Species Action Plan

Stag Beetle

"Stag-nation! We've all got to help save this endangered species"
(Front-page headline, Bexley Mercury, June 1997)

1. Aims

- To protect, conserve and enhance the nationally significant populations of stag beetle in London.
- To ascertain the reasons for the uneven distribution of stag beetle populations across London.
- To maintain the stag beetle as a valued London species through increasing public awareness of their importance and that of their dead wood habitat.

2. Introduction

The vernacular names of billywitches, oak-ox, thunder-beetle and horse pincher give an indication of the mythology that has evolved around the stag beetle (*Lucanus cervus*). Ancient associations with storms and magical powers led to the beetles being both feared and revered.

The stag beetle is Britain's largest terrestrial (ground-living) beetle occasionally reaching 8cm in length. Featuring shiny chestnut-violet wing-cases, the stag beetle is characterised by possessing large mandibles (jaws) which are antler-shaped in the male, giving them their common name. These 'antlers' are used for fighting other males, whereas the female's mandibles, being smaller, are more powerful.

The stag beetle requires dead wood to complete its lifecycle. The eggs are laid underground in the soil next to logs or the stumps of dead trees, and the larva (or grub) will spend up to seven years in the wood, slowly growing in size. They contribute to the recycling of dead wood, which in turn helps enrich the soil. Timber is also utilised, especially sunken fence posts. Perhaps surprisingly, London is nationally significant for the stag beetle populations it supports – over 3,000 (approximately 30%) of the 1998 national survey records were from the capital.

Adults emerge from mid-May until late July. Males emerge earlier to actively search for females to mate, and can often be seen flying on sultry summer evenings an hour or two before dusk. As adults they are short-lived and generally die after mating, although occasionally some may over-winter in places such as compost heaps.

3. Current Status

The stag beetle has been recorded in most parts of London, but the key boroughs are Croydon, Lewisham, Bromley, Greenwich, Southwark, Lambeth, Bexley, Ealing, Hounslow, Richmond, Kingston, Merton and Wandsworth. The beetle is significantly more common in the South and West of London in areas such as Beckenham, Dulwich, Wandsworth, and Richmond. It is rarely found in central London through lack of appropriate habitat, and is surprisingly very uncommon or absent in the north-west and parts of north-east London, although there are clusters of records in places such as Winchmore Hill and Hornchurch. The reasons for this uneven distribution are the subject of current research.

Gardens appear to be the most important habitat for the beetle in London – most recent data has not originated from the woods and parks – although this is, of course, where most have been seen by the public. The role of members of the general public and their gardens is probably crucial to the conservation of the stag beetle in the capital.

The UK stag beetle distribution is concentrated in the southeast of Britain – its absence in the North may be climate related. In the 1940s, this extended to southern Wales, the Dee, Cumbria, and across to North Yorkshire and the Wash. However, recent surveys suggest that this has significantly contracted, with a predominant distribution pattern in a broad swathe from Dorset, Hampshire, West Sussex, Surrey, Berkshire, Greater London, north-east Essex, eastern Suffolk and northern Kent. Outlying clusters are found in bordering counties to the West, but it appears to be absent from most of its former northern sites.

Although locally common in certain areas, the stag beetle's European range has probably contracted for many centuries as woodlands have been converted to agricultural landscapes, conifer plantations and urban development – it is now extinct or very endangered in a number of countries such as Latvia and eastern Germany. In Europe it is associated with old forests and woodlands which predominantly consist of broadleaf trees such as oak, lime and hornbeam. They are not found in coniferous forests, but are found in gardens in certain areas.

4. Specific Factors Affecting the Species

4.1 Reduction of dead wood

In earlier centuries dead wood would have been reduced through the intensive management or loss of woodlands. Although some 'tidying up' still continues in woodlands and parks, managers are now much more aware of the need to retain dead wood as part of the woodland ecosystem and this will have benefited stag beetles at a local level. Similarly, changes in parks management in London has led to the retention of dead wood.

4.2 Loss of habitat to urban development

Habitat was lost in London through suburban expansion in the inter-war years. Although the introduction of the Green Belt led to the restriction of suburban expansion, many of

London's surviving open spaces were developed, including woodland. Development will continue to result in the loss of stag beetle habitat, especially as there is a lack of awareness of the beetle's presence on sites (the adults are only visible for a few weeks each year).

4.3 Direct human impact

Adult stag beetles are attracted to the warm surfaces of tarmac and pavements, making them particularly vulnerable to being crushed by traffic or human feet. Public fear and misunderstanding of the species also leads to the intentional killing of the beetles and their larvae, the latter often being perceived as a garden pest. With PPG3 identifying gardens as 'brownfield' land, and therefore valuable to development, there is likely to be increased development pressure on garden mosaics, or 'backland', in London's suburbs. This may have an impact on stag beetle populations.

4.4 Predation

Predators such as crows, magpies, and foxes, amongst others, may have an adverse impact at the most vulnerable stage in the beetle's life cycle, when adults are seeking to mate and lay eggs. Indeed, it has been suggested that the rise in magpie and carrion crow numbers in the last decade may be having a significant impact on stag beetle populations. Badgers are also known to dig up the larvae of the stag beetle, which otherwise enjoys relative safety from predators underground.

5 Current Action

5.1 Legal status

The stag beetle is listed on Schedule 5 of the Wildlife and Countryside Act (1981, as amended) but only to prevent trade. A major threat to stag beetles, especially in Europe, has been from private collectors and the legislation aims to stop the species from being collected for sale at entomological fairs. It is also listed on Appendix III of the Bern Convention on the Conservation of European Wildlife and Natural Habitats, 1979 and Appendix 2 of the Habitats Directive. The latter requires the UK to designate Special Areas of Conservation (SAC) specifically to protect the stag beetle. Wimbledon Common, Richmond Park and Epping Forest are candidate SACs.

In 2001 the London Stag Beetle Action Plan Working Group produced a free- standing mobile display unit on the species and their work to conserve it in the capital. It has toured borough summer shows in Lewisham, Lambeth, Bromley, Richmond, Wandsworth and in the Royal Parks.

5.2 Mechanisms targeting the species

These current actions are ongoing. They need to be supported and continued in addition to the new action listed under Section 7.

5.2.1 Stag Beetle Focus Group

The London-based People's Trust for Endangered Species (PTES), lead partner for the UK Stag Beetle Action Plan, established the national Stag Beetle Focus Group (SBFG) in 1997 to co-ordinate, develop and implement the national SAP. This is a partnership of many organisations and individuals, including English Nature (EN), The Wildlife Trusts, Suffolk Naturalists Trust and Royal Holloway University London (RHUL).

5.2.2 Survey and research

As a large insect, the stag beetle has always attracted the interest of entomologists and has been the subject of various papers and surveys over the past century. Data collected by individuals and societies has contributed to the knowledge of the species, although most of this contribution was made before the 1940s. Since the publication of the UK Biodiversity Action Plan there has been significant work on the stag beetle, with a number of local surveys (e.g. Colchester, 1996, south London 1997).

In 1998 and again in 2002 the Stag Beetle Focus Group conducted a national survey, collecting a total of around 15,000 records for the species and providing an updated and considerably more accurate picture of the UK distribution. Further research is also being undertaken on the beetle's biology and ecology by RHUL. Subsequently, the Group's work has concentrated on further surveys, monitoring methodology, and research into the beetle's ecology.

London Wildlife Trust piloted a survey in south London in 1997, contributed to the 1998 national survey and has continued surveying in key areas in 1999 and 2000. It has also actively promoted the species to the media, and has stimulated an interest in the beetle from newspapers, radio, TV and the general public.

The London Wildlife Trust website features a stag beetle recording form and a garden wildlife survey form for several species including this beetle. Other borough-based surveys have been undertaken in Wandsworth, Bromley, Croydon and Sutton since 1997 and these may continue in future years.

5.2.3 Advice

In 1998 PTES produced '*Stags in Stumps'*, a leaflet aimed at land managers. Managers have since begun to take account of the species in site management plans, and it is likely this will develop further. In addition, wildlife gardening campaigns by London Wildlife Trust, local authorities and others have promoted stag beetles and dead wood conservation. In 2000, PTES published another leaflet, '*Stag Beetle Friendly Gardening',* to promote these aspects, and London Wildlife Trust produced '*Stag Beetle; an advice note for its conservation in London'* specifically for the capital, which also covered survey and planning issues. Developers need to be encouraged to adopt best practice procedures that will provide further stag beetle habitat in new developments across the Capital, as well as to protect existing stag beetle habitat.

5.2.4 Habitat creation

The creation of specific stag beetle 'loggeries' began in Epping Forest, Sydenham Hill Wood, Southwark and Bromley in 2000. In addition, trials of 'nest-boxes' are being conducted in these areas to see whether they attract female stag beetles and if so can be used at the edge of the beetle's range as a monitoring tool.

6 Objectives, Actions and Targets

Most of these actions are specific to this species. However, there are other, broader actions that apply generically to a number of habitats and species. These are located in a separate 'Generic Action' section which should be read in conjunction with this document. There are generic actions for Site Management, Habitat Protection, Species Protection, Ecological Monitoring, Biological Records, Communications and Funding.

Please note that the partners identified in the tables are those that have been involved in the process of forming the plan. It is not an exclusive list and new partners are both welcomed and needed. The leads identified are responsible for co-ordinating the actions – but are not necessarily implementers.

Objective 1 To significantly increase populations of stag beetle in London

Target: Increase the provision of habitats within its known current range by 2005

Action	Target Date	Lead	Other Partners
1.1 Establish London Stag Beetle Working Group to facilitate the implementation, promotion and monitoring of the species	Achieved 2001	LWT	
1.2 Distribute advice note to all managers and owners of parks, woodlands, nature reserves and major formal gardens to encourage retention of dead wood	Achieved 2001	Working Group	
1.3 Provide information to arboriculturalists, planning and tree officers to promote retention of stag beetle habitat	Achieved 2001	Working Group	LTOA, BTCV
1.4 Continue to coordinate London Stag Beetle Working Group to facilitate the implementation, promotion and monitoring of the species	2004	LWT	EN, LA, PTES, W&PCC, CoL. RPs, Landowners
1.5 Review and redistribute advice note to all managers and owners of parks, woodlands, nature reserves and major formal gardens to encourage retention of dead wood	Annually	Working Group	
1.6 Continue to provide information to arboriculturalists, planning and tree officers to promote retention of stag beetle habitat	2004	Working Group	LTOA, BTCV
1.7 Provide information on installing and monitoring nestboxes and loggeries	2004	Working Group	
1.8 Identify 50 key sites and install loggeries	2004	Working Group	Site managers

Objective 2 To monitor existing stag beetle populations, and further the research on the reasons for their uneven distribution in London

Target: Conduct repeat survey by 2005

Action	Target Date	Lead	Other Partners
2.1 Pilot a number of loggery monitoring schemes	2004	Working Group	LNHS
2.2 Undertake repeat of 1997-2000 public-led survey targeted at apparent gaps, to establish current distribution more precisely and complement national survey	2005	LWT	Working Group, LNHS
2.3 Establish a monitoring baseline of active nestboxes and loggeries	2004	RHUL	Site Managers
2.4 Monitor stag beetle ecology and lifecycle	2004	RHUL	Site Managers
2.5 Undertake capture-release-capture scheme to develop reliable monitoring for both sexes of the beetle	Annually	RHUL	Site Managers
2.6 Monitoring corpses for evidence of size variation and mortality factors in the beetle	Annually	RHUL	Site Managers

Objective 3 To raise the awareness of the stag beetle and its needs to all Londoners

Target: To incorporate information on stag beetle's needs into 2005 public survey

Action	Target Date	Lead	Other Partners
3.1 Prepare a mobile display unit that can be temporarily installed at a range of venues	Achieved 2001	Working Group	LWT, PTES, EN
3.2 Ensure appropriate and frequent use of the mobile display unit at relevant events and venues	Annually	Working Group	LWT, LB Bromley
3.3 Continue to run public events promoting the stag beetle in London	Ongoing	Working Group	Wildlife for All, LWT, LA, RPs, CoL, RBGK
3.4 Conduct repeat public survey which includes information on stag beetle conservation	2005	LWT	PTES

Objective 4 To improve the conservation status of stag beetles at London's strategically important sites

Target: To implement a strategic plan for London candidate SACs and other strategically important sites

Action	Target Date	Lead	Other Partners
4.1 Prepare a strategic plan for Richmond Park and Wimbledon Common stag beetle conservation	2004	RP&WCS BP	Working Group. RHUL
4.2 Carry out research on effects of rainfall patterns and soil type on stag beetle populations of Wimbledon Common and Richmond Park	2004	RP&WCS BP	Working Group

Relevant Action Plans

London Plans

Woodland; Private Gardens; Churchyards and Cemeteries; Hedgerows Statement; Open Landscapes with Ancient/Old Trees Audit; Railway Linesides Audit.

National Plans

Stag Beetle.

Key References

DETR (1995). *Stag Beetle Species Action Plan*. London, HMSO.

London Wildlife Trust (2000). *Stag Beetle: an advice note on its conservation in London*. London Wildlife Trust.

PTES (2000). *Stag Beetle Friendly Gardening*. Leaflet, PTES.

Abbreviations

BTCV - British Trust for Conservation Volunteers
CoL - Corporation of London
EN - English Nature
LB – London Borough
LTOA – London Tree Officers Association
LNHS – London Natural History Society
LWT - London Wildlife Trust
PTES - People's Trust for Endangered Species
RPs - Royal Parks
RHUL - Royal Holloway University London
RP&WCSBP - Wimbledon Common Stag Beetle Partnership
W&PCC – Wimbledon and Putney Commons Conservators

Contact

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