulverscroft Nature reserve in association with badgers and rabbits.

Threats – None.

Conservation – This species requires a continuation in the presence large underground nesting mammals.

***Plegaderus dissectus* Erichson Nb**

Habitat, Ecology & Status – Associated with mammal nests in a variety of habitats. Recorded widely in association with badgers and rabbits including one urban demolition site in inner city Leicester.

Threats – None.

Conservation – This species requires a continuation in the presence large underground nesting mammals.

Scydmaenidae

***Eutheia scydmaenoides* Stephens R N-**

Habitat, Ecology & Status – Recorded in Leicestershire in 1983 from a grass tussock by the Rothley Brook at Thurcaston.

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Scydmoraphes helvolus* (Schaum) R N-**

Habitat, Ecology & Status – Recorded in Leicestershire from a straw heap in a field near Burbage Wood in 1986 (C. Johnson).

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Microscydmus minimus* (Chaudoir) RE RDB2 (pRDB3)**

Habitat, Ecology & Status – A species of rotten wood strongly associated with ancient woodland. Recorded in Leicestershire from a dead tree at Donington Park.

Threats – Removal of mature and dead trees.

Conservation – This species requires the attention of mature and dead trees containing large quantities of rotten wood at ancient woodland sites with a continuous history of sympathetic management.

Sciaphiidae

***Scaphisoma boleti* (Panzer) Nb**

Habitat, Ecology & Status – A species of fungi and fungus infected rotten wood. Recorded in Leicestershire from fungi growing on cedar and from rotten willow at several woodland sites especially damp woodland.

Threats – Removal of dead wood.

Conservation – A healthy resource of rotten wood and associated fungi needs to be maintained.

Staphylinidae

***Proteinus crenulatus* Pandelle R Nb**

Habitat, Ecology & Status – This species occurs in rotten fungi in woodland. It is predominantly northern in its distribution and has been recorded only once in Leicestershire.

Threats – None.

Conservation – The only known site, Martinshaw Wood, is managed by the Woodland Trust as a nature reserve and contains large quantities of fungi.

***Acidota cruentata* Mannerheim Nb**

Habitat, Ecology & Status – A species usually taken in pitfall traps and possibly partly subterranean. Recorded in Leicestershire from a variety of habitats in scattered localities across the county.

Threats – None.

Conservation – More information is needed about the requirements of this species.

***Lesteva hanseni* Lohse R N-**

Habitat, Ecology & Status – Recorded in Leicestershire from wet moss growing on boulders in a steep section of the Grace Dieu Brook near Whitwick.

Threats – Any modification of this section of the Grace Dieu Brook.

Conservation – The section of the Grace Dieu Brook needs to be protected from unsuitable development.

***Phyllodrepa puberula* Bernhauer R Na**

Habitat, Ecology & Status – In Europe this species is associated with birdnests. Recorded in a variety of situations in Britain, but always considered to be rare. Recorded in Leicestershire as singletons in two badger setts.

Threats – If *P. puberula* is associated with badger setts in Leicestershire then it shares the same threats as badgers.

Conservation – Badgers are protected by the Wildlife and Countryside Act 1981, and *P. puberula* stands to indirectly benefit from this protection.

***Omalius exiguum* Gyllenhal R N-**

Habitat, Ecology & Status – A widely distributed species associated with rotting vegetation and carrion. Recorded from Leicestershire from a grass trap left in a valley marsh at Ulverscroft.

Threats – None.

Conservation – The marsh at Ulverscroft is part of the LRTNC nature reserve.

***Omalius rugatum* Mulsant & Rey N-**

Habitat, Ecology & Status – A species of rotting vegetation recorded mainly from woodlands which in Leicestershire include Donington Park, Swithland Wood and Ambion Wood.

Threats – None.

Conservation – Donington Park and Swithland Wood are SSSIs.

***Deleaster dichrous* (Gravenhorst) R Nb**

Habitat, Ecology & Status – This species is a riparian species usually by shaded streams. Recorded in Leicestershire recently from a light trap operating in a garden in Leicester and a single specimen from the River Soar at Barrow at a well worked site.

Threats – No local threats can be identified until more is known about the local status of *D. dichrous*.

Conservation – More information is needed on the local requirements of this species.

***Bledius gallicus* (Gravenhorst) R**

Habitat, Ecology & Status – A species of sparsely vegetated exposed sediments by streams and rivers. First recorded in Leicestershire in May, 1992 when two colonies were found on small areas of bare silt and sand cleared by anglers along the River Soar at Barrow. This colony survived for only one season and its occurrences in Leicestershire may be ephemeral.

Threats – The site where the colony occurred has now been destroyed by river engineering works, but it is probably always a fairly mobile species.

Conservation – *B. gallicus* requires the periodic deposition of sediment in river channels to create areas of bare undisturbed silt and sand. It may benefit from a cycle of small-scale clearance of vegetation as practised by anglers.

***Bledius subterraneus* Erichson R**

Habitat, Ecology & Status – A northern species of sandy riverbanks. First recorded in Leicestershire in June 1992 at the same site as *B. gallicus*. This colony survived for only one season and its occurrences in Leicestershire may be ephemeral.

Threats – The site where the colony occurred has now been destroyed by river engineering works, but it is probably always a fairly mobile species.

Conservation – *B. subterraneus* requires the periodic deposition of sediment in river channels to create areas of bare undisturbed sand. It may benefit from a cycle of small-scale clearance of vegetation as practised by anglers.

***Ochtheophilus aureus* (Fauvel) RE**

Habitat, Ecology & Status – Recorded in Leicestershire from small patches of shingle by a steep section of the Grace Dieu Brook near Whitwick.

Threats – Any modifications of this section of the Grace Dieu Brook.

Conservation – The section of the Grace Dieu Brook needs to be protected from unsuitable development.

***Ochtheophilus omalinus* (Erichson) RE**

Habitat, Ecology & Status – Recorded in Leicestershire from small patches of shingle by a steep section of the Grace Dieu Brook near Whitwick.

Threats – Any modifications of this section of the Grace Dieu Brook.

Conservation – The section of the Grace Dieu Brook needs to be protected from unsuitable development.

***Carpelimus despectus* Baudi R**

Habitat, Ecology & Status – Usually found in coastal habitats, this species is very rare in Britain and not yet formally added to the British list. In June, 1990, one specimen was found on exposed silt by the River Soar at Bishops Meadow, Loughborough. It is undoubtedly very rare along the Soar and possibly ephemeral.

Threats – The shoal where it was found was left untouched by recent river engineering works. However, it has not been found there since.

Conservation – This species probably benefits from the periodic deposition of sediment in river channels to create areas of bare undisturbed silt.

***Carpelimus lindrothi* (Palm) RDB3 (N-)**

Habitat, Ecology & Status – Recorded sporadically in Leicestershire on bare mud at the margins of Saddington reservoir and along the River Soar. Seemingly an ephemeral species requiring rather transient conditions.

Threats – Vegetational succession.

Conservation – *C. lindrothi* requires areas of bare mud such as occur along slow flowing rivers and reservoir margins.

***Carpelimus obesus* (Kiesenwetter) RDB3 (N-)**

Habitat, Ecology & Status – Recorded in Leicestershire on single occasions from just four relatively undisturbed sites along the River Soar near Loughborough. Populations are possibly somewhat ephemeral.

Threats – Engineering works associated with flood alleviation may remove stretches of riverbank suitable for this species.

Conservation – Further information is needed about the requirements of this species.

***Carpelimus similis* (Smetana) N-**

Habitat, Ecology & Status – Recorded in Leicestershire from a wide range of sites all along the lower Soar including cut-offs and recently regraded banks.

Threats – None.

Conservation – This species appears to be adaptable to fairly drastic river management.

***Carpelimus subtilis* (Erichson) RDB3 (N-)**

Habitat, Ecology & Status – A subterranean species recorded very occasionally at relatively undisturbed riverbank sites along the River Soar near Loughborough. It has also been recorded in a rather different situation at a pond margin in Cribbs Meadow.

Threats – Engineering works associated with flood alleviation may remove stretches of riverbank suitable for this species.

Conservation – Further information is needed about the requirements of this species.

***Platystethus degener* Mulsant & Rey R**

Habitat, Ecology & Status – Recorded in Leicestershire on one recent occasion from the margins of Kilby Pit though there is an old record from Groby Pool. It appears to be absent from the margins of the River Soar. This species is right at the northern edge of its range in Leicestershire.

Threats – None known.

Conservation – Further information is needed about the requirements of this species.

***Platystethus nodifrons* (Mannerheim) N-**

Habitat, Ecology & Status – Recorded widely in Leicestershire from slow flowing river margins and cut-offs, reservoir margins and a flush. It is able to tolerate grazing pressure.

Threats – Drainage of wetlands.

Conservation – River cut-offs and backwaters need to be retained as a landscape feature rather than be filled in or converted to fishing lakes.

***Anotylus insecatus* (Gravenhorst) R N-**

Habitat, Ecology & Status – Recorded in Leicestershire only from Loughborough Big Meadow where it is fairly frequent. Elsewhere in the country it is recorded from a wide range of habitats.

Threats – Road-building schemes and changes in management are potential threats to its only known site in Leicestershire.

Conservation – Further information is needed about the requirements of this species.

***Anotylus saulcyi* (Pandelle) R N-**

Habitat, Ecology & Status – A species normally associated with mole nests although in Leicestershire it has only ever been recorded from a now destroyed badger sett at Ketton Quarry, where it was found in 1988 and 1990.

Threats – None.

Conservation – *A. saulcyi* depends on healthy populations of underground-nesting mammals.

***Oxytelus fulvipes* Erichson E Na**

Habitat, Ecology & Status – Recorded in Leicestershire from four undisturbed wetland sites including a shaded cut-off (at Loughborough Big Meadow), a reed bed (Narborough Bog) and the margins of neglected ponds in woodland.

Threats – Drainage, infilling of ponds, disturbance by grazing stock, cleaning out and deepening of ponds.

Conservation – *O. fulvipes* requires minimal management activity.

***Stenus argus* Gravenhorst RED Nb**

Habitat, Ecology & Status – Reportedly a declining species in Britain. Recorded in Leicestershire from two undisturbed cut-offs along the River Soar.

Threats – Disturbance by grazing stock, pond cleaning, conversion to fish ponds, infilling and drainage.

Conservation – The two Leicestershire sites are both SSSIs (Lockington Marsh and Barrow Gravel Pits). *S. argus* requires minimal management activity

***Stenus atratulus* Erichson R Nb**

Habitat, Ecology & Status – This species has been recorded from a wide range of habitats. In Leicestershire it has been found in a pitfall trap set in a neglected allotment in Leicester.

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Stenus carbonarius* Gyllenhal RE Nb**

Habitat, Ecology & Status – Recorded in Leicestershire only from an undisturbed part of Lockington Marsh.

Threats – Disturbance by grazing stock, pond cleaning, conversion to fish ponds, infilling and drainage.

Conservation – *S. carbonarius* requires minimal management activity.

***Stenus fuscipes* Gravenhorst R**

Habitat, Ecology & Status – Recorded in Leicestershire only from the margins of Saddington Reservoir.

Threats – Disturbance by grazing stock, pond cleaning, conversion to fish ponds, infilling and drainage.

Conservation – *S. fuscipes* requires minimal management activity.

***Stenus guttula* Muller R**

Habitat, Ecology & Status – A species normally associated with shingle and boulders by fast-flowing streams. Recorded in Leicestershire from three scattered localities including the River Lin at Bradgate Park.

Threats – Impoundment and other modifications to fast flowing streams.

Conservation – Small streams should be maintained in as natural state as possible.

***Stenus incrassatus* Erichson R**

Habitat, Ecology & Status – Recorded in Leicestershire only from the margins of a field pond in Sileby.

Threats – Possibly the removal and infilling of field ponds.

Conservation – More information is needed about the status and requirements of this species.

***Stenus pallipes* Gravenhorst R**

Habitat, Ecology & Status – Recorded in Leicestershire only from the margins of Saddington Reservoir.

Threats – Disturbance by grazing stock, pond cleaning, conversion to fish ponds, infilling and drainage.

Conservation – *S. pallipes* requires minimal management activity.

***Dianous coerulescens* (Gyllenhal) R**

Habitat, Ecology & Status – A species associated with moss by fast flowing streams and waterfalls. Recorded in Leicestershire only from the River Lin at Bradgate and Skeffington Wood.

Threats – Modification of small streams and removal of moss.

Conservation – Fast flowing streams with good growth of moss should be maintained and protected from unsuitable modifications.

***Paederus riparius* (Linnaeus) R**

Habitat, Ecology & Status – A species of fens and mossy water margins. *P. riparius*

Threats – Pollution of Great Bowden Pit.

Conservation – Great Bowden Pit is a LRTNC reserve. It needs to be protected from eutrophication and other types of chemical pollution.

***Lathrobium dilutum* Erichson R RDB3**

Habitat, Ecology & Status – A species normally only found on river shingle banks and only recorded from Scotland and Wales in these islands until, completely unexpectedly, one female was taken in a pitfall trap sample from calcareous grassland along The Drift in 1992.

Threats – None known.

Conservation – More information about the status and requirements of this species in Leicestershire is needed.

***Lathrobium fovulum* Stephens R**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire only at Gravel Hole Spinney by an unmanaged pool in a poplar plantation.

Threats – Disturbance by grazing stock, pond cleaning, conversion to fish ponds, infilling and drainage.

Conservation – *L. fovulum* requires minimal management activity.

***Lathrobium pallidum* von Nordmann R RDB3 (pRDBK)**

Habitat, Ecology & Status – A riverside species recorded in Leicestershire on single occasions from just two sites along the River Soar near Loughborough.

Threats – Possibly river engineering works.

Conservation – More information is needed about the status and requirements of this species.

***Lathrobium ripicola* Czwalina N- now *Lathrobium pallidipenne* Hochhuth**

Habitat, Ecology & Status – A species of marsh and water margin which has been recorded in Leicestershire on scattered occasions from a wide range of habitats but not regularly from any one site. Its presence on a restored wild flower meadow at the former Lount open-cast coal mine and disturbed ground at Dadlington suggest that it is not sensitive to human disturbance.

Threats – None known.

Conservation – More information is needed about the status and requirements of this species.

***Ochthephilum fracticorne* (Paykull) RE**

Habitat, Ecology & Status – A fen species recorded from *Sphagnum* moss at Bradgate Park in 1895. Its natural habitat in Leicestershire would be wet heath, but this habitat has all but disappeared this century. However, it was found in 1992 amongst *Molinia* grass in a part of High Sharpley adjacent to a former area of wet heath which was improved for agriculture in the late 1960s.

Threats – Drainage, agricultural improvement.

Conservation – A scheme to restore and maintain wet heath at High Sharpley would benefit this species.

***Sunius melanocephalus* (Fabrisius) N-**

Habitat, Ecology & Status – A grassland species with records scattered across much of Leicestershire.

Threats – Not known, but it appears to be nowhere common.

Conservation – More information is needed about the status and requirements of this species.

***Neobisnius procerulus* (Gravenhorst) pRDBK**

Habitat, Ecology & Status – Recorded once from Leicestershire in a rabbit carcass on disturbed ground at Essendine Sidings. Elsewhere in the country this species has been recorded from a variety of habitats.

Threats – None known

Conservation – More information about the status and requirements of this species in Leicestershire is needed.

***Neobisnius villosulus* (Stephens) E**

Habitat, Ecology & Status – A riverbank species recorded in Leicestershire consistently from a number of exposed sedimentary deposits along the River Soar. The pattern of records suggests that this species is sensitive to high levels of disturbance by grazing stock and mechanical alterations of its habitat.

Threats – Engineering schemes associated with river management, trampling by grazing stock.

Conservation – Undisturbed sites along the River Soar need to be protected from changes in management of the river and adjacent land.

***Erichsonius cinerascens* (Gravenhorst) R**

Habitat, Ecology & Status – A fen species whose occurrence in Leicestershire is confined to a single record from the mossy margins of a well-established quarry pool at Neville Holt.

Threats – Drainage.

Conservation – More information is needed about why this species is so rare in Leicestershire.

***Philonthus pseudoparcus* Brunne R N now *Bisnius pseudoparcus* Brunne**

Habitat, Ecology & Status – A damp woodland species associated with rotting vegetation and fungi. Recorded in Leicestershire in 1983 from a grass trap set in a damp part of Buddon Wood.

Threats – Clear felling, conifer planting, possibly drainage.

Conservation – The Buddon Wood site is within an SSSI and at present managed sympathetically by Severn Trent Water Company.

***Gabrius bishopi* Sharpe Nb**

Habitat, Ecology & Status – A riverbank species which is widespread but not common in several river systems in Leicestershire.

Threats – In the long-term increased management of streams and rivers may pose a threat for this species.

Conservation – Maintaining rivers and streams in a natural condition will benefit this species.

***Platydracus latebricola* (Gravenhorst) R Nb**

Habitat, Ecology & Status – Known from a variety of habitats in Britain but in Leicestershire seemingly associated with disturbed limestone grassland at two sites. Ketton Grange Quarry (H. Broughton) and King Luds Entrenchments.

Threats – Vegetational succession, infilling of quarries.

Conservation – This species would probably benefit from retardation of the vegetational succession at sites where it occurs.

Ocypus nero* (Faldermann) R RDB3 (Na) now *Ocypus nitens

Habitat, Ecology & Status – Associated with a variety of habitats. Recorded in Leicestershire from Pickworth Great Wood and Buddon Wood, for which there are also old records.

Threats – None known.

Conservation – More information is needed about the status and requirements of this species.

***Quedius invreae* Gridelli R Nb**

Habitat, Ecology & Status – Associated with rotten wood and other forms of decaying vegetation. Reliable records in Leicestershire are limited to a single specimen taken in 1992 in a pitfall trap at High Sharpley.

Threats – None known.

Conservation – More information is needed about the status and requirements of this species.

***Quedius longicornis* Kraatz Nb**

Habitat, Ecology & Status – Mainly associated with mole nests although in Leicestershire it has also been found in a badger sett and there is also an old record from a woodpecker's nest (C.W. Henderson)

Threats – None.

Conservation – Two sites for this species (Ulverscroft and Stonesby Quarry) are LRTNC reserves. *Q. longicornis* requires a continuation in the presence of underground nesting mammals.

***Quedius microps* (Gravenhorst) R Nb**

Habitat, Ecology & Status – Associated with rotten wood, reportedly when in a wet condition. Recorded in Leicestershire from Donington Park and Swithland Wood where it has occurred in wood mould in the middle of trunks and large branches.

Threats – Removal or inappropriate surgery of mature trees especially those with rotten centres.

Conservation – This species requires the retention of dead wood in the form of large uncut trunks and branches.

***Quedius puncticollis* (Thomson) Nb**

Habitat, Ecology & Status – Mainly associated with mole nests and apparently the commonest species in mole nests in Leicestershire, being present in over half of all nests investigated.

Threats – The survival of this species appears to be tied to that of moles.

Conservation – *Q. puncticollis* requires the presence of moles.

***Quedius scitus* (Gravenhorst) R Nb**

Habitat, Ecology & Status – Found in rotten wood and under bark. Recorded in Leicestershire from Donington Park and Shacklewell Hollow.

Threats – The removal of dead branches and trees with rotten centres.

Conservation – This species requires the retention of dead wood in the form of large uncut trunks and branches.

***Quedius ventralis* (Aragona) R Nb now *Quedius truncicola* Fairemaire & Laboulbène**

Habitat, Ecology & Status – Associated with damp rotten wood. Recorded in Leicestershire from Donington Park in a hollow sycamore containing breeding jackdaws.

Threats – Removal of mature trees with rotten centres.

Conservation – This species requires the retention of trees with rotten centres suitable for hole-nesting birds.

***Quedius xanthopus* Erichson R Nb**

Habitat, Ecology & Status – Found in bracket fungi and under bark. Recorded in Leicestershire only in South Wood (A.B. Drane).

Threats – Inappropriate surgery of mature trees.

Conservation – This species requires the retention of dead wood in the form of large uncut branches.

***Sepedophilus bipunctatus* (Gravenhorst) R Nb**

Habitat, Ecology & Status – Associated with damp rotten wood, especially of willow. Recorded in Leicestershire only from a willow pollard at Narborough Bog (P.D. Hodge)

Threats – Neglect or removal of willow pollards.

Conservation – Willow pollards should be periodically repollarded in a rotational cycle.

***Sepedophilus pedicularius* (Gravenhorst) R N-**

Habitat, Ecology & Status – A fen species recorded in Leicestershire only from a cut-off by the River Trent at Castle Donington.

Threats – Drainage, infilling of pools or unsympathetic management for fishing. The site at Castle Donington will be severely affected by a road building scheme.

Conservation – More information is required about how well-established this species is in the Trent valley.

***Lamprinoides saginatus* (Gravenhorst) R Na**

Habitat, Ecology & Status – Associated with ants in a wide variety of habitats. Recorded from Leicestershire at High Sharpley.

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Cypha discoidea* (Erichson) R Nb**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire only from a cut-off along the River Wreake at The Wailes, Frisby.

Threats – Infilling and drainage.

Conservation – The Wailes is a LRTNC reserve.

***Myllaena elongata* (Mathews) R**

Habitat, Ecology & Status – Associated with water margins. Recorded in Leicestershire from several rivers, streams and ponds. Its occurrences on regraded banks along the River Soar suggest that it has not been adversely affected in the long term by river engineering works.

Threats – None.

Conservation – This species does not seem to require any special conservation measures.

***Myllaena gracillis* (Mathews) R**

Habitat, Ecology & Status – A wetland species whose Leicestershire records relate to the mossy margins of a pond near Saltby and flood refuse from the River Soar and River Lin.

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Gyrophæna angustata* (Stephens) N- now *Gyrophæna manca* Erichson**

Habitat, Ecology & Status – Associated with bracket fungi growing on a variety of trees in woodland. Recorded in Leicestershire from four localities.

Threats – Removal of old trees and dead branches.

Conservation – Fallen branches and dead trees should be left intact on site.

***Gyrophæna joyi* Wendeler R N-**

Habitat, Ecology & Status – Associated with fungi growing in wet woodland. Recorded in Leicestershire from Donington Park, Lockington Marsh and Swithland Reservoir.

Threats – Removal of old trees and dead branches.

Conservation – Fallen branches and dead trees should be left intact on site.

***Gyrophæna lucida* Erichson R N-**

Habitat, Ecology & Status – Associated with fungi growing in wet woodland. Recorded in Leicestershire from Saddington Reservoir, Loughborough Big Meadow and flood litter from the River Soar at Lockington.

Threats – Removal of old trees and dead branches.

Conservation – Fallen branches and dead trees should be left intact on site.

***Falagria sulcatula* (Gravenhorst) R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from wet grassland at Lount Meadow SSSI.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Tachyusa coarctata* Erichson N-**

Habitat, Ecology & Status – Associated with the bare muddy margins of lakes and rivers. Recorded in Leicestershire as single specimens from several sites along the River Soar. Possibly ephemeral in its occurrences although it has been recorded on several occasions from one site adjacent to Loughborough Big Meadow.

Threats – Vegetational succession.

Conservation – *T. coarctata* requires the periodic deposition of sediment in river channels to create areas of bare silt and sand.

***Gnypeta ripicola* (Kiesenwetter) N-**

Habitat, Ecology & Status – A riverbank species which has spread across Europe this century. It is now quite common by Leicestershire rivers, streams and reservoirs in a variety of situations.

Threats – None.

Conservation – This species does not require any conservation measures.

Gnypeta velata* (Erichson) N- now *Dasygnypeta velata

Habitat, Ecology & Status – Another riverbank species which has colonised Britain this century. This species is not uncommon in Leicestershire on bare mud by the River Soar and associated pools. It is often found in heavily grazed areas.

Threats – None.

Conservation – This species does not require any special conservation measures.

***Brachyusa concolor* (Erichson) N-**

Habitat, Ecology & Status – A wetland species which is not uncommon in Leicestershire on bare mud along the River Soar and associated pools. It occurs almost invariably in heavily grazed areas. It has also been found by a quarry pool at Tixover Quarry.

Threats – None.

Conservation – This species does not seem to require any special conservation measures.

***Schistoglossa gemina* (Erichson) R N-**

Habitat, Ecology & Status – A fen species recorded from Saddington Reservoir, Swithland Reservoir and Lockington Marsh.

Threats – Drainage, clearance of fen vegetation.

Conservation – This species requires minimal management activity.

***Dacrilla fallax* (Kraatz) R N-**

Habitat, Ecology & Status – A fen species recorded in Leicestershire from Saddington Reservoir and a reed-bed at The Duckery near Market Bosworth.

Threats – Drainage, tidying up.

Conservation – More information is needed about the requirements of this species.

***Hydrosmeeta thinbioides* (Kraatz) R N- now *Hydrosmeeta longula* (Heer)**

Habitat, Ecology & Status – A shingle species which is widespread though not common by fast-flowing streams in the north and west of Britain. The only Leicestershire record is of a single specimen found by the River Wreake at Hoby Mill. No established populations have yet been discovered in Leicestershire.

Threats – River channel modification, siltation.

Conservation – More information is needed about the requirements of this species.

***Aloconota cambrica* (Wollaston) R**

Habitat, Ecology & Status – Another species associated with shingle by fast-flowing streams and rivers in the north west of the country. Single specimens were recorded on two recently regraded banks of the River Soar in 1992, and this species may have been temporarily favoured by the engineering works along the river, but no established populations have yet been discovered in Leicestershire.

Threats – None known.

Conservation – More information is needed about the requirements of this species.

***Aloconota sulcifrons* (Stephens) R**

Habitat, Ecology & Status – Another species associated with shingle by fast-flowing streams and rivers in the north west of the country. Single specimens have been recorded at two sites along the River Soar, but no established populations have yet been discovered in Leicestershire.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Aloconota languida* (Erichson) R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from Saddington Reservoir and mediaeval fishponds in Pond Spinney near Aston Flamville.

Threats – Drainage, infilling of ponds, disturbance by grazing stock, cleaning out and deepening of ponds.

Conservation – *A. languida* requires minimal management activity.

***Alaobia scapularis* (Sahlberg) R N-**

Habitat, Ecology & Status – A species apparently associated with short turf grasslands with records from chalk grassland and quarries. Recorded in Leicestershire from Geeston Quarry and King Luds Entrenchments.

Threats – Probably invasion of scrub.

Conservation – Sites where this species occurs should have areas of short turf maintained with patches of bare ground.

***Dochmonota clancula* (Erichson) R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from several undisturbed cut-offs along the River Soar. Also recorded from Saddington Reservoir and Pond Spinney near Aston Flamville.

Threats – Drainage, infilling or cleaning out and deepening of ponds and river cut-offs, disturbance by grazing.

Conservation – This species requires minimal management activity.

***Liogluta nitidula* (Kraatz) R now *Liogluta alpestris* (Heer)**

Habitat, Ecology & Status – Recorded in this area only from cut-offs along the River Soar. *L. nitidula* appears to be less sensitive to disturbance by grazing stock than some other river cut-off species.

Threats – Drainage and infilling of river cut-offs.

Conservation – This species would benefit from a recognition of the value of river cut-offs for nature conservation.

***Liogluta pagana* (Erichson) R N-**

Habitat, Ecology & Status – Associated with the runs of small mammals in a variety of habitats. Recorded from Leicestershire from Pickworth Great Wood and Lount Meadow SSSI.

Threats – Unknown.

Conservation – This species depends on the presence of healthy populations of small mammals.

***Atheta deformis* (Kraatz) R N-**

Habitat, Ecology & Status – Found in a wide range of habitats. Recorded in Leicestershire from the margins of the River Lin and a recently scraped area at Stonesby Quarry.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Atheta hygrobia* (Thomson) E N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from undisturbed cut-offs along the River Soar, Saddington Reservoir, Pond Spinney and Colony Reservoir.

Threats – The drainage, infilling or cleaning out and deepening of ponds and river cut-offs, disturbance by grazing.

Conservation – This species requires minimal management activity.

***Atheta nannion* Joy R RDBK**

Habitat, Ecology & Status – Apparently associated with rivers and marshes. Recorded in Leicestershire from fold litter along the River Soar and a single specimen from litter at the edge of a shaded, unmanaged pond at Pond Spinney, Aston Flamville.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Atheta obtusangula* Joy R**

Habitat, Ecology & Status – Found in a variety of wetlands including moorland. Recorded in Leicestershire only from Lea Meadow.

Threats – Drainage.

Conservation – More information is needed about the requirements of this species.

***Atheta difficilis* (Brisout) R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from Saddington Reservoir where it is sometimes quite abundant and a single specimen from a fifteen-year-old reed-bed created at Rutland Water Nature reserve.

Threats – The presence of this species at a recently created habitat at Rutland Water may indicate that this species is not so sensitive to disturbance.

Conservation – More information is needed about the requirements of this species.

***Atheta obfuscata* (Gravenhorst) R N-**

Habitat, Ecology & Status – A riverbank species recorded on a single occasion at two sites along the River Soar.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Atheta zosterae* (Thomson) R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire only in flood litter from the River Soar at Lockington.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Atheta basicornis* (Mulsant & Rey) R N-**

Habitat, Ecology & Status – A wetland species often found in rotten wood and under the bark of willow. Recorded in Leicestershire from Saddington Reservoir and Lockington Marsh.

Threats – Drainage, removal of dead wood from trees and marshes.

Conservation – This species probably requires the presence of dead wood in wetland.

***Atheta pilicornis* (Thomson) R N-**

Habitat, Ecology & Status – A damp woodland species recorded in Leicestershire from fungi growing on stumps at Swithland Wood and Kayes Plantation in Quorn.

Threats – Drainage, clear felling of woodland.

Conservation – Dead wood should be left protected from drying out for fungi to develop.

***Ilyobates propinquus* (Aube) R RDB3 (N-)**

Habitat, Ecology & Status – Normally found in sandy places. The only recent Leicestershire record comes from the Drift.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Ilyobates subopacus* Palm R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire only from Lount Meadow SSSI.

Threats – Unknown

Conservation – More information is needed about the requirements of this species.

***Calodera nigrita* Mannerheim R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire on two occasions from flood litter, once from the River Soar and once from the River Eye. This species may be associated with river cut-offs.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Calodera riparia* Erichson R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from The Dumbles (Newtown Burgoland Marsh).

Threats – Unknown.

Conservation – More information is needed about the status and requirements of this species in Leicestershire.

***Calodera uliginosa* Erichson R RDB3 (pRDBK)**

Habitat, Ecology & Status – A riverside species recorded in Leicestershire at Loughborough Big Meadow between 1989 and 1992 when it was found to be abundant in old river channels both shaded and in open grassland. It has not been seen since 1992 despite continued sampling at its sites. The pattern of records elsewhere in the country suggest that its periods of abundance at any one site are fairly short in duration.

Threats – Drainage, infilling and cleaning out of river cut-off pools, possibly disturbance by grazing stock.

Conservation – More information is needed about how this species survives between its periods of abundance.

***Ocyusa nitidiventris* (Fagel) R RDB3 (pRDBK)**

Habitat, Ecology & Status – Associated with sparsely vegetated sandy areas often on disturbed ground such as quarries and sandpits. Recorded in Leicestershire from the entrance to a rabbit burrow in Big Pits Quarry, Clipsham and an urban demolition site in Leicester.

Threats – Vegetational succession, unsympathetic development of post-industrial sites.

Conservation – Patches of bare ground need to be maintained at sites where this species occurs.

***Oxypoda exoleta* Erichson N-**

Habitat, Ecology & Status – Associated with sandy areas including heathland and woodland. In Leicestershire this species has been found almost exclusively on alluvial deposits along the River Soar and Trent with one record from a spring in the Chater Valley.

Threats – No short-term threats.

Conservation – *O.exoleta* requires the periodic deposition of sediment in river channels to create areas of bare undisturbed silt and sand. It may benefit from a cycle of small-scale clearance of vegetation as practised by anglers.

***Oxypoda lentula* Erichson E**

Habitat, Ecology & Status – A wet woodland species recorded in Leicestershire from undisturbed cut-offs along the River Soar and shaded, unmanaged ponds at Six Hills and Pond Spinney, Aston Flamville.

Threats – Drainage, infilling and cleaning out and deepening of ponds and river cut-offs, disturbance by grazing stock.

Conservation – This species requires minimal management activity.

***Oxypoda lurida* Wollaston R N-**

Habitat, Ecology & Status – Associated with open ground and recorded in Leicestershire only from an urban demolition site in Leicester.

Threats – Vegetational succession, unsympathetic development of post-industrial sites.

Conservation – The maintenance of patches of bare ground would probably benefit this species.

***Oxypoda nigrocincta* Mulsant & Rey R RDB3 (pRDBI)**

Habitat, Ecology & Status – A wetland species with very few records in this country. In Leicestershire a single specimen was found in a heavily shaded cut-off by the River Soar at Narborough Bog. Curiously this site yielded very little else of interest and probably dries out fairly early in the year.

Threats – Drainage, infilling or cleaning out and deepening of ponds and river cut-offs, probably disturbance by grazing stock.

Conservation – This species probably requires minimal management activity, but more information is needed about its status and requirements.

***Oxypoda recondita* Kraatz R N-**

Habitat, Ecology & Status – An ancient woodland species of rotten wood and often associated with ants. Recorded recently in Leicestershire from Bradgate Park with several old records from Buddon Wood.

Threats – The removal of mature trees.

Conservation – Mature trees with intact cavities as opposed to split trunks should be retained.

***Oxypoda spectabilis* Markel R N-**

Habitat, Ecology & Status – Predominantly a woodland species and often associated with small mammals. Recorded in Leicestershire from Buddon Wood and Newfields Colliery.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Ischnoglossa obscura* Wunderle R**

Habitat, Ecology & Status – Probably an ancient woodland species found exclusively under bark. At present the only known British records are from Bradgate Park and Donington Park, but there is a great deal of taxonomic confusion in this genus and *I. obscura* will probably prove to be more widely distributed in Britain.

Threats – Removal of dead branches.

Conservation – Fallen dead branches should be left intact on site.

***Aleochara discipennis* Mulsant & Rey R RDB3 (N-)**

Habitat, Ecology & Status – Recorded variously in association with dung and carrion. The only Leicestershire record comes from the rotten wood of a dead tree at Donington Park!

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Aleochara diversa* (Sahlberg) N-**

Habitat, Ecology & Status – Recorded from a variety of situations in a variety of habitats. *A. diversa* has been recorded from five sites in Leicestershire and has been found in rotting fungi, tree cavities and a badger sett.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Aleochara fumata* Gravenhorst R pRDBK**

Habitat, Ecology & Status – Associated with decaying fungus and possibly bird nests. Recorded in Leicestershire from a grass trap in a hollow oak branch at Donington Park.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Aleochara inconspicua* Aube R RDB2 (pRDBK)**

Habitat, Ecology & Status – The larvae are parasitic on the Wheat Bulb Fly and the species may be associated with arable land. Recorded in Leicestershire from a recently scraped area at Stonesby Quarry

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Aleochara ruficornis* Gravenhorst N-**

Habitat, Ecology & Status – Found in grassland and woodland and possibly associated with ants or small mammals. Recorded in recent times from nine sites exclusively by pitfall trapping.

Threats – Probably none

Conservation – This species appears to require no special conservation measures in Leicestershire.

Pselaphidae

***Bibloporus minutus* Raffray R RDB3 (Nb)**

Habitat, Ecology & Status – An ancient woodland species recorded in Leicestershire under oak bark on several occasions at Bradgate Park.

Threats – Removal of old trees and dead branches.

Conservation – This species requires the presence of dead boughs with intact bark as a continually renewed resource.

***Euplectus bonvouloiri* Reitter R N-**

Habitat, Ecology & Status – Associated with rotten wood in tree roots. Recorded in Leicestershire from Donington Park, Burley Wood and Stanford Cut-off on the border with Nottinghamshire. Two of these records come from poplars.

Threats – Removal of old and dead trees and stumps.

Conservation – Dead trees should be left intact on site.

***Euplectus duponti* Aube R N-**

Habitat, Ecology & Status – Possibly a soil species found in a variety of habitats. Recorded in Leicestershire from a pitfall trap sample taken from overgrown heathland at Moira Junction Nature Area.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Euplectus kirbyi* Denny N-**

Habitat, Ecology & Status – A dead wood species recorded in Leicestershire from a variety of trees in woodland and the open countryside and also once from a dung heap.

Threats – Apparently none.

Conservation – This species probably benefits from the presence of mature trees in hedges.

***Plectophloeus nitidus* (Fairmaire) R RDB1 (pRDB2)**

Habitat, Ecology & Status – A rotten wood species found only in prime ancient woodland sites. It appears to be confined to red-rot oak in the middle of dead trunks and large branches. Recorded in Leicestershire from Donington Park and Bradgate Park.

Threats – Removal of old trees and dead branches.

Conservation – This species requires the retention of dead wood in the form of large uncut trunks and branches.

***Batrisodes venustus* (Reichenbach) R RDB3 (Na)**

Habitat, Ecology & Status – Normally considered to be an ancient woodland species living in rotten wood and tree cavities and sometimes associated with ants. The only recent Leicestershire record comes from a cavity in an old willow at Shacklewell Hollow where it was found with *Quedius scitus*. There is a 1950s record from a wood ant nest in Buddon Wood (C.A. Collingwood).

Threats – Removal of old trees and dead branches.

Conservation – This species requires the retention of dead wood in the form of large uncut trunks and branches.

Geotrupidae – Dor Beetles

***Geotrupes vernalis* (Linnaeus) R Nb**

Habitat, Ecology & Status – Associated with dung on grassland and heather moorland. Recorded recently in Leicestershire only from Bradgate Park where it is often seen crawling over grass paths between the bracken. There is an old record for Rutland.

Threats – None known.

Conservation – *G. vernalis* depends on a good supply of deer dung at Bradgate Park. It appears to be doing well under present management practices.

Scarabaeidae – Dung Beetles

***Aphodius zenkeri* Germar R Nb now *Limarus zenkeri* Mulsant & Rey**

Habitat, Ecology & Status – Associated with deer dung in woodland and deer park. Recorded recently in Leicestershire only from Bradgate Park, although there is an old record for Market Bosworth.

Threats – None known.

Conservation – *A. zenkeri* depends on a good supply of deer dung deposited in spots shaded by trees or bracken. It appears to be doing well under present management practises.

Scirtidae

***Cyphon pubescens* (Fabricius) R RDB3 (Nb)**

Habitat, Ecology & Status – A wetland species with an aquatic larva. Recorded in Leicestershire from a field pond with mossy edges at Teigh.

Threats – Drainage, infilling of ponds.

Conservation – More information is needed about the requirements of this species.

Dryopidae

Dryops similis Bollow R RDB3

Habitat, Ecology & Status – Characteristic of shallow pools with wide fluctuations in water levels. Sometimes in man-made habitats. Recorded with *Hydrochus elongatus* from the shallow cattle trampled margins of Kilby Pit.

Threats – Being only known from one site, this species is obviously vulnerable to any changes of use at Kilby Pit.

Conservation – Grazing cattle may be important in regulating the growth of marginal vegetation at Kilby Pit which is designated a district level site.

Buprestidae – Jewel Beetles

Agrilus laticornis (Illiger) RE Nb

Habitat, Ecology & Status – A woodland species whose larva develop under the bark of dead and dying branches on mature oak trees. The only recent record comes from Croxton Park, but in the 19th century it occurred at Buddon Wood. Although this species is not currently recognised as an ancient woodland indicator species, it appears to be confined to high quality ancient woodland sites in the midlands.

Threats – Removal of mature trees and dead branches.

Conservation – This species requires a continuity of its breeding habitat, dying branches on mature oaks, on site.

Agrilus pannonicus Pillar & Mitterpacher RE RDB2 (Na) now *Agrilus bigutatus* (Fabricius)

Habitat, Ecology & Status – An ancient woodland species whose larvae develop under the thick bark of dead and dying oak trees. Recently this species has become quite common in the London area. A larva probably of this species was found at Donington Park in 1987. There is an old 19th century record for Buddon Wood.

Threats – The removal of dead and dying trees.

Conservation – This species requires a continuity of its breeding habitat, dead and dying oaks, on site.

Trachys scrobiculatus Kiesenwetter R Na

Habitat, Ecology & Status – Associated with a range of habitats on chalk and limestone. The larvae mine the leaves of various plants of the labiate family especially ground ivy. Recorded recently in Leicestershire from King Luds Entrenchments and The Drift in both open and more shaded situations. There is a 1943 record from Barrowden (D. Tozer).

Threats – Agricultural improvement undoubtedly has reduced the available habitat for this species in the wider countryside.

Conservation – This species probably depends on the presence of a good population of ground ivy and seems to be more tolerant of scrub invasion than many limestone species.

Elateridae – Click Beetles

Fleutiauxellus quadripustulatus (Fabricius) **RED Na** now *Oedostethus quadripustulatus* Le Conte

Habitat, Ecology & Status – Found in unimproved alluvial meadows and reportedly fens. The larvae live in the soil and feed on plant roots. A survey carried out in 1944 found this species to be abundant in grass fields along the Soar valley and in North-west Leicestershire (A. Roebuck). There are recent records from two unimproved meadows along the Soar including Loughborough Big Meadow and it has undoubtedly declined since 1944. An additional recent record from the banks of a ditch running through improved grassland at Hathern suggests that it may be able to survive agricultural improvements under some circumstances.

Threats – Agricultural improvement of floodplain grasslands has led to a decline in this species and continues to pose a major threat.

Conservation – More information is required about the conservation value of unimproved alluvial grasslands and their distribution.

Ctenicera pectinicornis (Linnaeus) **RE Na**

Habitat, Ecology & Status – Associated with damp grassland, especially old hay meadows. Recorded recently in Leicestershire from Loughborough Big Meadow, Lea Meadow and a meadow along the Buddon Brook near Quorn.

Threats – Drainage, agricultural improvement.

Conservation – All its known sites are either LRTNC reserves or protected by sympathetic management agreements. Despite its reported association with hay meadows, *C. pectinicornis* tolerates unintensive grazing at two of its known sites.

Selatosomus aeneus (Linnaeus) **E**

Habitat, Ecology & Status – A brightly coloured upland grassland species with a north western distribution in Britain. Recorded in Leicestershire from several Charnwood heath-grassland sites including Spring Hill, High Sharpley, Bardon Hill and Bradgate Park where it is especially associated with scree slopes.

Threats – Scrub invasion.

Conservation – Sites where this species occurs need to be kept open by grazing.

***Selatosomus nigricornis* (Panzer) RE pRDB3 now *Paraphotistus nigricornis* (Panzer)**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from Loughborough Big Meadow in an abandoned water course in an un-grazed hay meadow. There are 19th century records from other parts of the Soar valley.

Threats – Drainage, infilling of cut-offs and other floodplain depressions, unsuitable pond creation, possibly heavy grazing pressure.

Conservation – Grazing and the passing of vehicles should be avoided at its one known site.

Cantharidae – Soldier Beetles

***Rhagonycha lutea* (Muller) R Nb**

Habitat, Ecology & Status – A woodland and hedgerow species recorded in Leicestershire from a hedgerow near Normanton le Heath.

Threats – Hedgerow removal.

Conservation – More information is needed about why this species appears to be so rare in Leicestershire.

***Malthinus frontalis* (Marsham) Nb**

Habitat, Ecology & Status – A woodland species recorded mainly in Leicestershire from Charnwood Forest and North-west Leicestershire. The larvae live in dead wood.

Threats – There seems to be little threat to this species in Leicestershire.

Conservation – Dead branches should be left intact on site.

***Malthodes fibulatus* Kiesenwetter R Nb**

Habitat, Ecology & Status – Associated with woodland and hedgerows where the larvae probably develop in twigs and boughs. Recorded in Leicestershire from a dead hawthorn branch on the edge of Pickworth Great Wood.

Threats – Removal of dead branches.

Conservation – Dead branches in hedgerows should be left onsite and not tidied up.

Lampyridae – Glow-worms

Lampyris noctiluca (Linnaeus) (Glow-worm) D

Habitat, Ecology & Status – The female of this species is famous for emitting a green light at night to attract a male. *L. noctiluca* is a specialist snail-feeder. Recorded in Leicestershire from disused limestone quarries and grass verges in Rutland and Charnwood. Surveys carried out by the Rutland Natural History Society and others have shown that colonies are widely scattered and in decline.

Threats – Some colonies have been damaged or wiped out by works carried out at roadside verge sites.

Conservation – This species appears to need both open areas and grass tussocks for hibernation etc.

Lycidae

Platycis minuta (Fabricius) R Nb

Habitat, Ecology & Status – A woodland species whose larvae develop in dead wood. The bright red adults are active in the autumn. Recorded in Leicestershire only from Launde Big Wood (S. Costa) and Skeffington Wood (J. Bullock).

Threats – Removal of old logs and tree stumps.

Conservation – This species requires the presence of good -ized fallen trees and branches.

Dermestidae

Megatoma undata (Linnaeus) R Nb

Habitat, Ecology & Status – Associated with old dry loose bark where it feeds in insect remains especially in spiders' webs. Recorded recently in Leicestershire from under the bark of fence posts in Swithland Wood. There are a number of old records from around the county.

Threats – The falling number of old mature trees.

Conservation – Old trees with dead branches should be left to decay naturally with bark intact.

Ctesias serra (Fabricius) Nb

Habitat, Ecology & Status – Found under old dry loose bark on mature trees, especially old pollards. Associated with insect remains in spiders' webs. Considered to be an ancient woodland species but in Leicestershire it has been found in riverside willow and isolated trees as well as ancient woodland sites at Donington Park, Bradgate park, Croxton Park, Buddon Wood and Burley Wood.

Threats – Removal of old trees.

Conservation – Old trees should be left to decay naturally with bark intact.

Anobiidae

Ptinomorphus imperialis (Linnaeus) R Nb

Habitat, Ecology & Status – The larvae develop in the dead wood of a variety of trees. Recorded recently in Leicestershire from by the River Soar at Barrow where it was probably associated with pollarded willows or associated with ivy. There are a number of old records from across the county.

Threats – Removal of dead branches and old ivy.

Conservation – This species would benefit from the conservation of the dead wood resource in hedgerows in the wider countryside.

Ptinidae – Spider Beetles

Ptinus sexpunctatus Panzer R Nb

Habitat, Ecology & Status – Associated with bird nests in tree cavities and also occasionally in houses. Recorded in 1977 from a house in Leicester (H. Mendel).

Threats – Probably the removal of mature trees with cavities suitable for hole-nesting birds.

Conservation – This species would benefit from the conservation of the dead wood resource in hedgerows in the wider countryside.

Cleridae

Korynetes caeruleus (DeGeer) R Nb

Habitat, Ecology & Status – A dead wood species whose larvae prey on other wood-boring beetles. Recorded recently from a house in Barrow upon Soar where it could have been associated with the domestic furniture beetle or with dead wood in nearby riverside willows etc. There are a number of old Leicestershire records including several from buildings and one from carrion.

Threats – Probably none

Conservation – This species would benefit from the conservation of the dead wood resource in hedgerows in the wider countryside.

Melyridae

Dasytes plumbeous (Muller) R Nb

Habitat, Ecology & Status – Normally considered to be a grassland species. Leicestershire records are represented by single specimens from an osier bed at Mountsorrel and a school building in Leicester.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

Lymexylidae

Hylecoetes dermestoides (Linnaeus) Nb

Habitat, Ecology & Status – Associated with dead wood usually in a very early stage of decay. Absent from southern England and on the edge of its range in Leicestershire where it has been recorded from several sites in Charnwood and North-west Leicestershire. The host trees recorded locally have been ash, beech and larch.

Threats – Removal of dead wood.

Conservation – This species appears to benefit from forestry practices such as thinning as long as the cut wood is left on site.

Nitidulidae

Meligethes solidus (Kugelann) R N-

Habitat, Ecology & Status – Associated with Rock-rose flowers on chalk and limestone. Recorded in Leicestershire only from The Drift.

Threats – Decline of the Common Rock-rose.

Conservation – This species depends on healthy populations of Rock-rose.

Epuraea angustula Sturm R Nb

Habitat, Ecology & Status – A specialist predator on beetles in the wood boring genus *Xyloterus*. Recorded in Leicestershire from a fallen beech at Ulverscroft Nature Reserve in association with *Xyloterus domesticus*.

Threats – Removal of fallen timber and trunks.

Conservation – Fallen timber and trunks should be left on site with bark intact.

Rhizophagidae

Rhizophagus nitidulus (Fabricius) R Nb

Habitat, Ecology & Status – A predator found under bark and normally associated with ancient woodland. Recorded in Leicestershire from under the bark of a fallen beech at Ulverscroft Nature Reserve.

Threats – Removal of dead and fallen timber.

Conservation – This species requires a plentiful supply of dead wood with bark intact.

***Rhizophagus picipes* (Olivier) R RDB3 (Na)**

Habitat, Ecology & Status – Normally associated with sap under bark but in Worcestershire it has been found under the bark of a partially waterlogged fallen tree washed up by the River Teme. Recorded in Leicestershire from twigs amongst flood debris by the River Soar near Loughborough.

Threats – Possibly removal of trees from riverbanks.

Conservation – This species requires a plentiful supply of dead wood with bark intact.

Cucujidae

***Notolaemus unifasciatus* (Latrielle) N RDB3 (Na)**

Habitat, Ecology & Status – Found under bark in ancient woodland. Recorded from Leicestershire under oak bark at Bradgate Park and a small area of parkland at Whatton Hall.

Threats – Removal of old dead trees and branches.

Conservation – This species requires a plentiful supply of dead wood with bark intact.

Cryptophagidae

***Cryptophagus ruficornis* Stephens R N-**

Habitat, Ecology & Status – A woodland species associated with the black fungus *Daldinia concentrica*. Recorded in Leicestershire only from Asplin Wood.

Threats – Removal of trees and dead branches infected with the host fungus.

Conservation – Old trees and branches supporting *Daldinia concentrica* should be left on site.

***Antherophagus canescens* Grouvelle R Nb**

Habitat, Ecology & Status – The larvae of this species develop in the nest of bumble bees. It has been recorded recently in Leicestershire only at Essendine Sidings.

Threats – Unknown.

Conservation – This species requires the presence of nesting bumble bees.

***Atomaria barani* Brisout R N-**

Habitat, Ecology & Status – A wetland species recorded in Leicestershire from lush grassland in a wide, damp ride in Burley Wood.

Threats – Drainage, possibly lack of maintenance of open conditions at its site in Burley Wood.

Conservation – More information is needed about the requirements of this species.

***Atomaria nigriventris* Stephens R N-**

Habitat, Ecology & Status – This species was formally widespread in the wider countryside in haystacks and rotting vegetation but modern records are much fewer and *A. nigriventris* has obviously declined.

Threats – Unknown although the decline of *A. nigriventris* seems to have coincided with the immigration into this country of the closely related *A. punctithorax*.

Conservation – More information is needed about the requirements of this species.

Cerylonidae

***Annomatus duodecimstriatus* Muller R Na**

Habitat, Ecology & Status – A subterranean species seemingly associated with rotting and partly humified plant material. Recorded recently in Leicestershire from a badger sett in Quorn and rotten wood at the base of a dead poplar at Stanford cut-off and a tree stump in Wardley Wood (C. Johnson).

Threats – Probably none.

Conservation – Dead trees and stumps should be left on site to rot naturally.

Coccinellidae - Ladybirds

***Scymnus femoralis* (Gyllenhal) R Nb**

Habitat, Ecology & Status – A grassland species normally associated with chalk or sand. Recorded in Leicestershire from The Drift.

Threats – Agricultural improvement, invasion of scrub.

Conservation – Sites where this species occurs should be maintained in an open condition.

***Scymnus schmidtii* Fursch R Nb**

Habitat, Ecology & Status – Recorded from a variety of habitats. In Leicestershire it has been found only at Moira Junction in a secondary heathland area being overrun by scrub.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Coccinella heiroglyphica* (Linnaeus) (Heather Ladybird) Re**

Habitat, Ecology & Status – A predator apparently associated with heather. Recorded in Leicestershire from High Sharpley.

Threats – Invasion of scrub and the decline of heather.

Conservation – The only known current Leicestershire site for this species is reverting to scrub to the detriment of heather. This process must be revised if the heather ladybird is to survive there.

Lathriidae

***Lathridius consimilis* Mannerheim R N-**

Habitat, Ecology & Status – A woodland species associated with fungi growing on trees. Considered to be an ancient woodland indicator but in Leicestershire it occurs away from ancient woodland. Leicestershire records come from fungi on birch at Beacon Hill and on hawthorn in scrub at Breedon Hill. *L. consimilis* has also been recorded from under bark and carrion at South Wood (A.B. Drane).

Threats – The removal of dead and dying trees and branches.

Conservation – This species requires the presence of bracket fungi growing on trees.

***Enicmus brevicornis* (Mannerheim) R N-**

Habitat, Ecology & Status – A woodland species associated with a variety of fungi including sooty mould on sycamore and possibly increasing in numbers. Recorded in Leicestershire from the fungus *Daldinia concentrica* growing on an ash log in Burley Wood.

Threats – Probably none.

Conservation – More information is needed about the requirements of this species in Leicestershire.

***Enicmus rugosus* (Herbst) R RDB2 (N-)**

Habitat, Ecology & Status – An ancient woodland species associated with slime moulds and fungi growing on trees. Recorded in Leicestershire from a bracket fungus growing on an oak in South Wood (A.B. Drane).

Threats – Removal of dead and dying trees and branches.

Conservation – This species requires the presence of old mature trees which support bracket fungi and slime moulds.

***Corticaria alleni* Johnson R N-**

Habitat, Ecology & Status – An ancient woodland species recorded in Leicestershire in the autumn in oak branches in dry fungus-impregnated wood exposed when the branch has snapped off. The two known Leicestershire sites are Donington Park and Croxton Park.

Threats – Removal of dead and dying trees and branches.

Conservation – *C. alleni* requires a long history of sympathetic management of the dead wood resource which allows a continual availability of large dead branches.

Cisidae

***Cis festivus* (Panzer) R Nb**

Habitat, Ecology & Status – Associated with bracket fungi growing on trees in woodland. Recently recorded in Leicestershire from Swithland Wood (J.A. Owen) and Ulverscroft Nature Reserve.

Threats – Removal of dead and dying tree stumps.

Conservation – This species requires the presence of mature trees which support bracket fungi.

Mycetophagidae

***Mycetophagus piceus* (Fabricius) R Nb**

Habitat, Ecology & Status – An ancient woodland species which breeds in fungus-infected rotten wood. Recorded in Leicestershire from Bradgate Park, Croxton Park and Ulverscroft Nature Reserve (D. Lewis det H. Mendel)

Threats – Removal of dead and dying trees and stumps.

Conservation – This species requires the presence of mature trees containing rotten heartwood.

Colydiidae

***Synchita humeralis* (Fabricius) R Nb**

Habitat, Ecology & Status – A woodland species found under bark and in fungi growing on dead wood. The only Leicestershire record comes from a specimen found in a house in Barrow upon Soar.

Threats – Probably the removal of dead trees and branches.

Conservation – More information is needed about the status and requirements of this species in Leicestershire.

***Aulonium trisulcus* Geoffroy in Fourcroy R Na**

Habitat, Ecology & Status – A predator of bark beetles, in particular the Elm Bark Beetle, *Scolytus scolytus*. When *S. scolytus* became common in the 1970s at the same time as Dutch Elm Disease records of *A. trisulcum* also increased. The only Leicestershire record comes from a specimen caught at mercury vapour light along the towpath of the River Soar at Quorn

Threats – Probably the decline of Elm Bark Beetle.

Conservation – More information is needed about the current status of this species in Leicestershire.

Tenebrionidae

***Eledona agricola* (Herbst) Nb**

Habitat, Ecology & Status – Associated with the fungus *Laetiporus sulphureus*. *Agricola* is considered to be predominantly an ancient woodland species but in Leicestershire it has been recorded from a wide variety of sites including riverside willows as well as from oak at the main ancient woodland sites at Bradgate and Donington.

Threats – Removal of dead and dying trees.

Conservation – This species requires the presence of mature trees which support its host fungus.

***Scaphidema metallicum* (Fabricius) Nb**

Habitat, Ecology & Status – Usually found under the loose bark of logs. In Leicestershire it has not been found in the usual woodland or parkland sites but out in the open countryside in hedgerows. It has also been recorded in pitfall traps in grassland and under a stone in a disused limestone quarry.

Threats – Probably none.

Conservation – This species probably does not require any special conservation measures in Leicestershire.

***Prionychus ater* (Fabricius) Nb**

Habitat, Ecology & Status – The larvae develop in the detritus and wood mould that accumulates in the cavities of well-rotted logs and trees. Recorded in Leicestershire from Donington Park and Burley Wood and away from ancient woodland sites at East Norton (H. Mendel) and at mercury vapour light in a suburban garden in Leicester (J. G. Woodhead).

Threats – The removal of old mature trees and rotten logs.

Conservation – This species requires a plentiful supply of large trees and logs in an advanced state of decay.

Salpingidae

Lissodema quadripustulatus (Marsham) R Nb now *Lissodema denticole* (Gyllenhal)

Habitat, Ecology & Status – Associated with dead wood in tree branches in woodland and hedgerows. The only recent Leicestershire record comes from Smeeton Westerby where an adult was swept from Flowers.

Threats – Removal of dead trees and branches.

Conservation – This species requires a plentiful supply of dead wood with bark intact.

Melandryidae

Hallomenus binotatus (Quensel) R D Nb

Habitat, Ecology & Status – Associated with tree fungi and fungus-infected rotten wood in ancient woodland. The only recent Leicestershire record is from Donington Park, but older records are more widespread and include two from the city of Leicester.

Threats – Removal of old dead trees and branches.

Conservation – This species requires the presence of mature trees supporting fungi.

Orchesia micans (Panzer) R Nb

Habitat, Ecology & Status – Associated with bracket fungi on trees in woodland and old parks. The only recent Leicestershire record comes from Croxton Park.

Threats – Removal of old dead trees and branches.

Conservation – This species requires the presence of mature trees supporting fungi.

Orchesia minor Walker R Nb

Habitat, Ecology & Status – Associated with bracket fungi and dead wood in tree branches in woodland and old parks. The only recent Leicestershire record comes from Launde Big Wood (A.B. Drane).

Threats – The removal of old trees and dead branches.

Conservation – This species requires the presence of mature trees supporting fungi and dead branches.

***Anisoxya fuscula* (Illiger) R RDB3 (Na)**

Habitat, Ecology & Status – The larvae of this species develop in dead twigs. The only Leicestershire record comes from a hedgerow at Lockington Marsh (D.G. Goddard).

Threats – The removal of dead branches.

Conservation – This species requires a plentiful supply of dead twigs and branches.

***Phloiotrya vaudoueri* Mulsant R Nb**

Habitat, Ecology & Status – Associated with dead branches mainly of oak. Recorded recently from Leicestershire only from Bradgate Park (A.B. Drane).

Threats – Removal of dead branches.

Conservation – This species requires a plentiful supply of dead branches.

***Conopalpus testaceus* (Olivier) R Nb**

Habitat, Ecology & Status – The larvae of this species develop in rotten wood. Recorded in Leicestershire only from the three main pasture woodland sites, Donington Park, Bradgate Park and Crxton Park.

Threats – Removal of old trees and dead branches.

Conservation – This species requires the presence of old mature trees which contain rotten wood in their branches.

Scaptidae

***Scaptia testacea* Allen R pRDB3**

Habitat, Ecology & Status – The larvae of this species develop in red rotten wood. *S. Testacea* is rarely encountered outside ancient woodland sites. The only Leicestershire record comes from Donington Park.

Threats – Removal of old trees and dead branches.

Conservation – This species requires a continuous history of old mature trees containing rotting heartwood.

Mordellidae

***Mordellistena parvula* (Gyllenhal) R pRDBK**

Habitat, Ecology & Status – A species of dry grassland. In central Europe the larvae mine the stems of mugwort. The only Leicestershire record comes from King Luds Entrenchments.

Threats – Invasion of scrub.

Conservation – This species probably requires the presence of good stands of mugwort.

Oedemeridae

***Ischnomera cinerascens* (Pandelle) R RDB2**

Habitat, Ecology & Status – Probably breeds in dead wood. Recorded from only five sites in Britain. The only Leicestershire specimen was beaten from the blossom of field maple on the southern edge of Burley Wood in 1990.

Threats – Removal of dead branches.

Conservation – More information is needed about the requirements of this rare species.

***Ischnomera cyanea* (Fabricius) Nb**

Habitat, Ecology & Status – The larvae of this species develop in rotten wood but the adults are often found on flowers. Widespread in Leicestershire in ancient deer park, woodland and hedgerows.

Threats – Removal of old trees and dead branches.

Conservation – This species requires the presence of old mature trees which contain rotten wood.

***Anthicus bifasciatus* (Rossi) R Nb now *Omanadus bifasciatus* (Rossi)**

Habitat, Ecology & Status – A species associated with rotting vegetation usually in agricultural situations. The only recent record in Leicestershire comes from a dung heap near Clipsham but is quite likely to be more widespread in the east of the county.

Threats – None.

Conservation – This species is unlikely to need any special conservation measures.

Aderidae

***Aderus oculatus* (Paykull) R Nb now *Euglenes oculatus* (Paykull)**

Habitat, Ecology & Status – The larvae of this species develop in rotten wood. In Leicestershire this species seems to be confined to the three ancient woodland sites at Donington Park, Bradgate Park and Croxton Park.

Threats – Removal of dead branches.

Conservation – This species requires the presence of dead branches on mature trees possibly in an open park situation.

Cerambycidae

***Aromia moschata* (Linnaeus) (Musk Beetle) R D Nb**

Habitat, Ecology & Status – Develops in the living branches of willows and salallows. Recorded relatively widely in the 19th century in Leicester in osier beds, but this century it has only been seen in the abandoned osier bed near Pillings Lock in Quorn where it breeds almost exclusively in *Salix viminalis*.

Threats – Lack of management and decline of osier beds.

Conservation – This species requires active management of its host trees in order to promote new growth for the larvae to use after a few years.

***Anaglyptus mysticus* (Linnaeus) Nb**

Habitat, Ecology & Status – Breeds in dry dead wood of a variety of trees. Found in the wider countryside as well as recognised ancient woodland sites. Apparently widespread in Leicestershire.

Threats – Removal of old trees and dead branches.

Conservation – This species benefits from the maintenance of dead wood in hedgerows.

***Phytoecia cylindrica* (Linnaeus) R Nb**

Habitat, Ecology & Status – The larvae develop in the stems of umbellifers on roadside verges and field margins. The only recent Leicestershire record comes from a roadside verge at Great Bowden (J.G. Woodhead).

Threats – Given the abundance of its host plants it is uncertain why this species should be so rare.

Conservation – More information is needed about the requirements of this species.

Chrysomelidae

Donacia impressa Paykull R Na

Habitat, Ecology & Status – A reed beetle whose larvae develop in the roots of aquatic plants. *D. impressa* is reported to be associated with *Scirpus lacustris* but the only recent Leicestershire record comes from a shallow, well vegetated pool by the River Eye at Melton.

Threats – Drainage, possibly cleaning out of ponds and rivers.

Conservation – More information is needed about the requirements of this species.

Plateumaris affinis (Kunze) R Nb

Habitat, Ecology & Status – A reed beetle associated with sedges. The only recent Leicestershire record comes from a cut-off by the River Wreake at The Wailes Nature Reserve (A.B. Drane).

Threats – Drainage, infilling and cleaning out of ponds.

Conservation – More information is needed about the requirements of this species.

Cryptocephalus aureolus Suffrain R Nb

Habitat, Ecology & Status – Associated with hawkweeds (*Hieracium spp.*) in grassland. Recently recorded in Leicestershire only from Geeston Quarry where it can be quite abundant.

Threats – Invasion by scrub especially at Geeston Quarry.

Conservation – Grassland areas at Geeston Quarry need to be maintained by management of the hawthorn scrub.

Cryptocephalus bipunctatus (Linnaeus) R Nb

Habitat, Ecology & Status – Found in edge habitats involving trees and bushed e.g., open scrub. It is believed to feed on a variety of trees. The only recent Leicestershire record comes from Geeston Quarry.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

Cryptocephalus querceti Suffrain R RDB2

Habitat, Ecology & Status – An oak feeder which is confined to prime ancient woodland sites. Recorded in Britain recently only from Windsor Forest, Sherwood Forest and Donington Park.

Threats – The decline of ancient pasture woodland sites.

Conservation – More information is needed about the requirements of this species.

***Chrysolina oricalcia* (Muller) R Nb**

Habitat, Ecology & Status – Feeds on umbellifers in a variety of habitats. The only recent Leicestershire record comes from a grass verge in Grace Dieu Wood.

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Chrysolina sanguinolenta* (Linnaeus) R Na**

Habitat, Ecology & Status – Associated with the Common Toadflax, *Linaria vulgaris*, often on disturbed ground. The only Leicestershire record comes from Essendine Railway Sidings.

Threats – Vegetational succession.

Conservation – This species requires its habitat to be maintained in open condition either by grazing or scraping.

***Chrysolina violacea* (Muller) R Nb**

Habitat, Ecology & Status – Associated with Ground Ivy and possibly bedstraws. The only Leicestershire record comes from established grassland along The Drift.

Threats – Agricultural improvement.

Conservation – The sensitivity of this species to either scrub invasion or disturbance is unknown.

***Lochmaea suturalis* (Thomson) E**

Habitat, Ecology & Status – Feeds on heather and recorded in Leicestershire from five heathland sites in Charnwood Forest and North-west Leicester.

Threats – Although one of the more common heather species in Leicestershire there must be long term doubts about the future of this species due to scrub invasion and subsequent loss of heather.

Conservation – A programme of active management needs to be introduced to selected heathland sites in order to arrest invasion by bracken and scrub.

***Phyllotreta aerea* Allard R Nb now *Phyllotreta punctulata* (Marsham)**

Habitat, Ecology & Status – A flea beetle associated with crucifers in ruderal communities on highly disturbed ground. Recorded recently in Leicestershire from a scraped area at Stonesby Quarry and an urban demolition site at the Cattle Market in Leicester.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – This species requires its sites to be maintained in an early stage of vegetational succession.

***Apthona nigriceps* (Redtenbacher) R Na**

Habitat, Ecology & Status – A flea beetle associated with Meadow Cranesbill. The only recent Leicestershire record comes from Misterton Marsh. It has not so far been found on Meadow Cranesbill in the Soar Valley.

Threats – Meadow Cranesbill is fairly widely distributed in Leicestershire and it is unknown why *A. nigriceps* is apparently so restricted.

Conservation – More information is needed about the status and requirements of this species in Leicestershire.

***Longitarsus brunneus* (Duftschmid) R Nb**

Habitat, Ecology & Status – A flea beetle associated with Meadow Rue, *Thalictrum flavum*, which grows in damp grassland. Recorded recently in Leicestershire only from Narborough Bog Nature Reserve where it is abundant on a thriving colony of its food-plant.

Threats – Control of Meadow Rue at Narborough Bog, drainage, agricultural improvement

Conservation – More work is needed to establish the status of this species in Leicestershire.

***Longitarsus dorsalis* (Fabricius) R Nb**

Habitat, Ecology & Status – A flea beetle associated with Ragwort on disturbed ground especially limestone quarries. Recorded in Leicestershire from Geeston and North Luffenham Quarries.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – This species requires its sites to be maintained in an early stage of vegetational succession.

***Longitarsus parvalus* (Paykull) R Na**

Habitat, Ecology & Status – A flea beetle probably associated with Flax in chalk grassland and disturbed ground. The only recent Leicestershire record comes from two scraped areas at Stonesby Quarry.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – This species probably requires its sites to be maintained in an early stage of vegetational succession.

***Epitrix atropae* Foudras R Nb**

Habitat, Ecology & Status – A flea beetle associated with Deadly Nightshade, *Atropa belladonna*. Recorded in Leicestershire only from Ketton Quarry.

Threats – Removal of its food-plant

Conservation – The apparent rarity of this species in Leicestershire is linked to the rarity of its food-plant.

***Mantura chrysanthemi* (Koch) R Na**

Habitat, Ecology & Status – A flea beetle associated with Sheep's Sorrel, *Rumex acetosella*, often on heathland. The only Leicestershire record comes from Lount Meadow.

Threats – Possibly changes in the management of heathland, although the only known Leicestershire site is neutral grassland rather than heathland.

Conservation – The sites where this species occurs need to be maintained in an open condition.

***Cassida prassina* Illiger Nb**

Habitat, Ecology & Status – A tortoise beetle associated with Yarrow, *Achillea millefolium*. Recorded in Leicestershire from Geeston Quarry (H.J. Mousley) and King Luds Entrenchments. Despite the wide distribution of its food-plant, *C. prassina* may be restricted to limestone sites in Leicestershire.

Threats – Invasion of scrub, unsuitable developments of its sites.

Conservation – The sites where this species occurs need to be maintained in an open condition.

Anthribidae

***Platyrhinus resinosus* (Scopoli) Nb**

Habitat, Ecology & Status – Associated with the fungus *Daldinia concentrica*, which often grows on ash. Apparently widespread in Leicestershire in the host fungus on hedgerow trees.

Threats – Removal of old trees and dead branches.

Conservation – This species depends on the continual presence of large numbers of mature ash trees in the wider countryside.

***Anthribus fasciatus* (Forster) R Na**

Habitat, Ecology & Status – A predator of scale insects on tree bark. The only recent Leicestershire record comes from a hedgerow in Lockington Marsh.

Threats – Destruction of hedgerows.

Conservation – More information is needed about the status of this species in Leicestershire.

Attelabidae - Weevils

Rhynchites cavifrons Gyllenhal R D Nb now *Lasiorhynchites cavifrons* Gyllenhal

Habitat, Ecology & Status – Associated with oak and hazel in deciduous woodland. There are 19th century records from Sheet Hedges Wood, Swithland Wood and Ambion Wood and a 1960s record from Piper Wood, but the only recent Leicestershire record comes from Buddon Wood.

Threats – The clear felling and quarrying at Buddon Wood have undoubtedly removed most of the habitat available for this species at its only known Leicestershire locality.

Conservation – The survival of this species at Buddon Wood probably depends on the fate of the remaining semi-natural woodland there. More information is needed about the present status of this species in Leicestershire.

Apionidae

Apion cineraceum Wencker R Na now *Squamapion cineraceum* Wencker

Habitat, Ecology & Status – A grassland species associated with Selfheal, *Prunella vulgaris*. The only Leicestershire record comes from North Luffenham Quarry.

Threats – Scrub invasion, unsympathetic development of its sites.

Conservation – This species requires the maintenance of open grassland containing a healthy population of Selfheal.

Apion difforme Ahrens R Nb now *Protapion difforme* (Germar)

Habitat, Ecology & Status – It is not known whether the foodplant of this grassland species is Knotgrass or Clover. Recorded recently in Leicestershire from a grass field at Stonesby Quarry

Threats – Unknown.

Conservation – More information is needed about the status and requirements of this species in Leicestershire.

Apion filirostre Kirby R Nb now *Protapion filirostre* (Kirby)

Habitat, Ecology & Status – Associated with Black Medick, *Medicago lupulina*, in calcareous grassland. The only Leicestershire record comes from Ketton Quarry.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – This species requires the maintenance of open grassland.

Curculionidae - Weevils

***Otiorhynchus porcatus* (Herbst) R Nb**

Habitat, Ecology & Status – Found in a variety of habitats including gardens where it has been associated with Primroses. Recorded in Leicestershire exclusively from pitfall traps in a Leicester garden where it has been taken in numbers between 1979 and 1984 (J. Owen).

Threats – None known.

Conservation – No practical conservation measures can presently be identified as appropriate for this species.

***Caenopsis fissirostris* (Walton) R Na**

Habitat, Ecology & Status – Feeds on a variety of plants. Leicestershire records are confined to Charnwood Forest where there are recent records from High Sharpley and Bardon Hill and several older records from Bradgate Park.

Threats – Possibly invasion by scrub.

Conservation – This species may benefit from the restoration of heathland sites to more open conditions.

***Trachyploeus aristatus* (Gyllenhal) R Nb**

Habitat, Ecology & Status – A grassland species which feeds on a variety of plants. Recent records come from King Luds Entrenchments and The Drift. There are some very old records (1848 & 1849) from Bradgate Park.

Threats – Vegetational succession, agricultural improvement.

Conservation – Sites where this species occurs need to be maintained in an open condition.

***Omiamima mollina* Boheman R RDB3 (Na)**

Habitat, Ecology & Status – Feeds on a variety of plants in grassland. The only Leicestershire record comes from pasture at Harby Hills, but there are several old specimens in the museum from Thringstone (S.O. Taylor).

Threats – Probably agricultural improvement.

Conservation – This species seems to be tolerant of grazing.

***Brachysomus echinatus* (Bonsdorff) Nb**

Habitat, Ecology & Status – Feeds on a variety of plants normally in calcareous grassland. Recorded in Leicestershire from King Luds Entrenchments and The Drift and on acid soils at Moira Junction.

Threats – Agricultural improvement, vegetational succession.

Conservation – The areas where this species occurs need to be maintained in an open condition.

***Strophosoma nebulosum* Stephens RE**

Habitat, Ecology & Status – A heather feeder with recent Leicestershire records from Bardon Hill and High Sharpley.

Threats – Scrub invasion leading to loss of heather.

Conservation – Active management should be introduced to heathland sites to stop the encroachment of bracken.

***Strophosoma sus* Stephens RE**

Habitat, Ecology & Status – A heather feeder with recent records only from high Sharpley.

Threats – Scrub invasion leading to loss of heather.

Conservation – Active management should be introduced to heathland sites to stop the encroachment of bracken and scrub.

***Leiosoma oblongulum* Boheman R Nb**

Habitat, Ecology & Status – A woodland species which is probably associated with members of the buttercup family. Recorded in Leicestershire in 1977 from Priors Coppice (C. Johnson).

Threats – Unknown.

Conservation – More information is needed about the requirements of this species.

***Magdalis carbonaria* (Linnaeus) R Nb**

Habitat, Ecology & Status – Associated with birch, where the larvae develop in twigs and branches. Recorded in Leicestershire from Spring Wood and Pickworth Great Wood.

Threats – Unknown.

Conservation – More information is needed about why this species is rare in Leicestershire from Great Glen and Stanford Reservoir.

***Dorytomus ictor* (Herbst) R Nb**

Habitat, Ecology & Status – Associated with poplars. Recorded in Leicestershire from Great Glen and Stanford Reservoir.

Threats – None.

Conservation – More information is needed about the status of this species in Leicestershire.

Notaris bimaculatus* (Fabricius) R Nb now *Tournotaris bimaculata* (Fabricius) also now in **Eirrhinidae*

Habitat, Ecology & Status – Associated with tall riverside plants. Recorded very rarely in Leicestershire from sites along the River Soar near Loughborough.

Threats – Removal of exposed sediments bars during river channel management schemes.

Conservation – The conservation of exposed sediments in slow-flowing rivers needs to be included in river management plans.

Notaris scirpi* (Fabricius) R D Nb also now in **Eirrhinidae*

Habitat, Ecology & Status – Associated with horsetails, *Equisetum* spp. Recent records all come from grasslands in the Lount area including a restored area at Lount Tip. However, it was widely recorded across the county in the 19th century.

Threats – Probably agricultural improvement and drainage.

Conservation – More information is needed about the requirements of this species.

***Orthochaetes setiger* (Beck) R Nb**

Habitat, Ecology & Status – Feeds on a variety of plants in open habitats on calcareous and sandy soil. Recorded in Leicestershire from King Luds Entrenchments and North Luffenham Quarry.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – Sites where this species occurs need to be managed in order to retard the vegetational succession.

***Neophytobius quadrinodosus* (Gyllenhal) R RDB3 (Na)**

Habitat, Ecology & Status – Associated with members of the dock family in calcareous grassland. The only Leicestershire record comes from Big Pits, Clipsham (P. Kirby).

Threats – Vegetational succession, unsympathetic development of its sites

Conservation – Sites where this species occurs need to be managed in order to retard the vegetational succession.

***Micrelus ericae* (Gyllenhal) RE**

Habitat, Ecology & Status – A heather feeder with recent Leicestershire records from Newfield Colliery and High Sharpley.

Threats – Scrub invasion leading to loss of heather.

Conservation – Active management should be introduced to heathland sites to stop the encroachment of bracken and scrub.

***Ceutorhynchus constrictus* (Linnaeus) R Nb**

Habitat, Ecology & Status – Associated with Garlic Mustard, *Alliaria petiolata*. Recorded recently only from Narborough Bog, where it was found on Garlic mustard growing in a shaded part of a meadow.

Threats – None known.

Conservation – More information is required about why this species is rare in Leicestershire.

***Trichosirocalus barnevillei* Brisout R Nb**

Habitat, Ecology & Status – Associated with Yarrow, *Achillea millefolium*, on disturbed ground. Recorded in Leicestershire only from King Luds Entrenchments and Cottesmore Gullet.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – Sites where this species occurs should be maintained in an open condition.

***Stenocarus ruficornis* (Stephens) R Nb**

Habitat, Ecology & Status – Associated with poppies on disturbed ground. The only recent Leicestershire record comes from a scraped area at Stonesby Quarry.

Threats – Vegetational succession.

Conservation – This species and its foodplant require freshly disturbed ground.

***Baris lepidii* Germar R Na now *Aulacobaris lepidii* (Germar)**

Habitat, Ecology & Status – Associated with Wintercress, *Barbarea spp.* Along riverbanks. Recorded recently from flood refuse along the River Soar at Sileby and the River Eye at Melton.

Threats – Regrading of riverbanks during flood alleviation works.

Conservation – The foodplant of this species grows in fairly open situations.

***Tychius lineatulus* Stephens R Na**

Habitat, Ecology & Status – A grassland species associated with clovers. The only Leicestershire record comes from King Luds Entrenchments.

Threats – Vegetational succession, unsympathetic development of its sites.

Conservation – Sites where this species occurs should be maintained in an open condition.

***Gymnetron villosulus* (Gyllenhal) R Nb**

Habitat, Ecology & Status – A wetland species associated with water speedwells, *Veronica catenate* and *V. anagallis-aquatica*. The only Leicestershire record is of a single specimen found on a large area of exposed sediment by the River Soar at Barrow. This area has been well studied over several years and *G. villosulus* is unlikely to be established at this particular site.

Threats – Removal of exposed sediments during flood alleviation works.

Conservation – The conservation of exposed sediments in slow-flowing rivers needs to be included in river management plans. The site where this species was found has now been partly removed by such a scheme. More information is required about the status of this species in Leicestershire.

***Rhynchaenus pratensis* (Germat) R pRDBK**

Habitat, Ecology & Status – A grassland species associated with the Common Knapweed, *centaurea nigra*. The only Leicestershire record comes from North Luffenham Quarry

Threats – Invasion by scrub, unsympathetic development of sites.

Conservation – An open sward needs to be maintained at sites where this species occurs.

***Leperisinus orni* (Fuchs) R Nb now *Hylesinus orni* (Fuchs)**

Habitat, Ecology & Status – Found in dead ash twigs. Recorded in Leicestershire in 1977 from Owston Wood (H. Mendel).

Threats – Removal of dead branches from trees.

Conservation – Dead branches on ash growing in woods and hedgerows should be retained.

***Kissophagus hederæ* (Schmitt) R Nb**

Habitat, Ecology & Status – Found in dead Ivy stems. Recorded in Leicestershire from the Outwood sand ivy growing on a riverside willow at Barrow.

Threats – Removal of ivy from trees.

Conservation – Old Ivy growing on hedgerow trees should be recognised as a valuable resource for nature conservation.

***Dryocoetinus alni* (Georg) R RDB3 (Na)**

Habitat, Ecology & Status – Occurs under the bark of several trees. The only Leicestershire record comes from Swithland Wood where it was found under the bark of Small-leaved Lime. Like other bark beetles it tends to occur in freshly dead branches.

Threats – Woodland clearance, possibly over zealous tidying up of fallen branches.

Conservation – This species appears to be prospering under the present management of Swithland Wood.

***Ernoporicus caucasicus* Lindermann R RDB1**

Habitat, Ecology & Status – Found under the bark of Limes, especially Small-leaved Lime, *Tilia cordata*. Considered to be a remnant of the beetle fauna of primeval woodland where *T. cordata* was probably the most common tree species in parts of lowland England. Recorded in Leicestershire from Swithland Wood in the 1950s and found to be abundant there in 1993.

Threats – Any decline of the Small-leaved Lime population in Swithland Wood.

Conservation – This species appears to be prospering under the present management of Swithland Wood.

***Ernoporicus fagi* (Fabricius) R Na**

Habitat, Ecology & Status – Found under the bark of Beech. Considered to be an ancient woodland species. Recorded in Leicestershire from South Wood (A.B. Drane).

Threats – Removal of dead and dying branches.

Conservation – It is necessary to maintain a healthy supply of dead wood at sites where this species occurs.

SECTION 2

HABITATS OF IMPORTANCE FOR BEETLE CONSERVATION

Beetle communities

Because there are so many species of beetles, their conservation is often approached in terms of beetle communities. Examination of the Leicestershire red data book list leads to the identification of several important beetle communities in need of special conservation measures. They can be related to specific groups of habitats listed in table 1. This section of the book looks at these habitats, lists their Leicestershire red data book species and key sites and gives some notes on conservation strategies and best practices in management. (See also Kirby 1992).

The conservation strategies recommended fall into three main categories. A traditional site-based strategy relies on identifying key sites which are often relicts of an older landscape and then giving them, some form of protection. Ideally, they should be protected by designating them as nature reserves so that a suitable management programme can be put into action. Communities which are more evenly scattered throughout the wider countryside are best conserved by establishing and promoting good management practices. These would result in a richer and more interesting environment everywhere if they were taken up by farmers, highway authorities and all those responsible for the day-to-day care of town and countryside. Finally, it is now acknowledged that river catchments are an integrated system where changes to one part of a river can have a large effect on sites elsewhere. The conservation of floodplain habitats is best undertaken by taking a catchment-wide perspective.

Deciduous Woodland

Dead wood and associated fungi

This community is one of those which has been most affected by human activities. It played an important role in the primaeval forest by recycling nutrients and several species are well represented in subfossil remains dating back to the early bronze age. However, many of these same species are now either extinct in Britain or extremely rare. Their decline is the result of five thousand years of woodland clearance coupled with management of the remaining woodland in a way that removed the dead wood upon which this community depends. Consequently, this community is one of those in most need of special conservation measures. Several species in this community have been widely used as ancient woodland indicators (see Harding & Rose 1986).

The dead wood community can be divided into further communities which exploit different microhabitats. Many species are found exclusively under bark. Some species feed on fungal fruiting bodies growing out of the wood. Other species feed on rotten wood, especially when infested with fungal mycelia. Species feeding on rotten wood are often very fussy in their requirements. Some species are only found in wood mould produced by a specific fungus. They tend to be sensitive to changes in humidity and many rare species are only found in the roots or the centre of large trunks and branches where conditions are humid and relatively constant. Because large trees and boughs

Table 1: Habitats supporting important beetle communities

Habitat	No. red data book species	Recommended strategy		
		Site based	River catchment	Wider countryside
Deciduous woodland				
Dead wood etc.	71	*		*
Ground layer	8			
Living plants	5			
Coniferous woodland	2			
Unimproved grassland				
Dry grass/open scrub	14			*
Damp grassland	16	*	*	
Disturbed sites				
Limestone quarries	43	*		
Urban demolition sites	11	*		*
Heathland	14	*		
Gravel pits/quarry pools	16	*		
Wetland Sites/Rivers				
Fens/detritus ponds	27	*		*
Springs/flushes	7			*
Carr	37	*	*	*
Silt-ponds	10			*
Lakes and canals	4			*
Slow-flowing rivers	36	*	*	
Shingle banks on rivers	5	*	*	
Fast-flowing streams	16	*	*	*
Specialist communities				
Underground fungi	3			
Mammal nests	12			*
Ant nests	24			*
Dung	4			*
Dung heaps etc.	3			*

containing rotten wood are rare in the modern countryside many of these species are restricted to a scattering of prime sites where there has been a continuity of management which produces large mature trees. The best sites in Leicestershire are mediaeval deer parks containing old pollards. Pollarded willows along rivers and streams can also support members of this community.

Pollarding not only prolongs the life of a tree but creates a bole containing a large volume of rotting wood in an environment protected from damaging changes in humidity. Cavities eventually form which can attract hole-nesting birds creating ideal conditions for yet another subset of the rotten wood beetle community. If pollarding is discontinued the branches become too heavy and their weight splits the bole open allowing its contents to dry out and become unsuitable for the majority of rotten wood species (see also Speight 1989).

Species associated with fungal fruiting bodies and bark tend to be more widespread in the countryside but the rarer species of these habitats tend to occur most often at the same prime sites as the rotten wood species. Dead branches are important for these communities and fallen branches should always be left intact and on site. The practice of sawing up fallen branches should

be avoided as this destroys any rotten wood habitat inside the branch. There is a succession of species which exploit the bark of a dead branch. Bark beetles arrive when the branch is freshly dead to feed on the bottom layer of the bark or associated fungi. They are sometimes specific to a particular species of tree. Species of other families follow and these are often predators either on bark beetle larvae or other insects. Very few beetle species remain when after a couple of years, the bark becomes loose and colonised by woodlice etc. Consequently, any habitat supporting a rich community of beetles living under bark requires a continually renewed resource of dead wood.

Conservation strategy

The dead wood community contributes a large number of species to the red data book beetle list. Leicestershire contains sites of national importance for the conservation of dead wood beetles. Major priorities are the protection of these sites and management initiatives to ensure a continuity of their dead wood resource in the future.

The most important sites are pasture-woodland areas with a continuity of habitat stretching back to the mediaeval period. When high-forest woodland has been investigated a good deal of interest also has been found there. Priorities for survey work should include further work in this habitat at ancient woodland sites as well as a proper study of Croxton Park and an investigation of Bosworth Park where there were several interesting 19th century records.

Away from the prime sites there is also a wealth of interest associated with mature trees in hedgerows in the wider countryside. At present the value of the dead wood in these trees is not widely recognised. More education is needed in order to publicise their importance and to promote good practices in their management.

Table 2: Key sites for beetles of dead wood and associated habitats

Key sites	No. red data book species	Key sites	No. red data book species
Bradgate Park	14	River Soar	5
Buddon Wood	2	Saddington Reservoir	4
Burley Wood	10	South Wood	6
Croxton Park	8	Swithland Wood	7
Donington Park	24	Ulverscroft Nature Reserve	4
Lockington Marsh	4		

Table 3: Red data book species of dead wood and associated habitats (No = 72)	
Family	Species
Histeridae	<i>Plegaderus dissectus</i> <i>Abraeus granulum</i>
Ptilidae	<i>Nossidium pilosellum</i> <i>Ptendium gressneri</i>
Scydmaenidae	<i>Microscydmus minimus</i>
Scaphidiidae	<i>Scaphisoma boleti</i>
Staphylinidae	<i>Quedius microps</i> <i>Quedius scitus</i> <i>Quedius ventralis</i> <i>Quedius xanthopus</i> <i>Sepedophilus bipunctatus</i> <i>Gyrophæna angustata</i> <i>Gyrophæna joyi</i> <i>Gyrophæna lucidula</i> <i>Atheta basicornis</i> <i>Oxypoda recondite</i> <i>Ischnoglossa obscura</i> <i>Aleochara diversa</i> <i>Aleochara fumata</i>
Pselaphidae	<i>Biploporus minutus</i> <i>Euplectus bonvoloiri</i> <i>Euplectus kirbyi</i> <i>Plectophloeus nitidus</i> <i>Batrisodes venustus</i>
Buprestidae	<i>Agrilus laticornis</i> <i>Agrilus pannonicus</i>
Cantharidae	<i>Malthinus frontalis</i> <i>Malthodes fibulatus</i>
Lycidae	<i>Platycis minuta</i>
Dermestidae	<i>Megatoma undata</i> <i>Ctesias serra</i>
Anobiidae	<i>Ptinomorphus imperialis</i>
Ptinidae	<i>Ptinus sexpunctatus</i>
Cleridae	<i>Korynetes caeruleus</i>
Lymexylidae	<i>Hylecoetus dermestoides</i>
Nitidulidae	<i>Epuraea angustula</i>
Rhizophagidae	<i>Rhizophagus nitidulus</i> <i>Rhizophagus picipes</i>
Cuculidae	<i>Notolaemus unifasciatus</i>

Lathridiidae	<i>Lathridius consimilis</i> <i>Enicmus brevicornis</i> <i>Enicmus rugosus</i> <i>Corticaria alleni</i>
Cissidae	<i>Cis festivus</i>
Mycetophagidae	<i>Mycetophagus piceus</i>
Colydiidae	<i>Synchita humeralis</i> <i>Aulonium trisulcum</i>
Tenebrionidae	<i>Elodona agriola</i> <i>Scaphidema metallicum</i> <i>Prionychus ater</i>
Salpingidae	<i>Lissodema quadripustulatus</i>
Melandryidae	<i>Hallomenus binotatus</i> <i>Orchesia micans</i> <i>Orchesia minor</i> <i>Anisoxya fuscula</i> <i>Phloiotyra vaudoueri</i> <i>Conopalpus testaceus</i>
Scraptidae	<i>Scraptia testacea</i>
Oedemeridae	<i>Ischnomera cinerascens</i> <i>Ischnomera cyanea</i>
Aderidae	<i>Aderus oculatus</i>
Cerambycidae	<i>Aromia moschata</i> <i>Anaglyptus mysticus</i>
Chrysomelidae	<i>Cryptocephalus querceti</i>
Anthribidae	<i>Platyrhinus resinosus</i>
Curculionidae	<i>Magdalis carbonarius</i>
Scolytidae	<i>Leperisinus orni</i> <i>Kissophagus hederæ</i> <i>Dryocoetinus alni</i> <i>Ernoporicus caucasicus</i> <i>Ernoporicus fagi</i>

Ground layer (rotting vegetation and associated fungi)

This community has been little studied in recent years. However old records from Buddon Wood indicate that there used to be an interesting fauna associated with leaf litter and fallen twigs. It would be of value to find out how much of this fauna has survived and whether there is similar interest in other woodlands.

Conservation strategy

Because of the lack of methodical study of this community, no key sites can be identified. Furthermore, it is difficult to give any advice on best practices in woodland management. Clearly some basic investigation of this community in Leicestershire is required.

Table 4: Red data book species of the woodland ground layer (No = 8)

Family	Species
Staphylinidae	<i>Proteinus crenulatus</i>
	<i>Omalium exiguum</i>
	<i>Omalium rugatum</i>
	<i>Philonthus pseudoparcus</i>
	<i>Ocypus nero</i>
	<i>Atheta pilicornis</i>
Pselaphidae	<i>Euplectus duponti</i>
Cerylonidae	<i>Anommatus duodecimstriatus</i>

Living plants

This community contains species that feed on living plants and associated predators. There are many species in this group which are widely distributed and common in woodland and hedgerows. Three out of the four red data book species have been recorded from hedgerows and non-woodland habitats. However, there are 19th century records of national rarities from Buddon Wood, Swithland Wood and Sheet Hedges Wood. The local extinction of *Calosoma inquisitor*, the specialist tree-climbing predator on caterpillars which used to occur at Buddon Wood, shows that this community is not immune to threats such as woodland clearance.

Conservation strategy

Further investigation of this community is required in order to discover how well the rich 19th century woodland fauna has survived.

Table 5: Woodland red data book species living on plants (No= 5)

Family	Species
Staphylinidae	<i>Rhagonycha lutea</i>
Pselaphidae	<i>Anthribus fasciatus</i>
Cerylonidae	<i>Rhynchites cavifrons</i>
	<i>Leisoma oblongulum</i>
	<i>Dorytomus ictor</i>

Coniferous woodland

Because conifers are not native to Leicestershire, the conservation of their associated fauna is often given low priority. However, several species of beetles in Leicestershire depend on conifers and the potential interest of some of the old plantations in the Charnwood Forest should not be discounted.

Table 6: Red data book species of coniferous woodland (No= 2)

Family	Species
Carabidae	<i>Pterostichus angustatus</i>
	<i>Dromius angustus</i>

Unimproved grassland

Dry grassland and open scrub

This community is found in somewhat transitional habitats such as un-grazed or lightly grazed grassland reverting to scrub. There is no clear dividing line between this habitat and more disturbed grassland habitats and many of the red data book species listed below are recorded from the edges and neglected comers of sites such as disused quarries which are better known for their more disturbed habitats. The decline in active management of heathland has resulted in this community becoming prevalent in most former heathland sites.

Three local red data book species in this community and several candidates for inclusion on grounds of local rarity are associated with grass road verges. An entomological survey of grass verges may reveal them to have more interest for beetle conservation than has been supposed.

Conservation strategy

No key sites can be identified for this group. Because this community tends to occur in a successional stage taking over from more interesting communities many conservation programmes are designed to prevent its inception. However, in sites where it is necessary to arrest or reverse the process of vegetational succession some consideration of this community should be achieved by only partially clearing scrub and rank grassland instead of total destruction. The potential value of grass verges should be investigated.

Table 7: Dry grassland and open scrub red data book species (No = 14)

Family	Species
Staphylinidae	<i>Sunius melanocephalus</i>
	<i>Aleochara ruficornis</i>
Buprestidae	<i>Trachys scrobiculatus</i>
Lampyridae	<i>Lampyrus noctiluca</i>
Coccinellidae	<i>Scymnus schmidtii</i>
Cerambycidae	<i>Phytoecia cylindrica</i>
Chrysomelidae	<i>Cryptocephalus bipunctatus</i>
	<i>Crysolina oricalcia</i>
	<i>Crysolina violacea</i>
	<i>Mantura chrysanthemi</i>
Apionidae	<i>Apion difforme</i>
Curculionidae	<i>Caenopsis fissirostris</i>
	<i>Ceutorhynchus constrictus</i>
	<i>Omiomima mollina</i>

Damp grassland

Some species in this community also occur in fens or on exposed riverine sediments. Because so little comparative work has been done between damp grassland sites it is not known how many different types of local damp grassland beetle communities there are. Unimproved alluvial grasslands in river valleys appear to have a characteristic and interesting fauna. Acid grasslands in Charnwood Forest are likely to have a somewhat different beetle fauna. Studies of reseeded and intensively grazed meadows have found them to be of less conservation value. Therefore, it is considered that the best examples of this community are probably confined to the small minority of meadows which have escaped with only light agricultural improvements.

Conservation strategy

This community is best conserved by a site-based strategy which involves identifying the best sites across the range of variation in community type and ensuring a continuity of management at each site. The identification of key sites is still at an early stage. It is still unclear how their conservation value associated with beetles and other invertebrates will match floristic value. It should also be recognised that alluvial grasslands are dependent on flooding from rivers and need to be considered when formulating river management programmes.

Table 8: Key sites for beetles of damp grassland

Key sites	<i>No red data book species</i>
Loughborough Big Meadow	6
Lount Meadow SSSI (no 2)	4
Seaton Meadow	5

Table 9: Dry grassland and open scrub red data book species (No = 16)

Family	<i>Species</i>
Carabidae	<i>Carabus monilis</i>
	<i>Dyschirius globosus</i>
	<i>Bembidion gilvipes</i>
	<i>Pterostichus rhaeticus</i>
	<i>Pterostichus versicolor</i>
	<i>Anisodactylus binotatus</i>
	<i>Chlaenius nigricornis</i>
Staphylinidae	<i>Anotylus insectatus</i>
	<i>Falagria sulcatula</i>
	<i>Atheta obtusangula</i>
	<i>Ilyobates subopacus</i>
Elateridae	<i>Fleutiauxellus quadriputulatus</i>
	<i>Ctenicera pectinicornis</i>
Chrysomelidae	<i>Apthona nigriceps</i>
	<i>Longotarsus brunneus</i>
Curculionidae	<i>Grypus equiseti</i>

Disturbed sites in an early stage of vegetational succession

The communities at these sites are dominated by pioneer species whose life cycles and physiologies are geared to fast reproduction and long-range dispersal. Although most ground beetles are normally predacious, in these sites a large proportion of species are specialist seed-eaters making use of the prolific seed production of the ruderal plants that live there. Many species are dependent on patches of bare soil which heat up quickly in the summer and enable species to become active and complete their life cycles more quickly.

Sites of greatest value tend to have thin or absent top soils. These conditions delay vegetational succession and prolong the period when conditions are suitable for a pioneer fauna. Such conditions are generated in Leicestershire in three main ways. Firstly unfilled quarries contain areas of bedrock and spoil which can remain suitable for several years. Limestone quarries tend to have a particularly rich beetle fauna. Secondly urban and post-industrial demolition sites often contain areas of rubble and compacted soil which retain areas of bare ground and a ruderal plant community for some time. Thirdly traditionally managed heathland on sandy soils contained areas of open ground which were maintained by grazing pressure.

Other disturbed systems on more productive soils such as arable fields, allotments and gardens tend not to support such an interesting or diverse fauna.

It is unclear how separate are the communities of limestone quarries, urban demolition sites and heathland. However, because each type of site faces different sets of threats and opportunities they are dealt with separately below. When quarrying activities result in the formation of a pool or lake then a quite different aquatic and semi-aquatic community develops and this is treated as a fourth category,

Limestone quarries

A large number of red data book species are associated with disturbed sites on the oolitic limestone. Most of these sites are on disused quarry sites but similar communities are found at Essendine on disused railway sidings and an abandoned asphalt car park, at King Luds Entrenchment on areas of concrete which acted as bases for a wartime installation and at The Drift which receives disturbance from farm traffic.

Sometimes these sites are viewed as derelict and unproductive and their potential nature conservation potential is unrecognised. In many cases there is economic pressure to use them for landfill. Even when they are designated for nature conservation as at Ketton Grange Quarry natural succession leads to a slow decline in interest as areas of bare ground disappear and scrub and rank grassland supersede a diverse ruderal plant community. Conservationists are rarely bold enough (or rich enough) to engage in the kind of active management needed to arrest or reverse this succession. Schemes involving the cutting back of hawthorn scrub merely encourage further growth. Actions such as the mechanical scraping recently carried out at Stonesby Quarry are more likely to have a long-term beneficial effect.

Conservation strategy

A traditional site-based strategy will only work for this community if the key sites are subjected to a regular and active management programme in order to retain them in an early stage of vegetational succession. In Leicestershire this has not happened and the protected

sites that were of greatest value thirty years ago have now been superseded by more recently disturbed sites such as Geeston Quarry.

Table 10: Key sites for beetles of limestone quarries etc.

Key sites	No red data book species	Key sites	No red data book species
Big Pits	4	King Luds Entrenchments	9
Essendine Sidings	7	North Luffenham Quarry	5
Geeston Quarry	8	The Drift	9
Ketton Grange Quarry	6		

Table 11: Red data book species of limestone quarries etc. (No = 43)

Family	Species
Carabidae	<i>Cicindela campestris</i>
	<i>Notiophilus germinyi</i>
	<i>Trechus discus</i>
	<i>Calathus ambiguus</i>
	<i>Platyderus ruficollis</i>
	<i>Amara consularis</i>
	<i>Amara praetermissa</i>
	<i>Harpalus azureus</i>
	<i>Harpalus obscurus</i>
	<i>Harpalus schaubergeanus</i>
	<i>Harpalus latus</i>
	<i>Harpalus tardus</i>
	<i>Licinus depressus</i>
	<i>Metaboletus foveatus</i>
Staphylinidae	<i>Acidota cruentata</i>
	<i>Neobisnius procerulus</i>
	<i>Platydracus latebricola</i>
	<i>Alaobia scapularis</i>
	<i>Ilyobates propinquus</i>
	<i>Ocyusa nitidiventris</i>
Lampyridae	<i>Lampyris noctiluca</i>
Nitidulidae	<i>Meligethes solidus</i>
Cryptophagidae	<i>Antherophagus canescens</i>
Coccinellidae	<i>Scymnus femoralis</i>
Mordellidae	<i>Mordellistena parvula</i>
Chrysomelidae	<i>Cryptocephalus aureolus</i>
	<i>Chrysolina sanguinolenta</i>
	<i>Phyllotreta aerea</i>
	<i>Longitarsus dorsalis</i>
	<i>Epitrix atropae</i>
	<i>Cassida prassina</i>
Apionidae	<i>Apion cineraceum</i>
	<i>Apion filirostre</i>

Curculionidae	<i>Trachyploeus aristatus</i> <i>Trachyploeus asperatus</i> <i>Brachysomus echinatus</i> <i>Orthochaetes setiger</i> <i>Neophytobius quadrinodosus</i> <i>Trichosirocalus barnevillei</i> <i>Stenocarus ruficornis</i> <i>Tychius lineatulus</i> <i>Rhynchaenus pratensis</i>
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Urban demolition sites

Urban demolition sites are typically areas of former housing or industry which have been left as rough waste ground typically with piles of rubble and areas of bare ground which become colonised by ruderal plants. As with limestone quarries a regular and active management programme is required to arrest vegetational succession and preserve the conservation interest.

Very little work has been done on beetles at these sites but studies in Sheffield and Leicester have shown them to be of great potential interest. Unfortunately, the value of these sites is often unrecognised and in some cases the vegetational succession is actually accelerated as part of a landscaping scheme to make the site more aesthetically acceptable.

Conservation strategy

Urban and post-industrial demolition sites are often viewed as a symbol of economic decline and an eyesore and there is heavy pressure for redevelopment. Given the difficulties of successfully managing sites in the long term a traditional site-based system is in the present climate of opinion unlikely to be a viable option. However, in the urban environment there is a cycle of dereliction and redevelopment and the highly mobile fauna should be able to colonise new sites as they become available. If the value of these sites can be recognised by urban planners, they can be managed sympathetically pending redevelopment.

A major argument for the conservation of this community arises from the potential of demolition sites for use in education.

Table 12: Key sites for beetles of urban demolition sites	
Key sites	No red data book species
Rawdykes Power Station	6

Table 13: Red data book species of limestone quarries etc. (No = 11)

Family	Species
Carabidae	<i>Tachys parvulus</i>
	<i>Calathus erratus</i>
	<i>Platyderus ruficollis</i>
	<i>Amara convexiusculus</i>
	<i>Amara montivaga</i>
	<i>Amara ovata</i>
	<i>Amara tibialis</i>
Staphylinidae	<i>Acidota cruentata</i>
	<i>Ocyusa nitidiventris</i>
	<i>Oxypoda lurida</i>
Chrysomelidae	<i>Phyllotreta aerea</i>

Heathland

In traditionally managed heathland bare patches of ground suitable for this community used to be maintained by grazing pressure. Since the disappearance of grazing several decades ago, bracken and birch scrub have taken over most of these areas. Many heathland species which were recorded in the 19th century have not been seen recently. Consequently, this whole community is considered to be endangered. Several of the surviving heathland species are from that section of the community which is more tolerant of scrub invasion. Only in areas of thin soil around rock outcrops are conditions now suitable for the survival of most heathland species, except that at Bradgate Park patches of bare ground are maintained by heavy visitor pressure. Such erosion should be acknowledged as beneficial for the conservation of beetles and other insects such as soil-nesting mining bees and solitary wasps. Elsewhere some method of reversing the vegetational changes of recent decades should be put into action as a matter of urgency.

Conservation strategy

Because of the dangers facing this community from lack of suitable management, it should be a priority to identify sites which still contain valuable heathland communities. High Sharpley is clearly one. The heathland at Bradgate Park has not been properly surveyed recently. Other promising sites at Ratchett Hill and Charnwood Lodge Nature Reserve also need looking at.

When suitable sites have been identified, an active management programme should be instituted to arrest and reverse the vegetational succession. The fact that some of these potential sites are owned by the LRTNC and the County Council should help to make this strategy successful.

Table 14: Key sites for beetles of heathland

Key sites	No red data book species
Bradgate Park	3
High Sharpley	11
Newfields Colliery	4

Table 15: Red data book species of heathland (No = 14)

Family	Species
Carabidae	<i>Cicindela campestris</i>
	<i>Amara tibialis</i>
	<i>Bradycellus ruficollis</i>
	<i>Metabletus foveatus</i>
Staphylinidae	<i>Acidota cruentata</i>
	<i>Lamprinodes saginatus</i>
Elateridae	<i>Selatosomus aeneus</i>
Coccinellidae	<i>Scymnus schmidtii</i>
	<i>Coccinella heiroglyphica</i>
Chrysomelidae	<i>Lochmaea suturalis</i>
Curculionidae	<i>Caenopsis fissirostris</i>
	<i>Strophosoma nebulosum</i>
	<i>Strophosoma sus</i>
	<i>Micrelua ericae</i>

Gravel pits and quarry pools

Quarry pools and gravel pits attract a pioneer aquatic community analogous to the terrestrial ones. Sites are characterised by an inorganic substrate and sparse vegetation. The community that lives here shares several species with silt-ponds which also have a mainly inorganic substrate and which often form as the result of regular management of field ponds.

Conservation strategy

There is now in Leicestershire such a proliferation of gravel workings that this community is probably enjoying an unprecedented period of prosperity. Quarry pools however are rarer and small-scale pond creation schemes in disused quarries may attract an interesting and valuable fauna. Pools which are known to be of value should be protected from infilling.

Table 16: Key sites for beetles of gravel pits and quarry pools

Key sites	No red data book species
Kilby Pit	6
Neville Holt Quarry	3
Thistleton Gullet	3
Tixover Quarry	4

Table 17: Red data book species of gravel pits and quarry pools (No = 16)	
Family	Species
Carabidae	<i>Bembidion stephensi</i>
	<i>Chlaenius vestitus</i>
Haliplidae	<i>Haliphus mucronatus</i>
Dytiscidae	<i>Hydroglyphus geminus</i>
	<i>Stictonectes Lepidus</i>
	<i>Ilybius fenestratus</i>
	<i>Rhantus suturalis</i>
	<i>Dytiscus circumflexus</i>
Hydrophilidae	<i>Hydrochus elongatus</i>
	<i>Anacaena bipustulata</i>
	<i>Enochrus melanocephalus</i>
	<i>Helochaeres lividus</i>
	<i>Berosus luridus</i>
Hydraenidae	<i>Limnebius papposus</i>
Staphylinidae	<i>Brachyusa concolor</i>
Dryopidae	<i>Dryops similaris</i>

Wetland and rivers

Fens and detritus ponds

Fens are systems which usually have a relatively stable water supply. Therefore, their water levels do not change very much from winter to summer. They are well-vegetated to the extent that they often have no open water and peat is formed at most sites. In recent centuries Leicestershire probably did not contain extensive tracts of fenland like East Anglia, but it does contain small areas of fen which have developed in a variety of situations including reservoir margins, river valleys and abandoned pits and canals. In river valleys a floating raft of *Glyceria maxima* sometimes forms in cut-offs and ditches. Beds of reed and other tall aquatic plants can form around reservoirs. Great Bowden Pit contains a mire community with *Sphagnum* moss and Cotton Grass. This variation in the origin of fens has resulted in wide variations in the beetle communities found there and a proper analysis of fen communities would certainly lead to further division.

The fen beetle communities are amongst the most threatened by changes in land management. They are vulnerable to drainage, reductions in their water supply, pollution of their water supply, intensive grazing, mechanical disturbance, pond creation and natural succession. An additional factor leading to their vulnerability is the fact that many fen sites are small in area.

Detritus ponds have an organic substrate and either mossy or tussocky edges. They are either open or lightly shaded. Many of the more interesting beetles found there are also associated with fens. Whether they originate as field ponds or pits, they take some time to become established. Recently created ponds and ponds which are regularly cleaned out have a silt-pond fauna.

Conservation strategy

Because good quality fens are rare in Leicestershire it is necessary to establish which sites have a beetle fauna worthy of conservation and give those sites protection against the threats listed above. Detritus ponds are more widely dispersed in the countryside and can be conserved by promoting good practice in pond management

Table 18: Key sites for beetles of fens and detritus ponds

Key sites	No red data book species
Big Pits Pond, Clipsham	3
Charnwood Lodge Nature reserve	4
Great Bowden Pit	6
Lockington Marsh	5
Oakham Canal, Teigh	4

Table 19: Red data book species of fens and detritus ponds (No = 27)

Family	Species
Carabidae	<i>Dyschirius globosus</i>
Dytiscidae	<i>Hygrotus decoratus</i>
	<i>Hydroporus tristis</i>
	<i>Graptodytes granularis</i>
	<i>Porhydrus lineatus</i>
	<i>Copelatus haemorrhoidalis</i>
Hydrophilidae	<i>Helophorus flavipes</i>
	<i>Cercyon convexiusculus</i>
	<i>Cercyon tristis</i>
	<i>Cercyon ustulatus</i>
	<i>Helochaeres punctatus</i>
	<i>Enochrus coarctatus</i>
	<i>Enochrus ochropterus</i>
	<i>Cymbiodyta marginella</i>
	<i>Chaetarthriaseminulum</i>
Staphylinidae	<i>Stenus argus</i>
	<i>Stenus carbonaria</i>
	<i>Paederus riparius</i>
	<i>Ochtheophilum fracticorne</i>
	<i>Erichsonius cinerascens</i>
	<i>Sepedophilus pedicularis</i>
	<i>Cypha discoidea</i>
	<i>Myllaena gracilis</i>
	<i>Schistoglossa gemina</i>
	<i>Dacrilla fallax</i>
	<i>Atheta zosteriae</i>
Scirtidae	<i>Cyphon pubescens</i>

Springs and spring-fed flushes

Springs have a special partly subterranean fauna. Seepages and flushes associated with springs have a fauna which shares several of its commoner species with fens. These communities are vulnerable to disturbance especially intensive grazing and improvement for agriculture. Of particular concern is the well-meaning but misguided practice of digging ponds in spring fed flushes. The resulting ponds usually support a beetle fauna which is much less interesting than the one it replaced. As well as the beetles listed below there is an important soldier fly fauna associated with spring-fed flushes.

Conservation strategy

Undamaged springs and associated flushes are widely dispersed in the countryside but their numbers are probably declining. A faunal survey of this habitat across the county would give a useful picture of the current status of this community. The importance of this habitat needs to be more widely publicised.

Table 20: Red data book species of springs and spring-fed flushes (No = 7)

Family	Species
Dytiscidae	<i>Hydroporus longulus</i>
	<i>Hydroporus obsoletus</i>
	<i>Agabus biguttatus</i>
	<i>Agabus chalconatus</i>
Hydrophilidae	<i>Cercyon ustulatus</i>
Hydraenidae	<i>Limnibius papposus</i>
Ptiliidae	<i>Acrotrichis lucidula</i>

Carr (sites with fluctuating water levels)

Like fens these sites are often on a peaty substrate but they either dry out completely in the summer or, as at Saddington Reservoir, their water level is much reduced revealing an expanse of bare organic mud. Unlike fens they are often shaded and so they are here termed carr, but it must be stressed that the same community also occurs in the wetter parts of hay meadows and along open ditches which dry out in the summer. Carr is found in variety of situations in Leicestershire: undisturbed river cut-off's which are flooded in the Winter, reservoir margins and neglected woodland pools.

Most of the red data book species are confined to overgrown, unmanaged areas with an abundance of litter. They appear to be vulnerable to mechanical disturbance or to trampling by grazing stock. A good site probably takes a long time to become established. Although many of the best sites in Leicestershire are less than 150 years old, they probably originated in areas with similar habitats of more ancient origin. The main threats are drainage, infilling or conversion to fishing ponds etc. Although they are good breeding sites for birds, they usually lack floristic value and they are often undervalued by conservationists. In fact, tidying up by conservationists and pond restoration could be listed as potential threats to these sites.

Conservation strategy

Leicestershire has a good representation of sites of this habitat type, which appears to be

poorly recognised and maybe rarer elsewhere in Britain. Unfortunately, its conservation interest is vulnerable to the type of active management that is now easily accomplished with the widespread availability of cheap power tools and plant hire. Priority must be given to identifying important sites and giving them protection. The urgency for this is increased by the fact that most of the best sites currently have no formal protection.

Table 21: Key sites for beetles of carr

Key sites	No red data book species
Barrow Gravel Pits	9
Gravel Hole Spinney, Burton Lazars	8
Lockington Marsh	12
Loughborough Big Meadow	17
Pond Spinney, Aston Flamville	8
River Soar ditch, Quorn	11
Saddington Reservoir	18

Table 22: Red data book species of carr (No = 37)

Family	Species
Carabidae	<i>Blethisa multipunctata</i>
	<i>Bembidion gilvipes</i>
	<i>Bembidion clarki</i>
	<i>Bembidion doris</i>
	<i>Bembidion fumigatum</i>
	<i>Pterostichus anthracinus</i>
	<i>Pterostichus gracilis</i>
	<i>Agonum livens</i>
	<i>Acupalpus consputus</i>
	<i>Badister dilatatus</i>
	<i>Badister unipustulatus</i>
Hydrophilidae	<i>Helophorus nanus</i>
	<i>Cercyon convexiusculus</i>
	<i>Cercyon tristis</i>
	<i>Berosus signaticollis</i>
Staphylinidae	<i>Platystethus nodifrons</i>
	<i>Oxytelus fulvipes</i>
	<i>Stenus fuscipes</i>
	<i>Stenus pallipes</i>
	<i>Lathrobium foveolum</i>
	<i>Gabrieus bishopi</i>
	<i>Gnypeta ripicola</i>
	<i>Aloconota languida</i>
	<i>Dochmonota clancula</i>
	<i>Liogluta nitidula</i>
	<i>Atheta hygrobica</i>
	<i>Atheta nanion</i>
	<i>Atheta basicornis</i>
	<i>Calodera nigrata</i>
	<i>Calodera riparia</i>

	<i>Calodera uliginosa</i> <i>Oxypoda lentula</i> <i>Oxypoda nigrocincta</i>
Elateridae	<i>Selatosomus nigricornis</i>
Chrysomelidae	<i>Donacia impressa</i> <i>Plateumaris affinis</i>

Silt-ponds

Silt-ponds have mainly mineral substrates, but they contain more organic content than quarry pools. Most field ponds fit into this category. Many of them are used by grazing stock and are cleaned out at intervals.

Conservation strategy

This community is widespread in field ponds and old pits across the Leicestershire countryside. However, the number of field ponds has fallen as a result of agricultural changes and efforts should be made to keep as many as possible of those that are left.

Table 23: Red data book species of silt-ponds (No = 10)	
Family	Species
Halplidae	<i>Halplus fulvus</i> <i>Halplus heydeni</i>
Noteridae	<i>Noterus crassicornis</i>
Dytiscidae	<i>Agabus chalconatus</i> <i>Agabus melanocornis</i> <i>Ilybius subaeneus</i> <i>Dytiscus circumcinctus</i> <i>Dytiscus circumflexus</i>
Hydrophilidae	<i>Helocharus lividus</i>
Hydraenidae	<i>Hydraena testacea</i>

Lakes and canals

Although Leicestershire has no known natural lakes, artificial lakes in the form of reservoirs, canals, ornamental lakes and fishing lakes are now a significant feature of the Leicestershire countryside. Consequently, the water beetle community associated with lakes and canals is widespread and common.

Conservation strategy

No special measures are considered to be necessary for the conservation of this community.

Table 24: Red data book species of lakes and canals (No = 4)

Family	Species
Dytiscidae	<i>Potamonectes assimilis</i>
	<i>Ilybius fenestratus</i>
	<i>Rhantus exoletus</i>
Gyrinidae	<i>Gyrinus aeratus</i>

Slow-flowing rivers

Rivers have a long history of modification by human activity stretching back into prehistoric times. Woodland clearance and ploughing from the bronze age onward have resulted in huge amounts of silt and clay being washed into the local rivers. Impoundment by weirs for mills and for navigation purposes has reduced flow over long stretches. River straightening has removed valuable sedimentary bars. More recently flood alleviation schemes have brought channel dredging and bank regrading. Despite these impacts a wide range of species is still associated with rivers in Leicestershire both in the aquatic environment and on exposed riverine sediments and along the banks. Most specialist species are found on faster flowing stretches. Many of the riparian species occurring on slower and impounded stretches also occur in carr and damp meadows.

Detailed surveys of the riparian fauna along the River Soar have revealed a large amount of interest associated with a variety of sediment types. The most interesting sites tend to be in areas which are protected by heavy trampling from grazing stock. The availability of hibernation sites above winter flood levels is probably also important. Preliminary surveys of the River Trent suggest that there may be even greater interest along this river.

Conservation strategy

Riparian sites are subject to natural disturbance from floods. The dynamic nature of the river leads to large fluctuations in the condition of individual sites. Many riparian species are highly mobile and able to colonise new sites as they become available. A sensible strategy for conserving the riparian fauna is to preserve the sites that are already recognised as of interest and to allow the river to continue to deposit new sediments. The new deposits can then become colonised by the beetles before the old ones become unsuitable. It should be recognised that sympathetic management of adjacent land is crucial in preventing heavy trampling and providing hibernation sites.

It should also be recognised that the river and adjacent habitats such as cut-offs and alluvial meadows are linked by the hydrology of the whole catchment and are best conserved by an integrated river catchment management approach.

Table 25: Red data book species of slow rivers (No = 36)

Family	Species
Carabidae	<i>Asaphidion flavipes</i>
	<i>Trechus discus</i>
	<i>Bembidion gilvipes</i>
	<i>Bembidion obliquum</i>
	<i>Tachys parvalus</i>
	<i>Chlaenius nigricornis</i>
	<i>Chlaenius vestitus</i>
Haliplidae	<i>Haliplus laminatus</i>
Dytiscidae	<i>Scarodytes halensis</i>
Hydrophilidae	<i>Cercyon bifenustratus</i>
	<i>Cercyon ustulatus</i>
	<i>Laccobius sinuatus</i>
Hydraenidae	<i>Ochthebius bicolon</i>
Staphylinidae	<i>Deleaster dichrous</i>
	<i>Bledius gallicus</i>
	<i>Bledius subterraneus</i>
	<i>Carpelimus despecutus</i>
	<i>Carpelimus lindrothi</i>
	<i>Carpelimus obesus</i>
	<i>Carpelimus subtilis</i>
	<i>Lathrobium pallidum</i>
	<i>Neobisnius villosulus</i>
	<i>Gabrius bishop</i>
	<i>Myllaena elongate</i>
	<i>Tachyusa coarctata</i>
	<i>Gnypeta ripicola</i>
	<i>Gnypeta velata</i>
	<i>Brachyusa concolor</i>
	<i>Atheta obfuscate</i>
	<i>Oxypoda exoleta</i>
Rhizophagidae	<i>Rhizophagus picipes</i>
Curculionidae	<i>Notaris bimaculatus</i>
	<i>Notaris scirpi</i>
	<i>Baris lepidii</i>
	<i>Gymnetron villosulus</i>

Shingle banks on rivers

The riparian community that has suffered most from river management in Leicestershire is that associated with shingle banks. Only two stretches of the lower Soar have riffles over gravel with associated good quality shingle banks. These are at Cotes Bridge and the Ratcliffe Loop. Canalisation and other impoundments have destroyed any other major stretch of exposed shingle on the lower Soar. However, there are large shingle banks along the River Trent upstream of Cavendish Bridge, a stretch which has several natural features of interest. Only one shingle bank seems to have escaped modification by adjacent land tenants but recently this has suffered from silt deposition possibly

connected with nearby gravel workings. Unfortunately, a stretch of the Trent downstream of Cavendish Bridge has been recently been damaged by bank regrading which was not part of the normal maintenance operations carried out by the National Rivers Authority.

Smaller shingle deposits are found along several Leicestershire streams and these are dealt with in the next section.

Conservation strategy

An urgent conservation priority should be to restore shingle banks and protect other natural riparian features along the River Trent. The value of the Trent as the largest river in the region with the greatest range of riparian habitats needs to be recognised.

Table 26: Red data book species of river shingle banks (No = 5)	
Family	Species
Carabidae	<i>Bembidion decorum</i>
	<i>Bembidion fluviatile</i>
Staphylinidae	<i>Alaonota cambrica</i>
	<i>Aloconota sulcifrons</i>
	<i>Hydrosmeeta thinioides</i>

Fast-flowing streams

A number of different communities live along fast flowing streams. Gravelly stretches with exposed areas of shingle support a characteristic beetle fauna which is best represented in Leicestershire by a rare natural stretch of the River Lin in Bradgate Park upstream of Crops ton Reservoir. Most of the steep stretches of streams in Charnwood which used to run through gorges have been severely modified but the Grace Dieu Brook still cascades over boulders near Whitwick where it enters Grace Dieu Wood. Although large amounts of household rubbish have been thrown into the brook, this has not affected the survival of an interesting fauna associated with moss-covered boulders and small deposits of shingle. Away from Charnwood the River Chater also supports an interesting beetle fauna.

Conservation strategy

Because of their small size it has been relatively easy to straighten and ditch many of Leicestershire's streams. This has resulted in a loss of natural features and associated fauna. Sites which still preserve natural features and an interesting fauna should be identified and protected. Opportunities to restore damaged streams should be sought.

Table 27: Red data book species of fast-flowing streams (No = 16)	
Family	Species
Gyrinidae	<i>Orectochilus villosus</i>
Hydraenidae	<i>Hydraena gracilis</i>
	<i>Hydraena nigrita</i>
	<i>Hydraena rufipes</i>
	<i>Ochthebius bicolon</i>
	<i>Ochthebius exsculptus</i>
	<i>Limnebius nitidus</i>
	<i>Limnebius papposus</i>
Ptiliidae	<i>Ptenidium brenskei</i>
Staphylinidae	<i>Lesteva hanseni</i>
	<i>Ochtheophilus aureus</i>
	<i>Ochtheophilus omalinus</i>
	<i>Stenus guttula</i>
	<i>Dianous coerulescens</i>
	<i>Myllaena elongate</i>
	<i>Gnypeta ripicola</i>

Table 28: Key sites for beetles of fast-flowing streams	
Key sites	No red data book species
Grace Dieu Brook, Whitwick	3
River Chater	3
River Lin, Bradgate Park	6
River Lin, Lea Meadow	3

Specialist Communities

A number of beetles have specialist requirements within habitats and these can be grouped into the communities described below.

Underground fungi

Beetles associated with underground fungi are notoriously difficult to sample and are under-recorded in Leicestershire. However, a remarkable concentration of rarities was recorded in 1992 at North Luffenham Quarry.

Conservation strategy

More information about this community and its hosts are needed before a sensible conservation strategy can be formulated.

Table 29: Key sites for beetles associated with underground fungi

Key sites	No red data book species
North Luffenham Quarry	3

Table 30: Red data book species associated with underground fungi (No = 3)

Family	Species
Leiodidae	<i>Hydnobius punctatus</i>
	<i>Leiodes Macropus</i>
	<i>Leiodes rugosa</i>

Mammal nests

A large number of beetle species are associated with underground mammal nests and associated runs. Some of them also occur in bird nests, ant nests and dead wood habitats. The main hosts studied in Leicestershire are badgers and moles, but water voles may also support a characteristic fauna.

The requirements of individual species are not yet understood but this community seems to be widely spread across the countryside with no concentrations of interest yet discovered at particular sites.

Conservation strategy

The conservation of this community is linked to the conservation of its hosts.

Table 31: Red data book species associated with mammal nests (No = 12)

Family	Species
Leiodidae	<i>Choleva glauca</i>
	<i>Catops longulus</i>
	<i>Catopidius depressus</i>
Staphylinidae	<i>Phyllodrepa puberula</i>
	<i>Anotylus saulcyi</i>
	<i>Quedius longicornis</i>
	<i>Quedius puncticollis</i>
	<i>Liogluta pagana</i>
	<i>Oxypoda spectabilis</i>
	<i>Aleochara diversa</i>
	<i>Aleochara ruficornis</i>
Cerylonidae	<i>Anomatus duodecimstratus</i>

Bird nests

The great majority of bird-nest species are associated with hole-nesters and are treated with dead wood species above.

Ant nests

A large number of beetles are specifically associated with ants. One of the main hosts is the Red Wood Ant, *Formica rufa*. Buddon Wood was a locus classicus for the study of beetles associated with this host but the entire fauna disappeared from the county, along with the wood ant, about twenty years after the wood was clear-felled in 1944. Beetles associated with other species of ants still remain, especially in areas of open ground, but they have not been well studied recently.

Conservation strategy

More information is needed about the present status of this community in Leicestershire.

Table 32: Red data book species associated with ant nests (No = 2)

Family	Species
Staphylinidae	<i>Lamprinodes saginatus</i>
	<i>Aleochara ruficornis</i>

Dung

Little has been done on this community recently, which is of vital importance to the recycling of nutrients in pasture. Most species appear to be widely dispersed across the wider countryside, but there is a concentration of interest at Bradgate Park, where in addition to the species listed below there are several further species which are red data book candidates on grounds of local rarity.

A recent threat to the entire dung beetle community has come from the widespread introduction of the use of Ivermectin to treat internal parasites in agricultural stock. This drug has been shown to harm dung beetles.

Conservation strategy.

The conservation of dung beetles is best achieved through promotion of best practice in countryside management. Particular concern should be paid to Bradgate Park and the use of Ivermectin.

Table 33: Key sites for beetles associated with dung

Key sites	No red data book species
Bradgate Park	3

Table 34: Red data book species associated with dung (No = 4)

Family	Species
Hydrophilidae	<i>Cercyon atricapillus</i>
	<i>Cercyon lugubris</i>
Geotrupidae	<i>Geotrupes vernalis</i>
Scarabaeidae	<i>Aphodius zenkeri</i>

Dung heaps etc. on agricultural land

Dung heaps and other piles of mouldy vegetation on agricultural land and in gardens attract a rich beetle community. Many of them benefit from current agricultural practices and are not thought to be in need of special conservation measures.

Table 34: Red data book species associated dung heaps etc. on agricultural land (No = 3)	
Family	Species
Scydmaenidae	<i>Scydmorephes helvolus</i>
Cryptophagidae	<i>Atomaria nigriventris</i>
Anthicidae	<i>Anthicus bifasciatus</i>