

Wye Valley
Area of Outstanding Natural Beauty (AONB)

Noble Chafer

Gnorimus nobilis

Species Action Plan 2022 – 2027



To Accompany the
Wye Valley AONB Nature Recovery Plan

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1. Background

Set against a backdrop of unprecedented concern for the future of the natural world, the National Association for Areas of Outstanding Natural Beauty (NAAONB) believe that now is the time to significantly increase the scale and pace of nature conservation activity in Areas of Outstanding Natural Beauty (AONBs). In 2019, the Wye Valley AONB Partnership, along with AONBs across the country, signed up to the Colchester Declaration. This is an ambitious plan to recover nature in and beyond protected landscapes, build climate resilience and enhance engagement with people.

As part of this effort, each AONB has committed to adopting an IUCN threatened, or locally threatened, species and prepare and deliver a Species Action Plan, in the hope that by 2030 at least 30 species relevant to AONBs can be removed from the threatened list (NAAONB, 2019). The Wye Valley AONB Partnership has committed to adopting 5 locally significant species, each of which represent a Special Quality identified in the statutory Wye Valley AONB Management Plan (2021-26), and/or indicates the health of a well-connected landscape. The Noble Chafer beetle has been chosen as the representative species for traditional orchards, which are a priority habitat in the Wye Valley AONB.

2. Introduction

The Noble Chafer (*Gnorimus nobilis*) is a rare and beautiful beetle that can be found in traditional orchards. The adult is approximately 20mm long and has a metallic-green iridescent body, speckled with white. It can be confused with the Rose Chafer (*Cetonia aurata*), but has wrinkled wing cases; the Rose Chafer has smooth wing cases. The other most obvious difference between the two is the small triangular area (the scutellum) between the wing cases; this forms an equilateral triangle on the Noble Chafer but is elongated on the Rose Chafer (fig. 1). Noble Chafers are saproxylic as larvae, which means they are dependent upon dead or decaying wood for development. The larvae live and feed in old, decaying fruit trees, where they take up to 3 years to develop into adult beetles (Ellegaard & Bach, 2020).



Figure 1: Rose Chafer (left) and Noble Chafer (top right) (Source – PTES, Credit Paul Brock)



Figure 2: Noble Chafer in larvae form (Source – PTES, Credit Ross Bower)

The key habitat for Noble Chafers is inside hollow open-grown trees, and only in landscapes where such trees occur at relatively high densities, and have done for many centuries. This immediately confines the beetle in modern England to the main traditional orchard areas and the few remaining old wood-pasture systems, as nowhere else have trees been left to grow old in large numbers

(Alexander, 2008). A traditional orchard is defined as having at least five full sized fruit trees, planted on permanent grasslands, which are widely spaced and allowed to reach a veteran state (Berkshire Biodiversity Action Plan, 2010). Noble Chafers exhibit a preference for orchards that contain mature fruit trees between 50 and 80 years old, especially cherry, plum and apple. These sites are vulnerable to removal or clearance, particularly if the trees are reaching the end of their productive life. As orchards were modernised, the old traditionally managed ones became progressively less economic and were 'grubbed out' and not replaced. Since the 1950's, 90% of traditional orchards in England and Wales have been lost (PTES, 2022). The overall area of all orchards in England has declined by 63%, and of the remainder, only a third are traditional. This means that only 13.5% of the former English habitat range exists (Warwickshire Wildlife Trust, 2015). In Wales, the agricultural census estimates that there was a 94% reduction in area of orchards between 1958 and 1992 (Oram, Alexander & Sadler, 2013).

The Noble Chafer is a classic old-growth species; the population has always existed as localised meta-populations, and has a long life history and low reproductive rate (Whitehead, 2003). Fragmentation of these old-tree landscapes is a key issue, producing smaller and less viable populations which are increasingly isolated from each other. The Noble Chafer is just one species which has been affected by this dramatic change to our landscape, and is now facing a severe risk of extinction in England (Alexander & Bower, 2011).

3. Current Status

3.1 Ecology

The adult life stage is relatively short-lived, existing primarily to mate and produce the next generation. Adult females lay up to 35 eggs beneath the bark or in the centre of the trunk of old, decaying fruit trees. The larvae take around 2 weeks to hatch. They are white, c-shaped, and grow to about 30mm long (fig. 2). In southern Europe, larvae are fully grown after one year, whereas in English orchards they take two years to develop, overwintering twice in the wood mould. They remain feeding within the tree until they pupate into adult beetles (Alexander & Bower, 2011).

Adult Noble Chafers emerge from the wood mold in early summer and live for 4-6 weeks from late June to early August. It is thought that adults have no real need to leave their host tree unless the tree is no longer suitable for larval development and/or the adult remains unmated. Males and females will both be emerging from the wood mould, so if they meet and mate, then flight into the potentially hazardous outside world may be unnecessary (Alexander & Bower, 2011).

When adults do emerge, their activity is stimulated by relatively warm conditions, generally periods of hot sunshine and when there is minimal wind. They will bask for a short while to warm up their flight muscles, then fly to feed on nearby flowers (Alexander & Bower, 2011). As a food source for the adult beetles, blooming flower heads of elders and



Figure 3: Adult Noble Chafer feeding on umbellifers (Source – PTES, Credit Ross Bower)

umbellifers, such as hogweed (*Heracleum sphondylium*) and meadowsweet (*Filipendula ulmaria*), no more than 700m from the breeding trees are required (Whitehead, 2002). They will often also visit the canopy of nearby broadleaved woodland, which can be some distance from their larval habitat, although the purpose of such visits remains unclear (PTES, 2022). Where the adults are at night is not known and further field observations would be required to answer this (Ellegaard & Bach, 2020).

3.2 Habitat requirements

The Noble Chafer is found in standing trees that are still alive but have cavities where the larvae can develop in the wood mould. Hollowing of tree trunks is a completely natural process: as the heartwood builds up with age, the central older rings begin to die whilst the outer rings of the tree are still alive. Specialist fungi colonise this central dead woody tissue and begin to break it down into simpler substances which can then be digested by other organisms. Eventually the trunk becomes hollowed and debris accumulates in the cavity bases, which is subsequently colonised by a range of specialist organisms, including the Noble Chafer. Inside the cavities, the chafer larvae ingest the debris and defecate pellets (frass), which accumulates in large volumes (fig. 4). Fortunately, in Britain, the Noble Chafer is the only chafer that is known to develop in the wood mould of old fruit trees (Alexander & Bower, 2011).



The tree species occupied by the Noble Chafer appears not to be important, except that it must be broadleaf and live long enough to become hollowed by heartwood-decay fungi; the determining factor making the trees suitable for the species may be the level/stage of wood decay. Orchard trees are especially good for the Noble Chafer in this respect, as pruning wounds also stimulate cavity formation (Alexander, 2008; Ellegaard & Bach, 2020).

Figure 4: Noble Chafer larval frass pellets in a tree cavity. (Source – Buglife, Credit Matt Smith)

In continental Europe, the larvae have been found in willow (*Salix spp.*), beech (*Fagus sylvatica*) and oak (*Quercus spp.*) trees among others. In England, Noble Chafers seem more restricted to species of orchard fruit trees, with the highest numbers of records from plum, damson, and cherry orchards (*Prunus spp.*), with apple (*Malus spp.*) and pear (*Pyrus spp.*) also used. Plum and damson trees tend to begin their decay process earlier than other fruit species and also tend to be easier to search for evidence of the beetle as they develop open cavities much more readily. It is suspected that this strongly influences the predominance of records from *Prunus* species and may not be a reflection of true fruit-type preference on behalf of the beetle (Worcestershire Biodiversity Partnership, 2018). A lack of research within the UK makes it unclear how important non-fruit species are to the larval stage of development.

In the Wye Valley AONB and Worcestershire, the known Noble Chafer breeding sites are all in old, traditional orchard trees, whereas in the New Forest they are thought to breed within old oak and beech trees (PTES, 2022). Noble Chafer records go back over 100 years in the New Forest, and yet whilst adult beetles have been recorded by searching suitable flowers in summer, or have been attracted to “bait” or pheromone lures, there are no records for any confirmed Noble Chafer breeding sites or evidence of their larval stage in these trees. There are almost no areas of traditional orchard in the New Forest, so the presumed breeding sites are the rot cavities in taller forest trees such as oak, beech or cherry, but difficulties surveying these larger trees for frass has hindered further research in this area (Smith, 2021).

3.3 Population and distribution

The Noble Chafer is endemic to Europe and is found in most regions except the far north. Its distribution is patchy and very localized in several countries e.g. in the UK, Sweden, and Denmark. In parallel with the loss of traditional orchards, the Noble Chafer has undergone a considerable decline in range within Britain. Distribution of the species before 1970 is evidenced in records from North Devon, South Hampshire, West Sussex, East Kent, West Kent, Surrey, South Essex, Middlesex, Oxfordshire, Buckinghamshire, East Norfolk, West Gloucestershire, Herefordshire, Worcestershire and Cumbria (PTES, 2010) (fig. 5). It is unclear how many of these are reliable and how many represented genuine resident populations (Alexander & Bower, 2011), but the data do suggest a massive contraction of the population into isolated fragments, and it seems clear that this process is continuing today.



Figure 5: Map showing pre 1980 records of Noble Chafer in the UK (Source - PTES)



Figure 6: Map showing post 1980 records of Noble Chafer in the UK (Source – PTES)

The main national distribution today is in the old orchard country of the 'Three Counties' (Gloucestershire, Worcestershire and Herefordshire) (fig. 6). Outlying populations exist in south Oxfordshire, Kent and the New Forest where the beetle has been found outside of traditional orchards. It is probably more widespread in Worcestershire than anywhere else (Worcestershire Biodiversity Partnership, 2018). There is currently no data available on either the total population or national/regional population sizes (Ellegaard & Bach, 2020).

Within the Wye Valley AONB, there are only current records of Noble Chafer in Herefordshire; they have not been recorded in Gloucestershire or Monmouthshire (PTES, 2021). Whilst there are known populations of Noble Chafer in other parts of Gloucestershire outside of the AONB, Monmouthshire has no current records. Noble Chafer surveys were carried out 10 years ago in Monmouthshire as part of Gwent Wildlife Trust's 'Traditional Orchards Project', but no evidence was found (Gwent Wildlife Trust, 2021). Despite this, it is still likely that Noble Chafer beetles are present in Monmouthshire due to the close geographical proximity to other population strongholds.

3.4 Legislation

The Noble Chafer is classed as Nationally Scarce in Great Britain and has an IUCN status of Vulnerable. It was selected as a Priority species in the UK Biodiversity Action Plan (BAP) and subsequently listed in Section 41 of the National Environmental and Rural Communities (NERC) Act 2006 (PTES, 2022).

3.5 Summary of important sites

Despite its reduced range, and vulnerable population, the Noble Chafer in England is currently a major concentration of the species within its wider European range. A workshop to assess the European conservation status of saproxylic beetles (Nieto & Alexander 2010), revealed that the Noble Chafer is rare and threatened across most of its range, and only in France does there appear to be a sufficiently strong population for the species not to be considered 'Vulnerable'. The macro-population of the Severn Basin (Gloucestershire, Herefordshire and Worcestershire) is potentially a key European centre and requires special conservation attention – before the species reaches the IUCN-defined level of 'Threatened' (Alexander & Bower, 2011).

The vast majority of Noble Chafer sightings in England are from traditional orchards. Orchards are a Special Quality of the Wye Valley AONB, covering 222.6ha of land, equivalent to 0.68% of the landscape. The number of orchards reduced dramatically throughout the 20th century, but despite this the Wye Valley AONB still has 1% of England's orchards (158.9ha), and just over 6% of Welsh traditional orchards (63.7ha) (Wye Valley AONB, 2021). Orchards are most prevalent in the AONB in Herefordshire and Monmouthshire; the Gloucestershire part of the AONB has significantly less orchard cover.

Data provided by the Peoples Trust for Endangered Species (PTES) shows that there are only 3 current records of Noble Chafer in the AONB, potentially two meta-populations, all found in traditional orchards in South East Herefordshire (fig. 7). These can therefore be considered as the most important locations for Noble Chafer in the Protected Landscape. Figure 8 shows orchards within the Wye Valley AONB, buffered to 700m. As identified by Whitehead (2003), the largest distance that Noble Chafers have been recorded to fly is 700m (Alexander & Bower, 2011). Hence, a buffer zone of 700m has been added around each of these orchard areas, to highlight the potential within the AONB

to expand and reconnect priority orchard habitats, thereby creating more opportunities for the Noble Chafer to expand its population size and range. The Wye Valley AONB Nature Recovery plan considers orchard habitat enhancement and expansion in more detail.

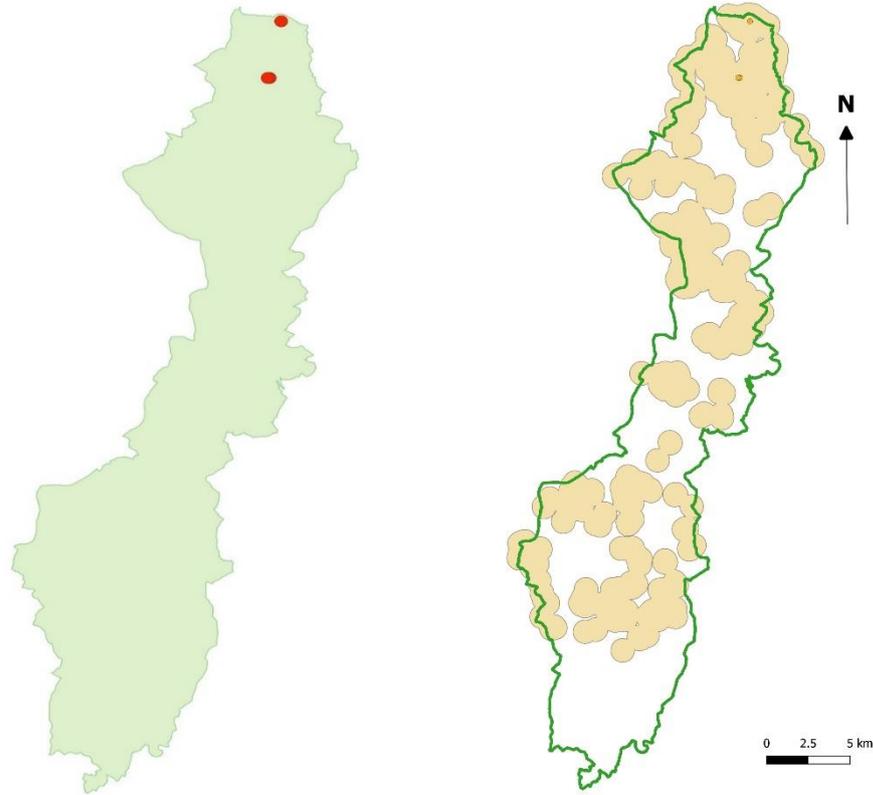


Figure 7: Map of Noble Chafer records in the Wye Valley AONB (Source – data supplied by PTES, map created by Wye Valley AONB)

Figure 8: Map of orchards in the Wye Valley AONB with buffer zones to represent 700m, the largest recorded distance of Noble Chafer flight (Source - Wye Valley AONB)

4. Current factors affecting the species

4.1 Threats

Development

- The economic decline of traditional orchards means there is little commercial incentive to maintain ageing trees or replace dead ones. Many such orchards are removed to make way for housing developments, or left to fall derelict with no replacement of habitat (PTES, 2022).
- Many surviving small orchards are situated within or on the edge of settlements, making them particularly vulnerable to proposals for residential development on the basis that they fall within the definition of ‘brownfield land’ (Warwickshire Wildlife Trust, 2015).

Isolation of sites

- The loss of orchards over the last 40 years means that sites have become increasingly isolated from one another. This leads to habitat fragmentation and pressure on isolated patches of orchard (Worcestershire Biodiversity Partnership, 2018).

In insensitive management of orchards

- Dying trees are often removed promptly, depriving Noble Chafers and other saproxylic organisms that rely on dead wood. Reasons such as aesthetic tidiness or public safety lead to the felling of ancient trees, removal of dead wood from living trees and the destruction or removal of standing and fallen dead wood, all of which provide essential habitat for orchard species (Worcestershire Biodiversity Partnership, 2018).
- Many sites are now used as horse paddocks. Horses can cause considerable damage when allowed to graze in old orchards; the palatable bark can be stripped in a matter of weeks causing death to the tree (Warwickshire Wildlife Trust, 2015).
- Many orchards are commonly located adjacent to farms; this means that they are often used as shelter for overwintered livestock that receive supplementary feed. This can lead to nutrient enrichment of the grassland beneath the fruit trees, damaging botanical diversity which leads to a loss of vital nectar and pollen sources for insects (Warwickshire Wildlife Trust, 2015).
- The use of pesticides in orchards may poison Noble Chafers, as well as compromising tree health through impacts on fungal mycorrhizae which have many benefits to trees (PTES, 2022).

Neglect or loss of orchards through natural processes

- Fruit trees generally have a short life in comparison with other tree species. Plums rarely live beyond 50 years, apples 80-100 years and pears (especially perry pears) 100-150 years. Therefore, unless replacements are established to replace lost trees, a traditional orchard is unlikely to survive beyond 100-150 years (Warwickshire Wildlife Trust, 2015).

Orchard destruction for 'agricultural improvement'

- Traditional orchards were often seen as being unproductive and were ripped out for more intensive agricultural use. In the past this was the main source of loss but other threats are more significant now, particularly neglect (Warwickshire Wildlife Trust, 2015).

Lack of awareness

- There is a lack of awareness of the cultural value of traditional orchards and their importance as a vital wildlife habitat (Worcestershire Biodiversity Partnership, 2018).
- Orchards are no longer recognised as a UK BAP habitat, although traditional orchards are (JNCC, 2007).

4.2 European barriers to conservation

Lack of data on Noble Chafer populations

- The current total population and national/regional population sizes are not known. More research on the status of European saproxylic beetles in general would be hugely beneficial; during assessments for the European Red List of Saproxylic Beetles, the risk of extinction could not be evaluated for almost a quarter of the assessed species due to a lack of data (Ellegaard & Bach, 2020).

Lack of knowledge about Noble Chafer ecology

- More research into the habitat preferences of the Noble Chafer is needed, in particular their preference for tree species and how important non-fruit species are to the larval stage of development. Some elements of Noble Chafer behaviour are still not understood (Worcestershire Biodiversity Partnership, 2018).

4.3 Local barriers to conservation

Lack of knowledge about Noble Chafers in the Wye Valley AONB

- Despite areas of the Wye Valley AONB falling within the main national stronghold for Noble Chafers, very little is currently known about the population here. Survey work is needed to reinforce our understanding of the range, population and distribution of Noble Chafers within the Wye Valley AONB, covering all three county areas.

Lack of knowledge about the condition of orchards in the Wye Valley AONB

- In order to develop a Habitat Action Plan (HAP) for traditional orchards and the species they support, baseline data is needed to enable future changes to be measured and identify priorities for future conservation action.
- Orchards are a Special Quality of the Wye Valley AONB and are found across the Protected Landscape, but records of orchards on pre-existing maps often do not tell us their age, type, or condition, and many are not marked at all or have been lost. Survey work is needed to determine which orchards still exist and to gather additional information that enables us to assess their condition and habitat value, to help focus future conservation action for the Noble Chafer.

Lack of awareness of the Noble Chafer

- Very few orchard owners are aware of the Noble Chafer and its vulnerable status. The importance of orchards in the Wye Valley AONB for Noble Chafers needs to be highlighted to raise awareness of this species.

Lack of good quality agri-environment schemes

- Where orchards are still in use – for pasture, if not for fruit production – they can be supported through agri-environment schemes. Higher Level Stewardship is an important mechanism but operates on a farm-by-farm basis and may not be effective enough at landscape scale (Alexander & Bower, 2011). New schemes such as FIPL (Farming in Protected Landscapes) and ELMs (Environmental Landscape Management schemes) need to support improved management of traditional orchards.

5. Current Initiatives

5.1 Local protection

In Worcestershire, the Noble Chafer is a local Biodiversity Action Plan (BAP) species. Within the Wye Valley AONB, Gloucestershire has a Species Action Plan for 'Beetles (various)' and a Habitat Action Plan (HAP) for 'Old Orchards', both of which fall within their BAP for Gloucestershire. Herefordshire has a Traditional Orchard HAP but no species action plans for beetles or the Noble Chafer. Monmouthshire County Council are currently developing a Nature Recovery Action Plan (NRAP) which will include a HAP for Traditional Orchards but no specific plans for the Noble Chafer.

Most orchards in which Noble Chafers have been found so far are privately owned and have no specific protection. Within the English parts of the Wye Valley AONB, 0.10ha of traditional orchards are within designated Sites of Special Scientific Interest (SSSI) and 26.22ha are on land within a Higher Level Stewardship agreement but outside SSSI. Of the SSSI traditional orchards, 0.01ha are considered to be in favourable condition and 0.09ha in unfavourable recovering condition. Habitat outside SSSI is not monitored for condition status, which means that the status of 127.74ha of traditional orchard within the English part of the AONB is currently unknown. The Wye Valley AONB Unit are not supplied with comparable orchard data for the Welsh part of the AONB.

Pool Ellocks Local Wildlife Site and orchard in Goodrich, Herefordshire, is one of the only community orchards in the AONB, and is managed by Herefordshire Wildlife Trust. A number of Herefordshire Wildlife Trusts nature reserves include orchards and contain very old fruit trees and often uncommon varieties.

5.2 Site management and programmes of action

A number of conservation or community groups own and/or manage orchards, or have a broader interest in the management, enhancement and preservation of orchards for their biodiversity and landscape value, including:

- Herefordshire Wildlife Trust
- Gloucestershire Wildlife Trust
- Gloucestershire Orchard Trust
- Gwent Wildlife Trust
- Peoples Trust for Endangered Species

Historically Monmouthshire was an important apple and pear producing County, and old orchard trees in particular support a wide variety of wildlife. Some local groups such as Transition Towns have enthusiastically planted community orchards in their localities, and Gwent Wildlife Trust ran a project from 2010 to 2012 surveying 740 sites, and working with volunteers to encourage management.

The Three Counties Traditional Orchard Project (TCTOP), started in 2014 and managed by the Malvern Hills AONB Partnership, has given advice to orchard owners and supported the production of site management plans for AONB orchards in Gloucestershire and Herefordshire, as well as neighbouring Worcestershire.

The Peoples Trust for Endangered Species have, with Natural England funding, mapped all of the traditional orchards in England and Wales to create the first ever inventory of traditional orchards. Their Orchard Network is an umbrella group for traditional orchard organisations, local orchard groups, cider producers and conservationists. It is a partnership of organisations throughout the British Isles, working together to actively promote the conservation of orchard fruit and nut trees and their varieties, and in their many forms; as individual trees, traditional, garden, and other orchards, and conserve the orchard habitat's biodiversity. PTES also run a traditional orchard grant scheme as part of this, which focuses on replacement tree planting for orchards which are in need of new trees, with the aim of improving and protecting biodiverse traditional orchard habitats (PTES, 2022).

Agri-environment funding scheme options have included those for the creation, restoration and management of traditional orchard. Traditional orchard management and restoration advice is available from Natural England.

5.3 Survey, research and monitoring

Orchard surveys, research and monitoring

- As part of their aforementioned Traditional Orchard Inventory, PTES also run a volunteer programme of Traditional Orchard Surveying, to help assess the condition of the orchards collated within the inventory. PTES and its volunteers have been mapping and surveying traditional orchards since 2007, using the data to update the inventory and target conservation action for orchards and the wildlife they support (PTES, 2022). Many of these orchards are within the Wye Valley AONB, and need surveying.
- As part of their Gwent Orchards Project, with partial funding from the Wye Valley AONB Sustainable Development Fund, Gwent Wildlife Trust and its volunteers surveyed 740 orchard sites in the Gwent area from 2010-2012. The project was one of the first orchard mapping projects in Wales, and focused on updating records through orchard surveys, and providing advice and support to orchard owners to promote orchard preservation for their historic and wildlife value (Orchard Network, 2022). A number of orchard sites within the Monmouthshire part of the Wye Valley AONB were included within this project, but having been surveyed 10 years ago, it's likely the condition of these orchards may have changed, so updated surveys may be required.

Noble chafer surveys, research and monitoring

- As part of their Gwent Orchards Project from 2010-2012, Gwent Wildlife Trust surveyed many orchards for Noble chafer within Monmouthshire looking for evidence of frass inside old trees, but none was found.
 - PTES are the UK leaders in running surveys for Noble chafers, as well as awarding research grants to conservation organisations, scientific researchers and wildlife experts in this field. Within their current schemes, the Traditional Orchard Survey involves looking for evidence of Noble chafers by searching for frass/larval evidence inside tree cavities or looking for adults feeding on
- PTES also collect public reports of Noble chafers, and analyse frass samples sent in from orchard owners.

6. Conservation Visions

All potential habitat to be monitored and maintained to enhance the opportunity for Noble chafers in the Wye Valley AONB

- Working with partners to ensure that all potential Noble chafer sites are under management appropriate to maintaining both the integrity and longevity of the habitat and the potential Noble chafer populations within them.

More potential habitat to be created and joined up to enhance the opportunity for Noble chafers in the AONB

- Working with partners and stakeholders to expand, join up, and create new orchard habitats in the AONB, improving corridors for wildlife and enhancing opportunities for Noble chafer populations.

7. Conservation Actions

ACTION	HOW
Raise the profile of the Noble chafer, its ecology, and how to manage orchards for Noble chafer, amongst orchard owners.	<ul style="list-style-type: none"> - Promote guidance and best practice on website - Publish Species Action Plan - Social media campaigns and takeovers - Nature recovery film - Visit orchard landowners
Encourage suitable sites to be managed to create, maintain or otherwise provide good habitat for Noble chafer.	<ul style="list-style-type: none"> - Engage with partner organisations and community orchards to promote orchard management for Noble chafer - Promote the management and creation of suitable habitat on privately owned land, including through suitable funding sources
Promote survey work to better understand the current condition of traditional orchards in the Wye Valley AONB.	<ul style="list-style-type: none"> - Promote Peoples Trust for Endangered Species (PTES) traditional orchard survey
Promote survey work to reinforce our understanding of the Noble chafer's population and distribution within the Wye Valley AONB.	<ul style="list-style-type: none"> - Promote PTES traditional orchard survey and Noble chafer survey - Support AONB volunteers in surveying - Encourage orchard owners to survey for Noble chafer - Highlight importance of wildlife recording for vulnerable species – PTES, iRecord, LERCs
Expand survey effort to include, where practicable, the investigation of non-fruit tree species for evidence of the Noble chafer.	<ul style="list-style-type: none"> - Promote ancient/veteran tree projects/surveys e.g. Ancient Tree Inventory - Support AONB volunteers in surveying veteran trees for Noble chafer
Support and encourage the expansion of current orchard habitats, planting new trees to replace old ones and leaving standing deadwood for Noble chafer habitat.	<ul style="list-style-type: none"> - Agri-environment schemes - Sustainable Development Fund landscape enhancement grants - Promote best practice for tree planting - Signpost tree planting grants/schemes - Highlight importance through website, films, social media
Support and encourage the creation of new orchards (or the creation/provision of suitable deadwood habitat) in locations that will form habitat stepping stones between known or likely Noble chafer orchards.	<ul style="list-style-type: none"> - Agri-environment schemes - Sustainable Development Fund landscape enhancement grants - Landowner advice visits - Promote best practice for tree planting - Signpost tree planting grants/schemes - Highlight importance through website, films, social media

Promote the planting of fruit trees generally, including within hedgerows, in particular where trees can function as habitat stepping stones between known or likely Noble chafer orchards.	<ul style="list-style-type: none"> - Agri-environment schemes - Sustainable Development Fund landscape enhancement grants - Landowner visits - Promote best practice for tree planting - Signpost tree planting grants/schemes - Highlight importance through website, films, social media
Produce habitat boxes to trial the effectiveness of using artificial deadwood habitat as replacement orchard habitat/stepping stones between known or likely Noble chafer orchards.	<ul style="list-style-type: none"> - Secure funding for and contract the production of Noble chafer habitat boxes - Use PTES/AONB data to target suitable sites - Visit orchard landowners and establish suitable sites to trial boxes
Monitor all Noble chafer habitat boxes after three years to assess effectiveness of trial	<ul style="list-style-type: none"> - Explain monitoring process to orchard landowners - Encourage landowners to monitor boxes, or AONB volunteers to survey for them
Develop a programme of surveying to better establish populations and monitor population changes following action.	<ul style="list-style-type: none"> - Liaise with PTES to establish monitoring methods, replicable in the Wye Valley AONB - Undertake monitoring across suitable sites, following established methodologies - Engage landowners and volunteers in surveying and monitoring

8. Role of the Wye Valley AONB Partnership

- Support, advise, facilitate, and co-ordinate conservation action for Noble chafers, both leading on and through partnership within the AONB.
- Engage with landowners and managers, encouraging best practice in managing sites to enhance opportunities for Noble chafer populations.
- Promote Noble chafer conservation within other wildlife conservation organisations and encourage the provision of advice and practical support for orchard management for Noble chafers.
- Where suitable, encourage Local Authorities to take into consideration records of Noble chafer presence in the planning process and set conditions in relevant planning applications to ensure that traditional orchards for Noble chafer are maintained and enhanced.
- Through the planning process, where suitable, encourage developers to include provision for Noble chafer in landscaping e.g. creating wildlife corridors to connect traditional orchard habitats.
- Work with and enthuse volunteers to provide records of sightings and signs of Noble chafer, information about the condition of sites that support Noble chafer e.g. PTES Traditional Orchard Survey, and help with measures to support Noble chafer, e.g. orchard habitat management.

9. Marking progress

We will mark progress through:

- **Noble chafer records:** When there are more records of Noble chafer in the AONB, indicating a population increase or an improvement in survey efforts.
- **Noble chafer sites:** When there are more sites in the AONB where Noble chafer are being recorded, indicating a population increase, an expansion in range or an improvement in survey efforts.
- **Noble chafer measures:** When new measures are successfully implemented to support Noble chafers e.g. trees planted, habitat boxes installed, monitoring schemes set up.
- **Traditional orchard information:** When all of the AONB traditional orchards have been surveyed for their condition.
- **Traditional orchard improvements:** When all of the AONB traditional orchards have improved in condition since the initial survey, as identified by continued condition monitoring.
- **Noble chafer understanding and habitat creation:** When information about Noble chafer is widely available to orchard owners and managers, and the range of Noble chafer habitat in the AONB is being enhanced and encouraged through a wide take up of habitat enhancement including habitat boxes.

10. References and further information

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