Natural England Commissioned Report NECR077

Traditional Orchard Project in England

The creation of an inventory to support the UK Habitat Action Plan

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Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

Background

Traditional orchards are found across England and are a quintessential component of the historic English landscape. They are also important for the range of species they support, including the rare and endangered noble chafer beetle.

Traditional orchards are derived from land management practices which are rapidly disappearing, but which provide excellent conditions for biodiversity to thrive. The habitat is becoming increasingly rare due to neglect, intensification of agriculture and pressure from land development. Since 1950 the overall area of orchards in England has declined by 63%.

In 2007 traditional orchards were designated as a Priority Habitat under the UK Biodiversity Action Plan (BAP). One of the first aims of the Habitat Action Plan (HAP) is to create a habitat inventory to provide a baseline to:

- enable future changes to be measured; and
- identify priorities for future conservation actions.

The People's Trust for Endangered Species, supported by Natural England, has now created a provisional inventory of traditional orchards throughout England.

This report:

- Sets out the aims of the Traditional Orchard Inventory Project.
- Gives details of the methodology used to map the habitat.
- Discusses the outcomes of the work.

The inventory and this report will be used by Natural England and others for a range of activities including:

- Setting and monitoring HAP targets for traditional orchards.
- Targeting agri-environment scheme options for traditional orchards.
- Identifying orchards in local planning policies and development control.
- Contributing to European Union policy development, particularly the identification of High Nature Value Farmland.
- Integrating habitat information and species distributions to support conservation action.

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Further information
This report can be downloaded from the Natural England website: **www.naturalengland.org.uk**. For information on Natural England publications contact the Natural England Enquiry Service on 0845 600 3078 or e-mail **enquiries@naturalengland.org.uk**. For further information about the Traditional Orchards Project and the methodology used in this report, please contact PTES at the address above.

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Summary

This report sets out the aims of the Traditional Orchard Project and gives details of the methodology involved. It also discusses the outcomes of the work and provides recommendations for the future.

The traditional orchard habitat has been identified as having great biodiversity value. The mosaic of habitats that comprise a traditional orchard provide food and shelter for hundreds of species of wildlife including the rare noble chafer beetle which relies on the decaying wood of old fruit trees. This important habitat is becoming rare as we rely increasingly on imports to provide cheap fruit throughout the year. This has left the traditional orchard habitat, an intrinsic feature of the English countryside, at risk from neglect, intensification of agriculture and pressure from land development.

In 2007, traditional orchards were designated as a Priority Habitat under the UK Biodiversity Action Plan (BAP) and People's Trust for Endangered Species (PTES), in collaboration with Natural England, has been working to create an inventory of traditional orchards throughout England. This inventory will support the Habitat Action Plan (HAP) and provide a much-needed baseline of data from which to focus future conservation action.

The project has involved over 600 local volunteers, contributing 563 volunteer days to the project and has engaged many orchard owners throughout the country resulting in the collection of 764 orchard owner questionnaires.

The traditional orchard inventory in England is available to download via the publications, maps and data page on the Natural England wesbite, (http://www.gis.naturalengland.org.uk/pubs/gis/GIS_register.asp) and is available to view via the interactive map page of the MAGIC website (http://magic.defra.gov.uk/).

The methodology used in this project has identified 16,990 ha of traditional orchard habitat in England. 35,378 individual traditional orchards were identified primarily via aerial photograph interpretation. 19% of traditional orchards identified have been ground-truthed by volunteers and additional information pertaining to each site has been collected.

Condition assessment criteria have been produced: 45% of England's traditional orchards are in poor condition, 46% are in good condition and only 9% are in excellent condition. 2831 ha of England's traditional orchards are included within Environmental Stewardship schemes.

Contents

Appendices

List of tables

List of figures

List of plates

1. Introduction

Traditional orchards

1.1. Traditional orchards are a much loved part of our British heritage and countryside, providing local communities with delicious fruit and peaceful places to enjoy. The biodiversity value of traditional orchards has also recently been acknowledged (Smart & Winnall, 2006, Lush and others, 2009).

Previous estimated extent of traditional orchard habitat

1.2. Traditional orchards are found in all countries of the UK although England has the bulk of the resource. The Ordnance Survey data shows that orchards are dispersed throughout the lowlands of Britain, although there are concentrations in some areas, particularly Kent, Cambridgeshire, Somerset, Devon, Herefordshire, Worcestershire and Gloucestershire.

1.3. Based on Ordnance Survey data and information from agricultural censuses, the previous estimated extent of traditional orchards in the UK was 25,350 ha with 24,600 ha being in England (Robertson & Wedge, 2008). This extent of traditional orchards in England was estimated and includes some orchards that do not meet the current HAP definition (section 1.15).

Biodiversity of traditional orchards

1.4. The range of wildlife that an orchard can support depends on the mosaic of habitats that make up the orchard, including the fruit trees, scrub, hedgerows, hedgerow trees, the orchard floor habitats, fallen deadwood and other habitats such as ponds (Lush and others, 2009).

1.5. In one study of traditional orchards in Worcestershire, 1,868 species were recorded at three sites (covering 5.39 ha), including vascular plants, bryophytes, fungi, lichens, vertebrates and invertebrates (Smart & Winnall, 2006). The study showed that the three orchards provided habitat used by a wide range of rare and threatened species including BAP species, nationally rare, scarce or declining species and ones included on Red and Amber Lists, demonstrating that orchard habitats can support an important biodiversity.

1.6. The biodiversity value of traditional orchards was set out in the case made in 2005 to include traditional orchards on the list of habitats recognised as national priorities for conservation action in the UK Biodiversity Action Plan (Robertson, 2006). The proposal received widespread support from conservation organisations including the PTES. The proposal was accepted by Government in August 2007 and the traditional orchard habitat is now a Priority Habitat under the UK Biodiversity Action Plan.

1.7. This habitat, where rare plants, lichens, invertebrates and small mammals flourish is becoming increasingly rare due to neglect, intensification of agriculture and pressure from land development putting the already endangered species they support under even greater threat. It is estimated that since 1950 overall orchard area in England has declined by 63% (Natural England, 2008). Natural England is also studying recent orchard change in several sample areas in England. Early results show considerable losses. In the Gloucestershire sample area,

between 1999 and 2004, net loss rates were 1.2% per year, while in the Kent study area, loss rates were 1.8% per year between 1999 and 2003 (Natural England, unpublished).

Traditional orchard Biodiversity Action Plan

1.8. Since traditional orchards became a Priority Habitat in 2007, a UK Traditional Orchards Habitat Action Plan (HAP) Group has been established and an Action Plan produced (Robertson and others, 2010). Natural England and the National Trust are leading this work, with the support of the PTES and organisations such as Common Ground, the Tree Council, the Royal Society for the Protection of Birds and the other UK NGOs and statutory conservation agencies.

1.9. The current targets for this habitat action plan are as follows:

1. No net loss of traditional orchards across the UK. The aim of this target is to ensure there is no loss of traditional orchards of high nature quality but the HAP Group acknowledges there will be some losses and gains in space and time.

2. Improve the condition of traditional orchards. A condition assessment (Appendix 1) has been agreed and is being used (Burrough and others, 2009). The aim for this target is for the traditional orchard resource to be in improved condition within an appropriate landscape unit.

3. Increase the extent of traditional orchards across the UK. This target aims to expand the number of traditional orchards to counter the rapid decline in the second half of the 20th century. It can be delivered in three ways:
    a) planting fruit trees and/or clearing scrub on land parcels with scattered fruit trees (less than five and more than 20m apart) i.e. a relict orchard;
    b) planting fruit trees on historic orchard sites where no fruit trees remain;
    c) planting fruit trees where none occurred before.

1.10. The UK HAP Group recognised that producing an inventory of traditional orchards was a very high priority as existing data relating to the extent and distribution of traditional orchards were outdated.

1.11. PTES was commissioned by Natural England, with additional funding from the Esmée Fairbairn Foundation, to produce an inventory of traditional orchards in England within the scope of the “traditional orchard project”.

1.12. Such an inventory is vital for a range of HAP activities, among which are:

- setting and monitoring HAP targets for traditional orchards;
- targeting Environment Stewardship scheme options for traditional orchards;
- identifying orchards in local planning policies and development control;
- integrating habitat information and species distributions to support conservation action.

1.13. The UK Traditional Orchards HAP Group also recognised the importance of communications in conserving the habitat. Informing and enthusing people is vital to build a

constituency of support for orchard conservation and to foster co-operation between organisations and individuals.

Aims of the Traditional Orchard Project

1.14. The main aims of the project were as follows:

- to complete an inventory of traditional orchards in England, primarily from aerial photograph interpretation, supplemented by ground-truth information, and produce the inventory in digital form suitable for internet-based dissemination;
- to make the inventory available to the Traditional Orchard HAP group and other BAP groups (including birds, bats, lichens and fungi), conservation organisations, policy makers, Local Authority planners and anyone with an interest in traditional orchard habitat;
- to support the noble chafer BAP through field surveys for population locations. The PTES leads on the Noble Chafer Species Action Plan and has been carrying out population location surveys for the beetle over the past twelve years. The UK BAP Standing Committee has recently reviewed the BAP process in the UK and wants the species and habitat action plans to be better integrated. This means that continuing the noble chafer field survey alongside a habitat inventory helps ensure that the necessary integrated conservation action is taken;
- to train volunteers to carry out ground-truthing of orchards in the field and inform and encourage their interest in traditional orchards and their wildlife;
- to work with the various stakeholders involved in traditional orchard conservation in the UK to share knowledge about traditional orchards;
- to increase awareness of traditional orchards and their importance for wildlife among orchard owners, local communities, the media and the general public.

Definition

1.15. Traditional orchards are defined, for priority habitat purposes, as groups of fruit and nut trees planted on vigorous rootstocks at low densities in permanent grassland; and managed in a low intensity way. Cobnut plats are also included.

Background/explanation to definition

1.16. Traditional orchards are a long-established and widely distributed habitat and make a significant contribution to biodiversity, landscape character and local distinctiveness across the UK. There are many regional variations on this theme, including apple, pear, cherry, plum, damson, and walnut orchards. Although cobnut plat structure and management varies from fruit tree orchards and has affinities with coppice woodland, they are also included in the definition.

1.17. Traditional orchards are a composite habitat (similar to wood-pasture and parkland), defined by their structure rather than vegetation type, which can include trees, scrub, grassland, ponds, walls, hedgerows and hedgerow trees. They can take several different

distribution patterns, including small and large patches, along linear boundaries, and trees dispersed among settlements.

1.18. Prime traditional orchard habitat consists of grazed grassland with fruit trees of varying age structure, with an abundance of standing and fallen dead and decaying wood. Young trees and newly planted orchards that are managed in a low intensity way are also included in the definition.

1.19. Low intensity management refers to orchards that are managed with little or no use of chemicals such as pesticides, herbicides and inorganic fertilisers, with relatively long-lived trees that are allowed to reach the veteran stage, and with a permanent grass sward that is usually grazed by cattle or sheep or cut for hay. Although traditional orchards have sometimes been established with soft fruit or other crops grown between rows, where these are managed extensively the orchard floor has usually been grassed over once the trees have matured and the canopy has closed.

1.20. In contrast, intensive management refers to orchards managed to maximise fruit production, usually including several of the following management practices: dense planting of short-lived trees on dwarfing rootstocks, high chemical inputs, intensive pruning to remove dead and decaying wood and maintain the trees in a restricted form, and frequent mowing and spraying of the orchard floor.

1.21. Planting density in a traditional orchard depends on the species of tree. For apple, pear and cherry this will usually be less than 150 trees/ha (approximately 8 m spacing between the trees), but for other species such as plum and damson this density may be higher. Tree form will usually be standards or half-standards, but will vary according to species and local practice. Vigorous rootstocks include trees that are grown on their own rootstock, seedling rootstocks, and named rootstocks that allow the tree to develop to its full size.

1.22. The minimum size of a traditional orchard is defined as five trees with crown edges less than 20m apart. However the potential biological and genetic interest of sites with fewer trees, such as relict orchards and individual trees within gardens, is noted. Where appropriate these should be considered as potential restoration sites. It is recognised that other sites which fall outside the definition, such as organic bush orchards and fruit collections in walled gardens may also have biodiversity value, as well as historic, cultural and genetic importance.

2. Methodology

Mapping definition

2.1. For the purpose of the inventory, a mapping definition is used as follows:

"*to be mapped as an orchard, the crown edges of trees must be within 20 m of each other to be included in the orchard patch, and there must be five or more trees within 20 m of each other's crown edges. Land parcels with fewer than five trees or scattered trees with crown edges more than 20 m apart are identified as relict orchards and, where appropriate, considered as potential restoration sites." (Robertson, 2006).*

Sources of information

2.2. A desk-top study has been undertaken to compile a GIS digital layer of traditional orchard polygons for each of the counties, or where appropriate, Unitary Authorities, of England.

Ordnance Survey

2.3. The Ordnance Survey 1:25000 map series was sometimes used to search for land classified as an orchard. The low resolution only allows for the larger orchards to be identified directly. This series was often referenced for geographical location data included in the notes where relevant.

Aerial Photographs

2.4. As Ordnance Survey data do not distinguish between traditional and intensively managed orchards, aerial photographs were referred to in order to establish orchard type (see section 2.8). Aerial photographs were also used to aid the identification of habitat boundaries. The most current set of aerial photographs were supplied by Natural England and systematically analysed by two full-time mapping officers.

Orchards in Environmental Stewardship schemes

2.5. A GIS layer of traditional orchards in Environmental Stewardship schemes was provided by Natural England. This included agreement numbers and size data from 2006 – 2010.

Other sources of information

2.6. Information was also acquired, where it existed, from local record centres, Local Authorities and from other orchard projects undertaken at a local level. This was cross-referenced with aerial photograph information.

2.7. Relationships were fostered between various stakeholders which were considered to be vital to the success of this project. Contact was, and will continue to be, made with a variety of organisations including orchard groups, biodiversity partnerships, local record centres and county councils.

A full list of partners and sources of existing information can be seen in Appendix 2.

Aerial photograph interpretation

2.8. Using the physical characteristics of traditionally managed orchards compared with those managed intensively, aerial photography has been shown to be one of the most useful sources of information for identifying traditional orchards.

2.9. The linear planting of fruit trees is easy to identify from the air and, typically, traditionally managed orchards (plate 1) will be less densely planted than intensively managed ones (plate 2).

Plate 1 Aerial view of traditionally managed orchard highlighting widely spaced planting of trees

Plate 2 Aerial view of intensively managed orchard highlighting planting at high density with smaller tree stock – often dwarfing root stocks

2.10. Absence of spray lines created by herbicides is one of the easiest ways to distinguish orchards managed traditionally (plates 3 & 4) from those managed intensively (plates 5 & 6). Spray lines are usually easily visible as lines of bare earth beneath the fruit trees (plate 6) or there can also be bare areas around individual trees.

Plate 3 Aerial view of traditionally managed orchard with no evidence of spray lines

(Photo PTES)

Plate 4 The same traditionally managed orchard from the ground confirming the aerial photograph interpretation.

Plate 5 Spray lines created by herbicides clearly evident

(Photo PTES)

Plate 6 The same intensively managed orchard from the ground after recent application of herbicide

2.11 There are potential problems when interpreting aerial photographs. For example when distinguishing between newly planted broadleaf woodland and a newly planted traditional orchard (plates 7 & 8) or mistaking bare ground from mowing in dry weather with bare ground created by herbicide application.

Plate 7 Ambiguous traditional orchard

(Photo PTES)

Plate 8 Deciduous plantation discovered when ground-truthed

2.12. Ambiguities were inevitably encountered when interpreting aerial photographs and therefore volunteer surveyors were subsequently required to “ground-truth” ambiguous sites.

Volunteer involvement

2.13. Volunteers were recruited by various means through local orchard groups, volunteer centres, internet advertisements and through media coverage of the project. Volunteer involvement aimed to ground-truth the aerial photograph information especially where interpretation was ambiguous.

2.14. One of the additional objectives in using local volunteers was to raise awareness of traditional orchard issues amongst local communities and encourage their interest in traditional orchards and their wildlife.

2.15. As well as verifying the presence/absence of traditional orchards, surveyors collected additional survey data relevant to the condition of each orchard and also engaged with orchard owners where possible. Survey work comprised two levels: a preliminary (road-side) survey (Appendix 3) and an on-site survey (Appendix 4). This included additional information recorded from site surveys such as:

- the orchard trees – species, numbers, age structure, condition, gaps for new plantings;
- the orchard floor – type of grassland, plant species composition, anthills, current management;
- boundary features such as hedgerows, old pollard trees, stone walls;
- other significant features, such as ponds and streams and other species of interest such as butterflies, mistletoe, lichen and fungi.

2.16. Engaging with orchard owners was considered to be an important objective within the aims of this project and a questionnaire was developed to establish the type and extent of management and current use of the orchards (Appendix 5). Links with orchard workers or owners were forged and advice and information provided on sympathetic, traditional orchard management, in particular with regard to the conservation of BAP species, such as noble chafer (*Gnorimus nobilis*) (PTES website, http://ptes.org/files/712_orchard_guide_edition2.pdf) [Accessed March 2011].

2.17. The UK Traditional Orchards HAP Group also recognised the importance of communication in conserving the habitat. Informing and enthusing people help build support for orchard conservation and to foster co-operation between organisations and individuals. The communications activities in the project and the involvement of volunteers has made a significant contribution to improving understanding about the habitat and its wildlife by a wide range of people.

Condition assessment

2.18. As well as mapping orchards, the traditional orchard inventory aimed to record the condition of each orchard ground-truthed. The condition assessment criteria have been developed by members of the HAP group (Burrough and others, 2009) and are based around the fields in the preliminary survey form (Appendix 3). The condition is determined by the presence or absence of some key management features, such as gapping up and retaining dead and decaying wood. These criteria are unique to the Traditional Orchard HAP condition assessment methodology, and do not reflect the Condition Standards Monitoring criteria used to assess the condition of Sites of Special Scientific Interest (SSSIs).

2.19. The condition assessment can be used to prioritise orchards where changes in management could improve the condition of a poor or fair orchard and can also identify excellent orchards in which detailed species survey work could be undertaken.

Database creation

2.20. A Geographical Information System (GIS) MapInfo database, together with a bespoke data capture tool, were created to acquire and collate the desk top and ground-truthing information throughout the duration of the project. This database is known as the ‘traditional orchard database’ and is held with PTES. Key fields of this database are summarised and

comprise the traditional orchard inventory. Further information about the fields contained within the inventory is found in section 2.32 and in Table 4.

2.21. The structure of the traditional orchard database is explained in Table 4. The determination of the boundary for each orchard polygon is explained in section 2.29.

Data dissemination

2.22. The information collected by volunteers and orchard owners was entered into the GIS (MapInfo) traditional orchard database. The boundary of each orchard was marked, drawn to Natural England's digitising standards (Burke & Webb, 2003), and any supplementary information about the site is logged.

2.23. The traditional orchard inventory is published on the internet and the data is available to download free of charge via the Natural England website as a GIS digital boundary dataset. The available file contains the inventory in both MapInfo .tab and ArcView .shp file formats together with an Excel spread-sheet also containing the data. In addition, there is a document explaining the data capture process and the Natural England Terms of Use document. Survey data associated with each orchard site is also available (Natural England website, http://www.gis.naturalengland.org.uk/pubs/gis/GIS_register.asp) [Accessed March 2011].

2.24. To view the traditional orchard inventory for a particular area, county, town or postcode, the MAGIC interactive map can be used (MAGIC website, (http://magic.defra.gov.uk./) [Accessed March 2011].

Rule base

2.25. A 'rule base' for the acquisition and presentation of data was used to construct the traditional orchard inventory to ensure consistency and accuracy. The traditional orchard inventory rule base follows the model for other habitat inventories on Natural England's publicly available map information on the internet, with some modification due to the fact that habitat structure rather than vegetation composition is the characteristic feature of the habitat.

Reliability of priority habitat interpretation

2.26. The reliability of priority habitat determination for each patch of habitat on the map was judged according to a series of determination criteria related to the relative quality of the data sets used to construct the inventory. Datasets containing information about orchards were allocated a 'Quality of interpretation' rating, ranging from high to low, dependent on their quality. Quality was assessed using age of the survey data and level of survey detail. Together, these factors indicated the reliability in interpretation of the BAP priority type from this data source. Data sources supplied three critical pieces of priority habitat information: the presence of an orchard, the type of orchard (traditional not intensive) and boundary of the orchard. Some component data sources only supplied part of the information and thus had a lower quality rating in themselves. In combination with other data however, higher quality interpretation was possible. The combination of data sources to supply the three critical pieces of information about orchards was the underlying principle in the methodology for the traditional orchard inventory compilation 2006-2011. The aerial photography data source was an exception, as by itself it is often capable of supplying all three pieces of information with a high degree of accuracy. A complicating factor is that the data sources described in Table 2

varied in quality within each source. As far as possible, the matrix attempts to deal with this variation. External data sources are potentially so variable that an 'average' rating is entered in the matrix but the quality of each one should be assessed on a case by case basis. Information on the habitat derived solely from low quality data sets has not been included in the inventory. However, this data is preserved on the database and may be refined in future, where appropriate.

2.27. The age of the data is significant for traditional orchards as at present they are suffering high loss rates and have done for several decades. This situation is similar to that for priority BAP unimproved grasslands. At the time of writing, loss is evident even within the most recent five years, so actual presence of an orchard needs to be checked at the time for site-specific purposes, for example applications for Environmental Stewardship agreements. Orchard information that is older than 20 years was not included in the inventory.

Table 1 Interpretation quality matrix (Interqual field)

Survey data source combinations	**Age of Data (years)**		
	0 – 5	6-10	11 – 20
*Ground-truthed by surveyor (+ API/map boundary)	High (1)	Medium (2)	Medium (4)
*Orchard Owners Questionnaire (+ API/map boundary)	High (1)	Medium (2)	Medium (4)
*Orchard Owner Questionnaire matches ground-truth by surveyors, (+ API/map boundary)	High (1)	Medium (2)	Medium (4)
API alone and unambiguous	High (1)	Medium (2)	Medium (4)
API alone and ambiguous	Medium (3)	Medium (4)	Medium (4)
External sources and surveys (e.g. county council data, agri-environment agreement information)	Medium	Medium	Medium
*Orchard Owners Questionnaire conflicts with ground-truth by surveyor, API ambiguous.	Low (5)	Low (6)	Low (7)
Information from ground-truth survey or Orchard Owners questionnaire in insufficient detail to identify type of orchard, API ambiguous	Low (5)	Low (6)	Low (7)
OS MasterMap alone	Low (5)	Low (6)	Low (7)
Expert knowledge of site loss (site moved out of inventory as a consequence)	High (1)	High (1)	High (1)

Notes: i) * denotes that ground-truth survey or Orchard Owners Questionnaire has sufficient detail to identify type of orchard when presence of an orchard is confirmed by these sources. i) Ground-truth survey and Orchard Owners Questionnaire information lacking polygon boundaries are not included in the inventory but preserved on the database pending boundary investigation. ii) Type of orchard cannot be determined from OS MasterMap alone. v) Numbers in brackets are a further indication of relative quality (High =1, Medium: 2, 3, 4, Low: 5, 6, 7).

Determination criteria for priority habitat qualifier

2.28. The Priority Qualifier type gives a standard description of the confidence with which a particular orchard can be identified as the priority habitat of traditional orchards. It is judged according to the determination criteria set out in Table 2, which supply an easy way of translating the interpretation quality matrix into a single qualifier for each orchard polygon.

Table 2 Priority Qualifier type (PriDet field)

Determination Criteria	**Priority Qualifier type**
Ground-truthed within last 5 years with sufficient information to identify type of orchard, API boundary/map boundary available OR Orchard Owner Questionnaire within last 5 years with sufficient information to identify type of orchard, API boundary/map boundary available OR Orchard Owners Questionnaire matches ground-truth by surveyor, both have sufficient information to identify type of orchard and both within last 5 years, API boundary/map boundary available OR API within last 5 years and unambiguous: indicators clearly present such as livestock grazing, uninterrupted sward cover on orchard floor, orchard planting arrangement clearly visible, boundary of orchard clearly identifiable OR External data within last 5 years sufficient to consistently and reliably identify type of orchard, API boundary (alone or checked against map boundary) drawn using same rules as inventory project or available through inventory project	Definitely is traditional orchard priority habitat
As above but data source is 6-10 years old	Probably traditional orchard priority habitat but some uncertainty due to age of data source

Table continued...

As above but data source is 11-20 years old OR API is sole data source and is ambiguous, common reasons are: a) Orchards where management has been abandoned and scrub and non-fruit trees have invaded to such a degree that orchard structure difficult to discern, b) loss of fruit trees within the orchard has made orchard arrangement of trees unclear or raises doubts that sufficient fruit trees remain in close proximity to be classed as an orchard according to the inventory project mapping definition, c) trees are close-spaced and small and management of orchard floor is uncertain, such as unclear evidence of cultivation/spraying of tree rows, d) orchard could not be seen by a surveyor	Priority traditional orchard habitat may be present but evidence is either insufficient to determine presence confidently or is in the oldest allowable category
Orchard Owners Questionnaire conflicts with ground-truth by surveyor, and API ambiguous OR Information from ground-truth survey or Orchard Owners questionnaire in insufficient detail to identify type of orchard, and API ambiguous OR External data source insufficient to consistently and reliably identify orchard type and no API/map boundary available OR OS MasterMap is the only available data source OR Expert knowledge of site loss within the last 20 years OR Data source is over 20 years old	No entry for habitat on the inventory as data insufficient or inconclusive or site known to have been lost or data source too old

Choice of component data source for boundary and habitat identification

Boundary determination (Sourceboundary field)

2.29. An orchard can only be included on the traditional orchard inventory on the internet if it has a boundary. The primary source for boundary mapping was the most recent set of aerial photographs. Ground-mapping was very difficult and time-consuming and as a consequence was not part of the ground-truthing by surveyors in the project. The OS MasterMap was always the secondary source for boundary mapping as it is not as accurate as aerial photographs. Even though the polygon outline may have come from MasterMap (as specified in the Project's digitising standards) it should always be checked against the primary source, the aerial photographs, and adjusted according to the following mapping rules:

- if the MasterMap parcel boundary is within 20 m of the crown edge of the orchard trees shown on the aerial photograph then it is accepted as the boundary;

- if the tree crowns are further away than 20 m from the MasterMap parcel boundary, the orchard boundary was digitised from the aerial photograph.

2.30. If a particular polygon is listed as having MasterMap as the primary source from datasets outside the Traditional Orchard Project, then somewhat less confidence can be placed in this boundary, which should be checked against aerial photographs as soon as resources allow.

Habitat identification (Source habid field)

2.31. The habitat identification field is rather less useful in the traditional orchard inventory than in other inventories which are derived from more mixed sources. In the Traditional Orchards Project, aerial photograph interpretation (API) was always done for every polygon, while ground-truthing was not as comprehensive. However, the normal hierarchy for deciding the primary source if more than one was available is as follows:

- first - Orchard Owners' Questionnaire if sufficiently detailed;
- second - ground truth information from surveyor if sufficiently detailed;
- third - aerial photograph interpretation;
- variable rating - external sources may supply very detailed, high quality information, for example the survey of three orchards in the Wyre Forest (Smart, M. J. & Winnall, R. A. 2006). Other sources may be less informative. In these situations the primary source needs to be assessed on a case by case basis.

Relationship between summary inventory information for the internet and Traditional Orchards Project database

General points

2.32. Table 3 sets out the key data fields from the traditional orchard database which appear in the summary internet-published inventory. The equivalent standard field names for habitat inventories on the internet are given in Table 3 in italics and brackets. Table 4 sets out the fields that are included within the traditional orchard database but are not included within the published inventory. This includes information covered by the Data Protection Act such as surveyor and orchard owner details (see Table 4). For simplicity, several component data sources for traditional orchards have been given fixed numbers and descriptions in Table 3 as they appear over and over again in the inventory. If no information is available on a particular source, only the first field for the source (done/not done) is completed. Fields for habitat type and habitat classification are not used for orchard data sources.

Habitat definition version (Habdefver field)

2.33. Habitat inventories on the internet provide documentation on the definition used for individual habitat polygons as definitions can change over time. Similar documentation is provided for the traditional orchards inventory. Currently, the general definition for the habitat is taken from the Habitat Action Plan (see section 1.15).

Consideration of other orchard types

2.34. Another type of orchard that may be included in the inventory in small numbers, based on available evidence, is the sort that was once managed intensively, perhaps for decades in the case of some half-standard orchards, but which is now unmanaged, or managed in a low intensity way. The 'snapshot' of ground survey and most recent aerial photograph interpretation would indicate that an orchard is traditional, but older photographs or other historic information may show this orchard to have been intensively managed in the past. This management history will only be available for some sites. Management history may become discernable, for example, when updating the inventory. A 'new' traditional orchard may be recorded on the most recent aerial photographs, but the previous photographs showed the orchard to have been present but intensively managed. These sites may be analogous to semi-improved grassland and in the same way have some biodiversity interest, especially compared with intensively managed sites. However, very little is known about the change in biodiversity that may occur when orchard management is relaxed. Until knowledge increases, the approach proposed is to have a field on the database, but not in the summary inventory, that relates to history. Information would be 'not available' for most sites, but the field can be used where it becomes known that an orchard was previously intensively managed, say in the last five years or in the last ten years. These sites would be a resource of locations for research or for local targeting purposes. The field would also be useful as background information in cases of challenge on particular polygons in the inventory. As it is not yet known how valuable such sites might be for biodiversity they should not automatically be written off.

Sites included on the traditional orchard database but not on the summary inventory

2.35. Information on traditional orchards that is derived solely from low quality data sources has not been included in the summary inventory. However, site details derived from such information are preserved on the database and may be followed up in future. Examples are where ground-truth survey and orchard owners questionnaire information lacks polygon boundaries (say, has a single grid reference only), and sites where the Orchard Owners Questionnaire conflicts with ground-truthing by the surveyor and the API is ambiguous.

2.36. Another category of sites on the database but not the inventory, are those orchards that do not fit the habitat definition but which may be of interest for conservation action:

- locations of relict orchards;
- sites of lost orchards which were once on the inventory;
- long abandoned orchards which may resemble woodland and scrub more closely than an orchard.

2.37. Information on relict orchards, for instance, may be supplied by ground-truthers but is not recorded as part of the API. Thus this category may not be comprehensive in geographical coverage in the database, but may be useful, for example, for local groups interested in orchard restoration. Previously intensive orchards are another type of orchard included on the database but not the summary inventory as discussed in more detail in the previous section (2.34).

Table 3 Key data fields for each polygon on the internet-based inventory, extracted from the full Traditional Orchards Project database

Abbreviations for standard Natural England habitat inventory field names and GIS field names are given in italics for information. Fields underlined have no standard equivalent. Relevant abbreviations for these fields are given in brackets.

Field name	Description	Data format/choices of entry	Length
Polygon ID (Incremental ID; *Incid*)	Unique identifier for each polygon	Alpha-numeric code	25
Priority habitat (*Prihabtxt*)	Name of habitat, always Traditional Orchard	Traditional orchard	20
Habitat definition version (*Habdefver*)	Version number (refer to relevant pdf on the Natural England website)	Version number*	5
Priority Qualifier (*PriDet*)	Priority determination, degree of confidence of determination based on available sources	Definitely is traditional orchard priority habitat OR Probably traditional orchard priority habitat but some uncertainty due to age of data source OR Priority traditional orchard habitat may be present but evidence is either insufficient to determine presence confidently or is in the oldest allowable category	180
Reliability of priority habitat interpretation (*InterQual*)	Score for quality of priority habitat interpretation from highest scoring data source. Low quality data sources are not included on the summary inventory	1 (High) 2 (Medium) 3 (Medium) 4 (Medium)	10
Habitat condition (HabCondition)	Assessment of condition of orchard based on presence or absence of a number of criteria	Excellent Good Poor	10
Ground truth survey (Source1_Ground_truthed)	Ground truth survey for Traditional Orchard Project 2006-2011	Done Not done	10
Ground truth date (S1captdate)	Date that orchard was ground-truthed (last date if visited more than once)	DD/MM/YYYY	Date

Table continued…

Field name	Description	Data format/choices of entry	Length
Ground truth habitat ID (S1Habid)	Rank of ground-truth source for identification of habitat	Primary Secondary Tertiary Other none	10
Ground truth Orchard Management Status (S1Status)	Comments on current state of the orchard, restricted to some key expressions.	Active management Unmanaged Part-managed Management unknown	30
Ground truth Tree planting evidence (S1Planting)	Comments on current state of the orchard, restricted to some key expressions.	Young orchard Young trees in gaps No young trees	27
Orchard Owners Questionnaire (Source2_Orch_owner_quest)	Orchard Owners Questionnaire (OOQ) for Traditional Orchard Project 2006-2011	Done Not done	10
OOQ date (S2captdate)	OOQ date	DD/MM/YYYY	Date
OOQ habitat ID rank (*S2Habid*)	Rank of OOQ source for identification of habitat.	Primary Secondary Tertiary Other none	10
OOQ Orchard Management Status (S2Status)	Comments on current state of the orchard, restricted to some key expressions.	Active management Unmanaged Part-managed Management unknown	30
OOQ Tree planting evidence (S2 Planting)	Comments on current state of the orchard, restricted to some key expressions.	Young orchard Established, few or no gaps Young trees in gaps No young trees	27
Aerial photograph date (Source3_API_date, S3captdate)	Date of latest photograph used to make interpretation	DD/MM/YYYY	Date
API boundary rank (S3Boundary)	Always primary (exception Environmental Stewardship polygons - see section 3.6)	Primary Secondary	10

Table continued…

Field name	Description	Data format/choices of entry	Length
API habitat ID rank (S3Habid)	Rank of API source for identification of habitat	Primary Secondary Tertiary Other none	10
API Orchard Management Status (S3Status)	Comments on current state of the orchard, restricted to some key expressions.	Active management Unmanaged Part-managed Management unknown	30
API Tree planting evidence (S3 Planting)	Comments on current state of the orchard, restricted to some key expressions.	Young orchard Young trees in gaps No young trees	27
AP metadata (*S3Metadata*)	Traceable metadata including company name	Free text	50
Non-TOP survey (Source4_Non_TOP_data,)	External survey outside of Traditional Orchards Project	[Source Name] None	40
Non-TOP survey date (S4captdate)	Date orchard surveyed	DD/MM/YYYY	Date
Non-TOP survey boundary rank (S4Boundary)	Rank of survey source in deciding orchard boundary	Primary Secondary Tertiary Other none	10
Non-TOP survey habitat ID rank (S4Habid)	Rank of survey for identification of habitat	Primary Secondary Tertiary Other none	10
Non-TOP Orchard Management Status (S4Status)	Comments on current state of the orchard, restricted to some key expressions.	Active management Unmanaged Part-managed Management unknown	30

Table continued…

Field name	Description	Data format/choices of entry	Length
Tree planting evidence (S4 Planting)	Comments on current state of the orchard, restricted to some key expressions.	Young orchard Established, few or no gaps Young trees in gaps No young trees	32
Non-TOP survey metadata (S4Metadata)	Traceable metadata including survey report citation, if public information	Free text	32
OS MasterMap (Source5_MasterMap, *Source5txt*)	Ordnance Survey MasterMap	Boundary used/boundary not used	20
OSMM latest change date field (*S5captdate*)	Polygon information in OS MasterMap	DD/MM/YYYY	Date
OSMM boundary rank (*S5Boundary*)	Always secondary	Secondary	10
Environmental Stewardship (*Stewardship*)	Environmental Stewardship agreement – polygon containing orchard options, can be under CSS/ELS/HLS/OELS. Agreement number is contained within additional polygon notes field together with the following options: HC18 Maintenance of high value traditional orchards HC19 Maintenance of traditional orchards in production HC20 Restoration of traditional orchards HC21 Creation of traditional orchards	CSS ELS HLS OELS	25
IACS	Land parcel identifier used in stewardship schemes	2 letters, 8 digits, optional suffix. Equates to a map reference	12
Created on	Date polygon created	DD/MM/YYYY	Date
Edited on	Date data edited	DD/MM/YYYY	Date
Additional polygon notes for each source	Comments from API, field surveys eg on difficulties in interpretation Environmental Stewardship agreement number with associated option code.	Free Text	254
Crop (5 fields)	Cherry, apple, pear, plum, damson	Y, N or blank	1
Crop	Other fruit trees	Species	15

Table continued…

Field name	Description	Data format/choices of entry	Length
Old fruit trees (4 fields)	Bands recording old fruit trees – 0-10, 11-30, 31-100, 101+	Y, N or blank	1
Younger fruit trees (4 fields)	Bands recording younger fruit trees (lacking veteran characteristics of aging) – 0-10, 11-30, 31-100, 101+	Y, N or blank	1
Ground vegetation (6 fields)	Scrub, brambles, nettles, thistles, grass, recorded on the DAFOR scale	D, A, F, O, or R	1
Management (3 fields)	Grazed, mown, or unmanaged	Y, N or blank	1
Livestock (6 fields)	Sheep, cattle, equine, pigs, fowl, other	Y, N or blank	1
Grazing damage	Livestock or wild fauna damage evident on trees	Y, N or blank	1
Ancient tree indicators (10 fields)	Branch holes, loose bark, trunk cavities, deadwood canopy, deadwood floor, water pools, bark crevices, sap runs, fungal fruits, aerial roots	Y, N or blank	1
Other habitats (4 fields)	Hedgerows, ponds, non-fruit or nut veteran trees, rough areas	Y, N or blank	1
Species of interest	Other significant species found in the orchard	Nominal	254
Easting	BNG easting (x co-ordinate)	Exact centre of polygon	Float
Northing	BNG northing (y co-ordinate)	Exact centre of polygon	Float
Area (Ha)	Land parcel area in hectares	Exact area of polygon	Float

Table 4 Other fields in the Traditional Orchards Project database but not in the summary internet-based inventory

NB: The full database includes information that identifies individuals and is covered by the provisions of the Data Protection Act

Field name	Description	Data format / choices of entry	Char's
Created by	Full name of polygon creator	[Name]	25
Edited by	Full name of editor	[Name]	25
Management history	Historical data regarding past history (for future use)	Intensive in last 5 yrs Intensive in last 10 yrs	30
NonTOcode	Non-traditional orchard kept within database for habitat value or restoration potential	Relict Lost** Long abandoned traditional orchard Intensively managed traditional orchard trees Abandoned or organic bush orchard	50
Ground truth surveyor name	Names of all surveyors/organisations	[Name]	45
Site grade for noble chafer	Assessment of suitability of habitat for BAP species *Gnorimus nobilis*	1, 2 or 3	8
Noble chafer evidence (5 fields)	Survey result recorded as: adult, larvae, frass, fragment, or none	Y, N or blank	1
Mode average tree girth	If positive noble chafer evidence, tree circumference is measured	Centimeters	10
Orchard Owner Questionnaire	Form filled out by the owner	Y, N or blank	1
Permission to visit	Permission granted by the owner for a surveyor to visit	Y, N or blank	1
Personal details (4 fields)	Owner name Orchard name Address Telephone number	Nominal	100 100 200 20
IACS	Land parcel identifier used in stewardship schemes	2 letters, 8 digits, optional suffix. Equates to a map reference	12

Notes ** Lost category only used for traditional orchards entered on to the inventory at a previous date. Orchards lost before the first compilation of the inventory are not included. During inventory production a 'deleted sites' working file contains such sites for information.

3. Project constraints

3.1. The traditional orchard inventory is classed, as are all inventories, as “provisional” because it will be reviewed and updated as new information is received or actual changes recorded. The inventory should therefore not be regarded as a complete resource statement: rather as a guide to identified sites for which information is held.

3.2. Some traditional orchards may be incorrectly recorded. In addition some traditional orchards may have changed since the provisional inventory was produced. For example, orchards may have been grubbed up and replanted or grubbed up to make way for urban development. Others may have been planted or restored.

3.3. The inclusion of ground-truthing within this project has ensured greater accuracy of the inventory. To ensure that the inventory remains as accurate as possible, it is important to ensure that errors or changes are recorded. PTES would be pleased to receive information regarding proposed amendments to the inventory or digital boundaries, where these are based on new survey, map or other information. Contact details are given on page i.

Aerial photograph interpretation

3.4. Whilst aerial photograph interpretation is most useful for identifying traditional orchards, errors and omissions will occur. For example, the dates of the aerial photographs often precede newly planted orchards and consequently such sites will not be noted unless information has been provided from another means.

Orchards in Environmental Stewardship

3.5. Orchards included within the Environmental Stewardship layer provided by Natural England have boundary polygons that are mapped to field or IACS boundaries and not to the project digitising standards outlined in section 2.29. Consequently these polygons reflect the size of the field rather than the area of traditional orchard present (as stated in the stewardship agreement). Moreover, many of these “stewardship orchards” are newly created or include restoration options incorporating newly planted trees that are not visible on aerial photographs. It is not possible therefore to alter the field boundary polygons to meet the project’s digitising standards.

3.6. It would be inappropriate to omit these “stewardship” orchards from the inventory for failing to meet the rule base criteria; therefore all orchards included on the Natural England stewardship layer have been mapped using their original field boundaries and the area manually adjusted in the associated polygon attributes to reflect the correct (smaller) figure given in the stewardship agreement.

3.7 Some orchards included within the inventory have been in Countryside Stewardship Schemes which may now have expired. The start date of the agreement (Source 4 date) should always be referred to.

4. Applications of the inventory

Setting and monitoring HAP targets for traditional orchards

4.1 The traditional orchard inventory provides a baseline of information from which to focus future conservation action and can be used as a tool for monitoring change. Monitoring is essential if HAP targets are to have any meaning. In England, the traditional orchard inventory will provide the data to be sampled in a statistically-robust manner.

Habitat restoration and creation

4.2 Use of the inventory within a geographic information system allows a landscape-scale approach to habitat restoration and creation. Furthermore, the inclusion of the condition assessment category (section 2.18) can be used to prioritise orchards where changes in management could improve the condition of a poor or fair orchard and can identify excellent orchards in which detailed species survey work could be undertaken or for which County Wildlife Site designation, or their equivalents could be considered.

Targeting Environmental Stewardship scheme options for traditional orchards

4.3 The traditional orchard inventory will assist the targeting of Environmental Stewardship Schemes which is one of the key delivery mechanisms of the UK BAP targets. In Natural England's Gloucestershire team the inventory is already being used in this way. The traditional orchard inventory will be included in the Holdings Assessment Toolkit (HAT) used by Natural England conservation advisors, when the final version of the provisional inventory is available.

Identifying orchards in local planning policies and development control

4.4 The traditional orchard inventory can help inform the production of land use planning policies included in Local Development Frameworks, Green Infrastructure Strategies and Tree Strategies.

Integrating habitat information and species distributions to support conservation action

4.5 Survey efforts for species that are associated with traditional orchard habitat can be focussed efficiently by using the traditional orchard inventory. In 2009 Butterfly Conservation carried out a survey for mistletoe marble moth (*Celypha woodiana*) (McGill, 2009). Prior to field surveying, the inventory was used to identify all orchards within the study area that contained mistletoe.

4.6 For several years the inventory has been used to select traditional orchards for noble chafer (*Gnorimus nobilis*) surveys. It is used to identify orchards with old trees in areas of high orchard concentration, meaning that the surveys are more efficient and populations are more likely to be identified where they occur. Through this survey work a previously un-

recorded population of noble chafer was discovered in Kent, the first confirmed population in Kent since 1948 (Burrough & Alexander, 2008).

5. Recommendations and future work

5.1. This project has produced a large provisional dataset of traditional orchard sites in England and has drawn together much of the traditional orchard information that currently exists.

5.2. 19% of the traditional orchards identified have been subject to ground-truthing. The remaining sites require ground-truthing and it is recommended that this continues drawing on the momentum that this, and other related projects, have created.

5.3. It is clearly desirable to periodically update the traditional orchard inventory as new sites will continue to be discovered as a result of survey effort and existing sites may be lost. It is important that any new data added meet the Priority Habitat definition (section 1.15) and comply with the project rule base (section 2.25). In the case of lost sites, the reason for removal from the inventory should be recorded: for example, intensive agriculture, urban development. Updating the inventory will also enable condition of orchard habitat across England and individual counties to be monitored.

5.4. It is recommended that contact with orchard owners is maintained via the Traditional Orchard HAP Group and that owners are made aware of the Orchard Network internet resource. This website has been created through the activities of the HAP and offers support to owners, providing them with information about training courses, grant availability and produce marketing (www.orchardnetwork.org.uk) [Accessed March 2011].

5.5 It is recommended that any orchard projects undertaken across England refer to the traditional orchard inventory and include the fields in the preliminary survey form (Appendix 3) for any data collection so that any subsequent data collected across the country remains consistent with the inventory methodology and avoids any duplication of survey effort. In addition, local record centres, Biodiversity Partnerships, orchard groups and other parties should inform PTES if new orchards are planted, lost or mistakenly identified within their area so that appropriate updates can be made to the inventory.

5.6. The traditional orchard HAP is UK based and traditional orchard inventories for the other UK countries produced using the same methodology to ensure consistency and comparability.

6. Results

Results for England

6.1. Using the methodology, outlined in Chapter 2, the following results were obtained for England:

- 35,366 individual traditional orchards have been identified;
- 16,992 total area, in hectares, of traditional orchard habitat has been identified;
- 19% of total orchards identified have been ground-truthed by survey volunteers;
- 20% of the traditional orchards identified have additional survey information associated with them;
- 9% of the traditional orchards that were surveyed are in excellent condition according to the condition assessment criteria (Burrough and others, 2009);
- 46% of the traditional orchards that were surveyed are in good condition according to the condition assessment criteria (Burrough and others, 2009);
- 45% of the traditional orchards that were surveyed are in poor condition according to the condition assessment criteria (Burrough and others, 2009);
- 2750 traditional orchards are in Environmental Stewardship, covering 2831 ha. This figure includes orchards in Countryside Stewardship Schemes which may have expired (see section 3.7).

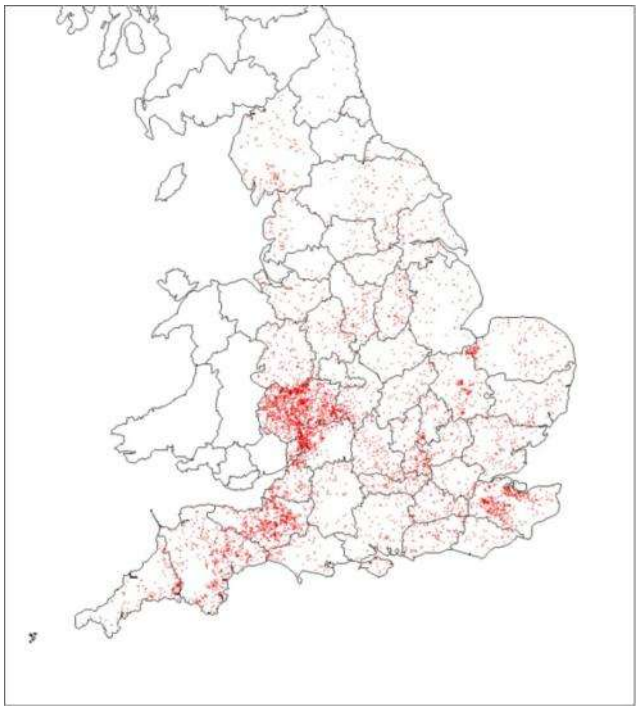


Figure 1 Extent of traditional orchards in England as determined by this Project

Orchard Owner Questionnaires

6.2. Orchard owner questionnaires provided a means for orchard owners to provide information about the management and use of their sites and to request further information. So far 764 orchard owner questionnaires have been received. Formal analysis of these has not been undertaken but the following themes are noted:

- many orchards are used for grazing animals and no longer primarily for fruit production;
- many owners reported a lack of economic incentive to replace aging /fallen trees;
- many owners reported a lack of market for produce – produce is used primarily for personal consumption or left for wildlife;
- many owners recognise the importance of orchards for wildlife and some sites are managed primarily for this purpose.

In the main fruit growing belts of England, some markets for produce still exist. For example, in some areas of Devon and Herefordshire, orchard owners grow cider apple varieties for local cider production, the fruit being collected by, or taken to, the producer. Two prominent examples of this practice are Orchard Pig and Weston's Cider.

Volunteer involvement and public engagement

6.3. During the project over 600 people took part through voluntary surveying, contributing 563 working days and providing invaluable information. The conservation importance of traditional orchards was promoted to the general public very widely through extensive media coverage on television, radio, printed media and online (see list at Appendix 8).

Results for counties within England

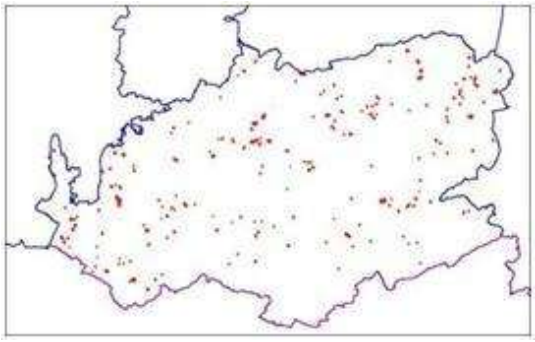
6.4. Over the duration of the project, each county was addressed in turn and subsequently the length of time and opportunity to become involved in ground-truthing varied which in some instances is reflected in the results. Results are presented for each county of England and the following table headings used:

- total area in hectares (ha) of traditional orchard habitat within the county boundary;
- total number of individual traditional orchard sites within the county boundary as identified using the project methodology;
- percentage of orchards (of those identified) ground-truthed by volunteer surveyors;
- number of orchard owner questionnaires received;
- percentage of traditional orchards (of those surveyed) that are in excellent condition according to the condition assessment criteria (Burrough and others, 2009);
- percentage of traditional orchards (of those surveyed) that are in good condition according to the condition assessment criteria (Burrough and others, 2009);
- percentage of traditional orchards (of those surveyed) that are in poor condition according to the condition assessment criteria (Burrough and others, 2009);
- number and area of traditional orchards in Environmental Stewardship schemes. This figure includes orchards in Countryside Stewardship Schemes which may have expired (see section 3.7).

6.5. Bath & North East Somerset

Table 5 Information derived from the inventory for traditional orchards in Bath & NE Somerset

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
223	79.3	36	8	16	51	33	18	9.36



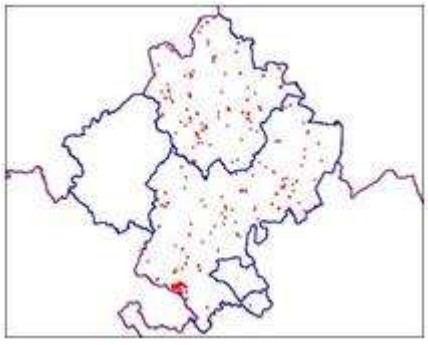
Traditional orchards are not a Priority Habitat in this county.

Figure 2 Distribution of traditional orchards in Bath & North East Somerset

6.6. Bedfordshire

Table 6 Information derived from the inventory for traditional orchards in Bedfordshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
326	131.8	1	2	20	20	60	3	0.92



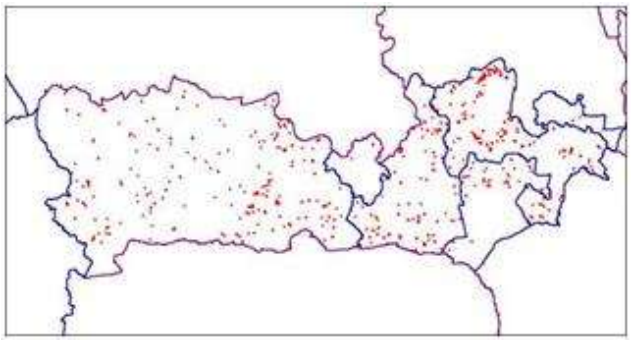
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). There is an orchard group that formed in 2010 (Appendix 7), which has supported the traditional orchard project and inventory work.

Figure 3 Distribution of traditional orchards in Bedfordshire

6.7. Berkshire

Table 7 Information derived from the inventory for traditional orchards in Berkshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
716	140.7	26	13	8	49	42	2	1.13



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

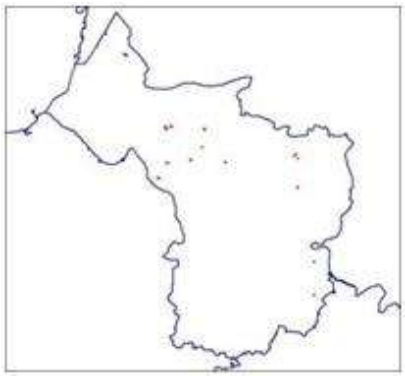
The local record centre carried out a mapping exercise in 2008 to ascertain what the traditional orchard resource is in response to Priority Habitat status.

Figure 4 Distribution of traditional orchards in Berkshire

6.8. Bristol

Table 8 Information derived from the inventory for traditional orchards in Bristol

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
18	7.8	72	2	8	15	77	1	0.54



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

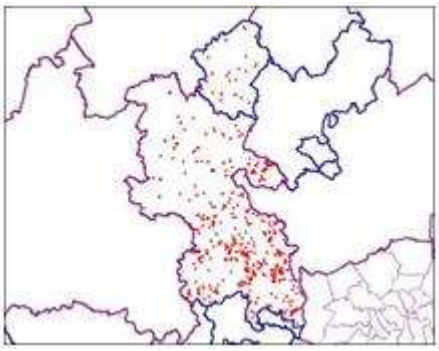
The Midshires Orchard Group is active in the county, conserving heritage fruit trees and orchards (Appendix 7).

Figure 5 Distribution of traditional orchards in Bristol

6.9. Buckinghamshire

Table 9 Information derived from the inventory for traditional orchards in Buckinghamshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
787	364.2	16	7	15	44	41	5	2.09



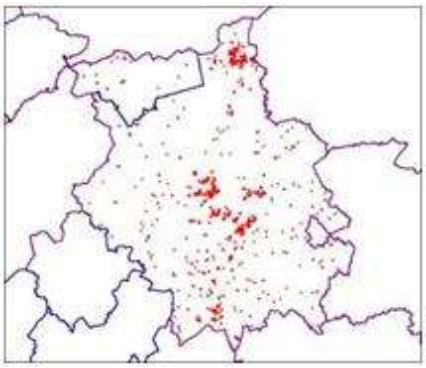
Traditional orchards are not a Priority Habitat in this county.

Figure 6 Distribution of traditional orchards in Buckinghamshire

6.10. Cambridgeshire

Table 10 Information derived from the inventory for traditional orchards in Cambridgeshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
910	593.9	12	2	100*	0	0	36	73.48



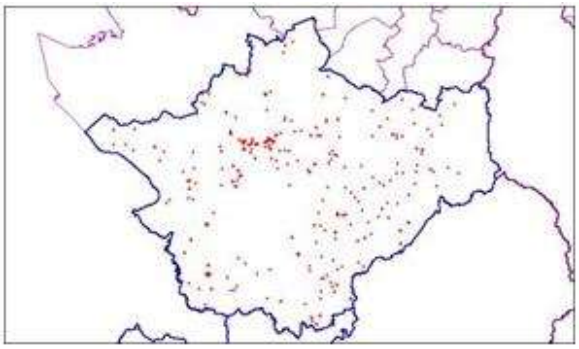
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). An orchard project exists to establish a network of community orchards throughout the county and to promote the importance of orchards and fruit growing (Appendix 7).

Figure 7 Distribution of traditional orchards in Cambridgeshire

6.11. Cheshire

Table 11 Information derived from the inventory for traditional orchards in Cheshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
455	90.2	8	4	6	37	57	21	4.28



*based on one condition assessment only

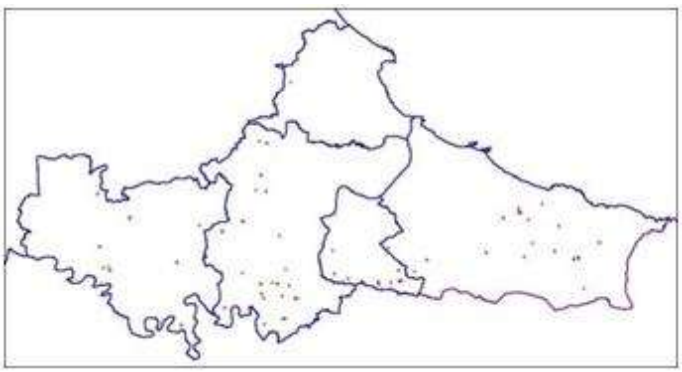
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). The county has active orchard groups (Appendix 7) which have been undertaking the Cambridgeshire Orchard Survey since 2004.

Figure 8 Distribution of traditional orchards in Cheshire

6.12. Cleveland

Table 12 Information derived from the inventory for traditional orchards in Cleveland

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
104	14	25	26	41	26	33	2	0.12



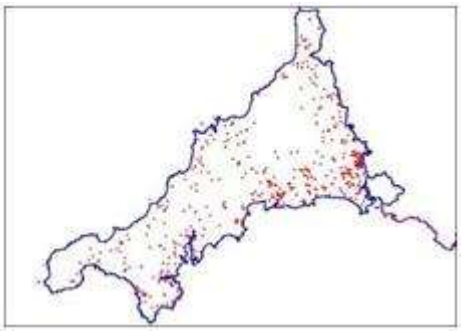
Traditional orchards are not a Priority Habitat in this county however the Wildflower Ark (Appendix 7) co-ordinated a project (2010 – 2011), in the Lower Tees Valley looking at the history of fruit growing in the area and the presence and distribution of traditional orchards in the landscape. Workshops were held to increase skills in orchard management and fruit tree care within the local community.

Figure 9 Distribution of traditional orchards in Cleveland

6.13. Cornwall

Table 13 Information derived from the inventory for traditional orchards in Cornwall

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
743	240	3	10	21	42	36	47	24.08



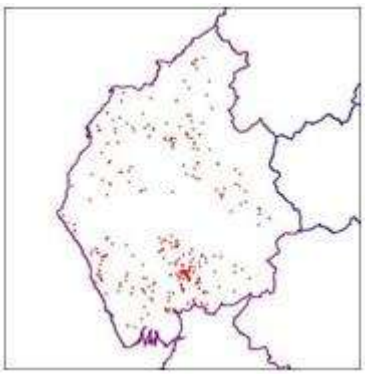
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

Figure 10 Distribution of traditional orchards in Cornwall

6.14. Cumbria

Table 14 Information derived from the inventory for traditional orchards in Cumbria

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
933	150.3	25	51	10	49	41	74	18.73



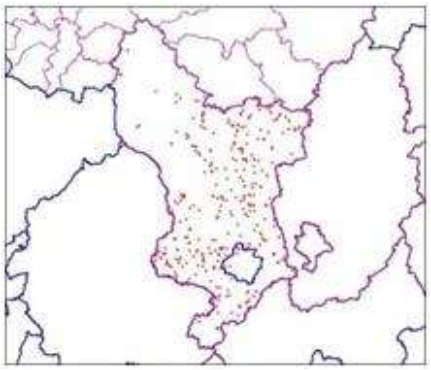
Traditional orchards are not a Priority Habitat in this county however there are orchard groups (Appendix 7) that are active especially within the Lyth Valley which is known for its concentration of damson orchards and other groups that are particularly interested in local and rare fruit varieties.

Figure 11 Distribution of traditional orchards in Cumbria

6.15. Derbyshire

Table 15 Information derived from the inventory for traditional orchards in Derbyshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
559	97.2	8	5	8	19	72	5	1.54



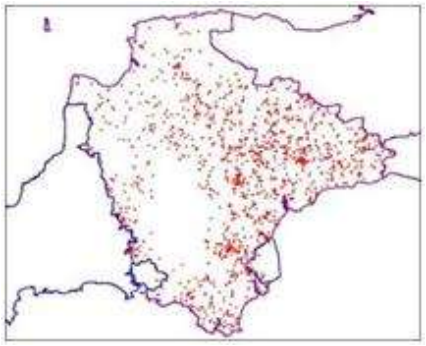
Traditional orchards are not a Priority Habitat in this county however the Derbyshire Wildlife Trust carried out a project in 2009 undertaken to ascertain what the traditional orchard resource is within Lowland Derbyshire in response to Priority Habitat status.

Figure 12 Distribution of traditional orchards in Derbyshire

6.16. Devon

Table 16 Information derived from the inventory for traditional orchards in Devon

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
2154	1239.9	16	63	18	36	46	821	591.84



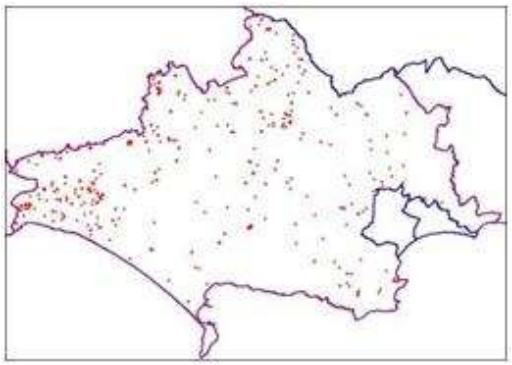
Traditional orchards are not a Priority Habitat in this county.

Figure 13 Distribution of traditional orchards in Devon

6.17. Dorset

Table 17 Information derived from the inventory for traditional orchards in Dorset

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
551	177	2	8	0	41	59	22	28.54



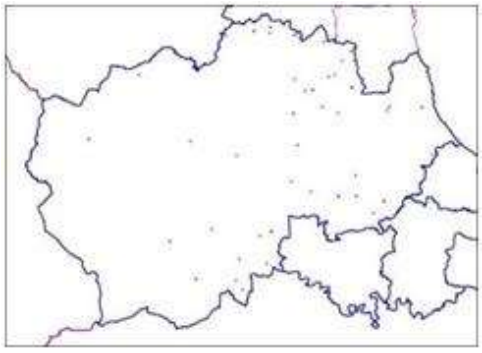
Traditional orchards are not a Priority Habitat in this county however the Sussex Biodiversity Partnership has supported the traditional orchard project and inventory work (Appendix 7).

Figure 14 Distribution of traditional orchards in Dorset

6.18. Durham

Table 18 Information derived from the inventory for traditional orchards in Durham

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
77	12	0	0	-	-	-	1	0.09



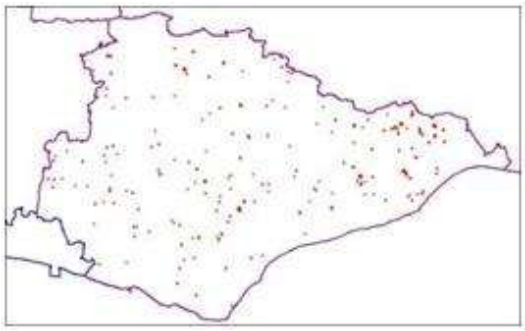
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). There are two active orchard groups within the county (Appendix 7).

Figure 15 Distribution of traditional orchards in Durham

6.19. East Sussex

Table 19 Information derived from the inventory for traditional orchards in East Sussex

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
253	136.3	21	9	19	31	50	4	8.38



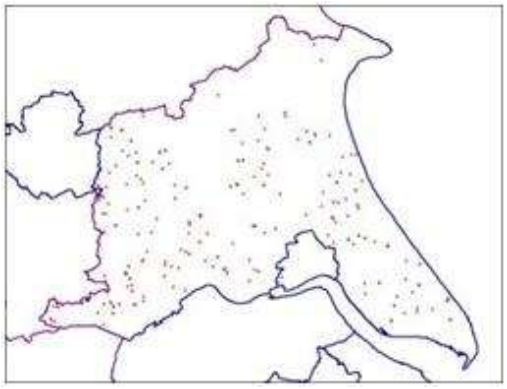
Traditional orchards are not a Priority Habitat in this county.

Figure 16 Distribution of traditional orchards in East Sussex

6.20. East Yorkshire

Table 20 Information derived from the inventory for traditional orchards in East Yorkshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
345	57.7	0	1	0	100*	0	10	5.26



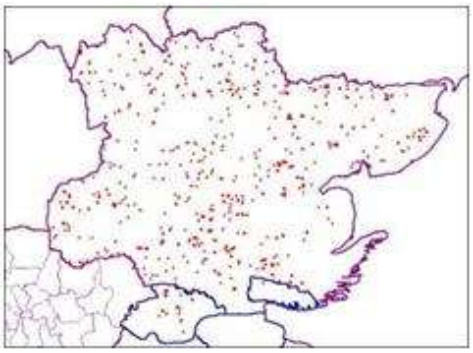
Traditional orchards are not a Priority Habitat in this county however the Northern Fruit Group is actively working to promote the conservation of local and rare fruit varieties in the north of England (Appendix 7).

Figure 17 Distribution of traditional orchards in East Yorkshire

6.21. Essex

Table 21 Information derived from the inventory for traditional orchards in Essex

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
878	369.5	5	4	2	56	42	29	40.23



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

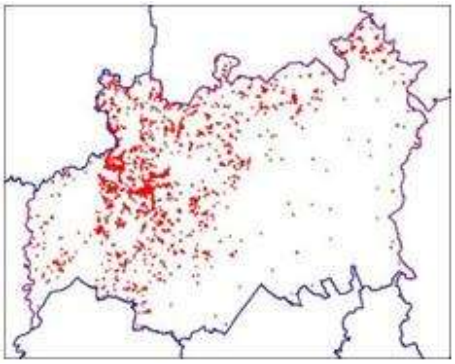
A survey of Old Essex Orchards was carried out over the winter of 2006 - 2007 on behalf of the Essex Biodiversity Project with support of the East of England Apples and Orchards Project (Appendix 7).

Figure 18 Distribution of traditional orchards in Essex

6.22. Gloucestershire

Table 22 Information derived from the inventory for traditional orchards in Gloucestershire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
2143	1521.3	64	110	4	35	61	203	246.65



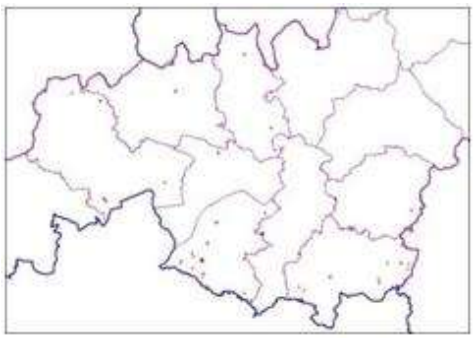
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). Gloucestershire has a very active orchard group (Appendix 7) which conserves, promotes and celebrates traditional orchards in the county and has supported the ground-truthing work of the traditional orchard inventory. The orchard group also runs the Orchard Marketplace (www.orchardmarketplace.org.uk). There are known populations of noble chafer in this county.

Figure 19 Distribution of traditional orchards in Gloucestershire

6.23. Greater Manchester

Table 23 Information derived from the inventory for traditional orchards in Greater Manchester

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
53	11.9	9	7	8	50	42	2	0.29



Traditional orchards are not a Priority Habitat in this county.

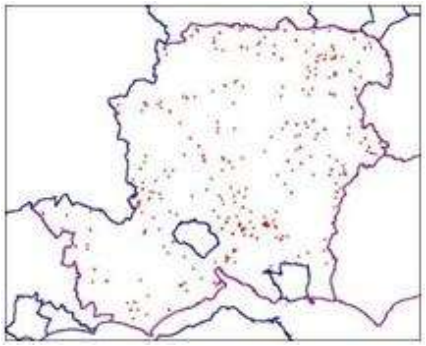
The Local Authority has funded the establishment of some community orchards through the provision of a Tree Strategy framework.

Figure 20 Distribution of traditional orchards in Greater Manchester

6.24. Hampshire

Table 24 Information derived from the inventory for traditional orchards in Hampshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
579	171.9	1	8	17	8	75	7	2.21



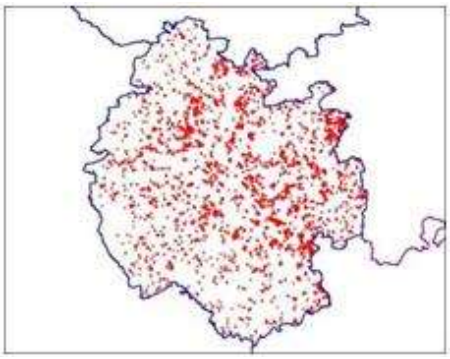
Traditional orchards are not a Priority Habitat in this county however the Hampshire Biodiversity Information Centre has supported the traditional orchard project and inventory work. There are known populations of noble chafer in this county.

Figure 21 Distribution of traditional orchards in Hampshire

6.25. Herefordshire

Table 25 Information derived from the inventory for traditional orchards in Herefordshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
3360	2481.5	43	92	4	82	14	446	659.12



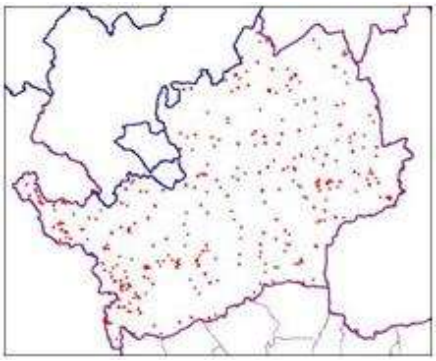
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). Herefordshire Council is active in promoting orchard conservation and management and organises a fruit tree initiative to help conserve Herefordshire's orchards and traditional varieties. Other groups are also interested in fruit varieties and biodiversity (Appendix 7). There are known populations of noble chafer in this county.

Figure 22 Distribution of traditional orchards in Herefordshire

6.26. Hertfordshire

Table 26 Information derived from the inventory for traditional orchards in Hertfordshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
477	177.7	9	12	18	26	56	7	6.59



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

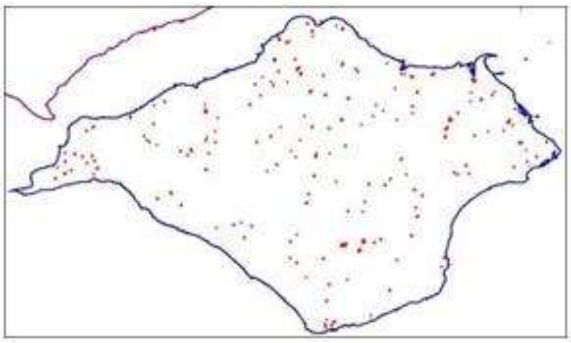
There is an orchard group within the county which promotes the conservation and preservation of orchards in Hertfordshire (Appendix 7).

Figure 23 Distribution of traditional orchards in Hertfordshire

6.27. Isle of Wight

Table 27 Information derived from the inventory for traditional orchards in Isle of Wight

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
232	48.1	14	9	6	22	72	2	1.28



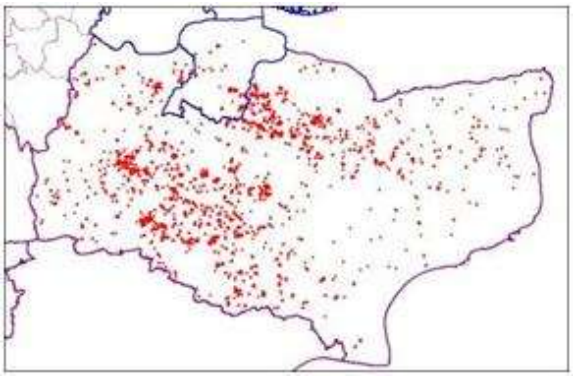
Traditional orchards are not a Priority Habitat in this county however the West Wight Landscape Partnership has supported the traditional orchard project and inventory work (Appendix 7).

Figure 24 Distribution of traditional orchards in Isle of Wight

6.28. Kent

Table 28 Information derived from the inventory for traditional orchards in Kent

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
1781	1782.2	41	39	8	34	58	92	221.63



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). A public participation survey was undertaken 2005/6 to assess the status of cobnut plats in the county (Appendix 7).

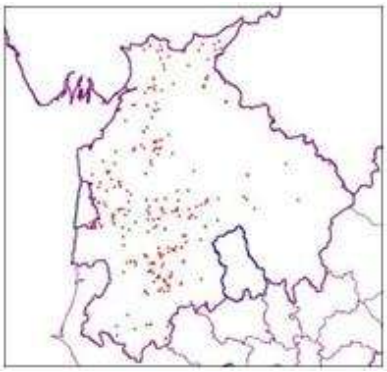
A previously unknown noble chafer population was discovered in 2007 (Burrough & Alexander, 2008).

Figure 25 Distribution of traditional orchards in Kent

6.29. Lancashire

Table 29 Information derived from the inventory for traditional orchards in Lancashire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
448	80	31	8	5	34	62	18	7.57



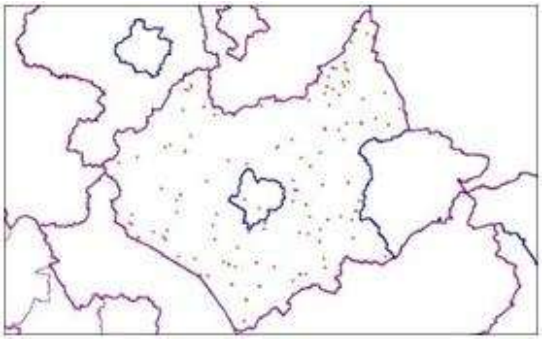
Traditional orchards are not a Priority Habitat in this county however the Northern Fruit Group is actively working to promote the conservation of local and rare fruit varieties in the north of England (Appendix 7).

Figure 26 Distribution of traditional orchards in Lancashire

6.30. Leicestershire

Table 30 Information derived from the inventory for traditional orchards in Leicestershire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
229	38.7	0	0	-	-	-	5	1.06



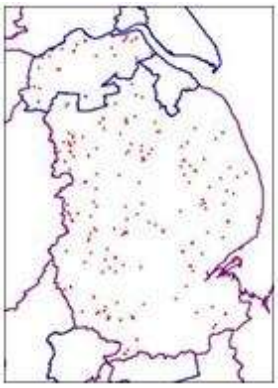
Traditional orchards are not a Priority Habitat in this county.

Figure 27 Distribution of traditional orchards in Leicestershire

6.31. Lincolnshire

Table 31 Information derived from the inventory for traditional orchards in Lincolnshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
541	129.9	2	4	40	10	50	9	5.28



At the time of writing, a traditional orchard action plan is being produced for inclusion within the Local Biodiversity Action Plan (LBAP).

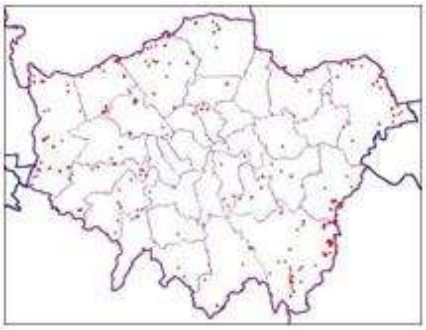
The East of England Apples and Orchards Project (EEAOP) is active in the county (Appendix 7).

Figure 28 Distribution of traditional orchards in Lincolnshire

6.32. London

Table 32 Information derived from the inventory for traditional orchards in London

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
282	116.3	5	7	0	57	43	1	0.10



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

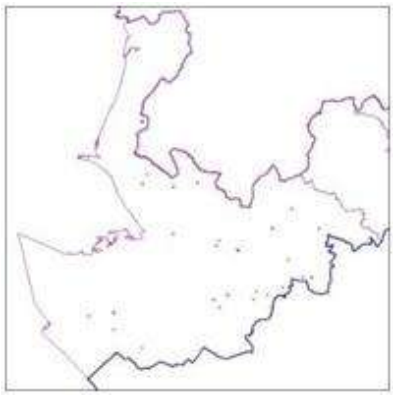
London Orchard Project is an initiative working with Londoners to plant and harvest apple, pear and plum trees all over the city (Appendix 7).

Figure 29 Distribution of traditional orchards in London

6.33. Merseyside

Table 33 Information derived from the inventory for traditional orchards in Merseyside

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
31	8.5	0	0	-	-	-	0	0



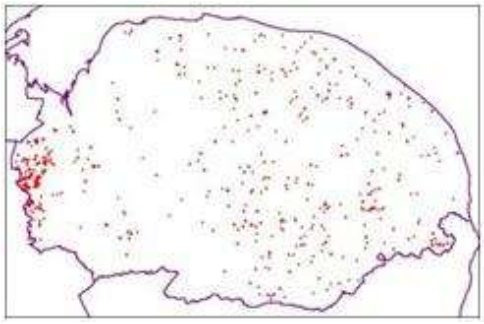
Traditional orchards are not a Priority Habitat in this county.

Figure 30 Distribution of traditional orchards in Mersyside

6.34. Norfolk

Table 34 Information derived from the inventory for traditional orchards in Norfolk

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
839	388.5	23	1	0	0	100*	19	18.57



*based on one condition assessment only

Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

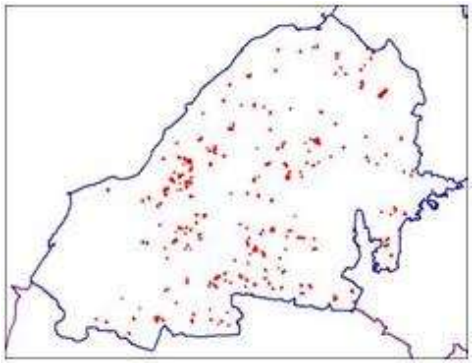
The East of England Apples and Orchards Project (EEAOP) is active in the county (Appendix 7).

Figure 31 Distribution of traditional orchards in Norfolk

6.35. North West Somerset

Table 35 Information derived from the inventory for traditional orchards in North West Somerset

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
280	133.4	37	43	12	24	64	20	22.58



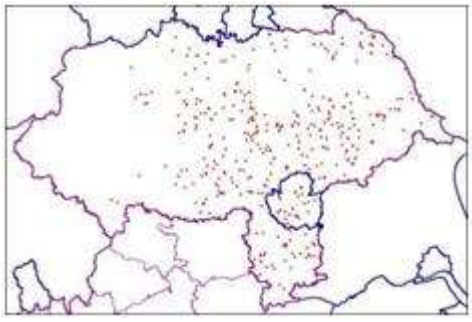
Traditional orchards are not a Priority Habitat in this county.

Figure 32 Distribution of traditional orchards in North West Somerset

6.36. North Yorkshire

Table 36 Information derived from the inventory for traditional orchards in North Yorkshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
1164	183.9	0	5	43	29	29	12	3.11



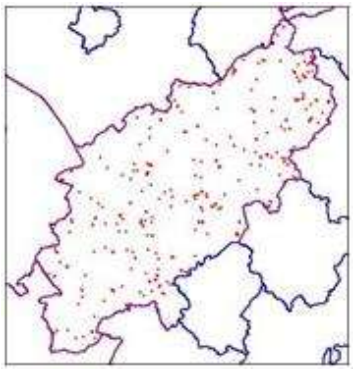
Traditional orchards are not a Priority Habitat in this county however the Northern Fruit Group is actively working to promote the conservation of local and rare fruit varieties in the north of England (Appendix 7).

Figure 33 Distribution of traditional orchards in North Yorkshire

6.37. Northamptonshire

Table 37 Information derived from the inventory for traditional orchards in Northamptonshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
444	131.5	2	2	0	50	50	3	0.81



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

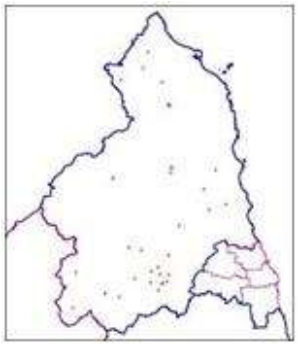
The Midshires Orchard Group is active in the county, conserving heritage fruit trees and orchards (Appendix 7).

Figure 34 Distribution of traditional orchards in Northamptonshire

6.38. Northumberland

Table 38 Information derived from the inventory for traditional orchards in Northumberland

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
106	21.7	11	0	-	-	-	1	3.25



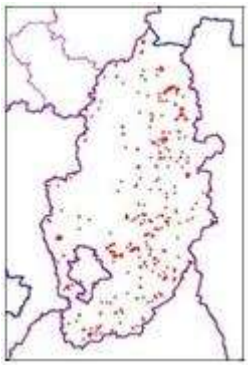
Traditional orchards are not a Priority Habitat in this county.

Figure 35 Distribution of traditional orchards in Northumberland

6.39. Nottinghamshire

Table 39 Information derived from the inventory for traditional orchards in Nottinghamshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
639	176.0	0	5	40	0	60	16	8.84



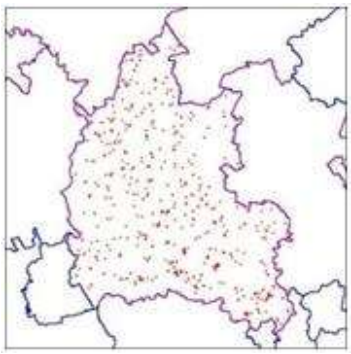
Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

Figure 36 Distribution of traditional orchards in Nottinghamshire

6.40. Oxfordshire

Table 40 Information derived from the inventory for traditional orchards in Oxfordshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
877	244.3	22	13	10	40	50	5	3.86



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6). The local records centre carried out some mapping work in 2008 to ascertain what the traditional orchard resource is in response to Priority Habitat status. The Midshires Orchard Group is active in the county, conserving heritage fruit trees and orchards (Appendix 7). There are known populations of noble chafer in this county.

Figure 37 Distribution of traditional orchards in Oxfordshire

6.41. Rutland

Table 41 Information derived from the inventory for traditional orchards in Rutland

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
54	11.2	0	0	-	-	-	0	0

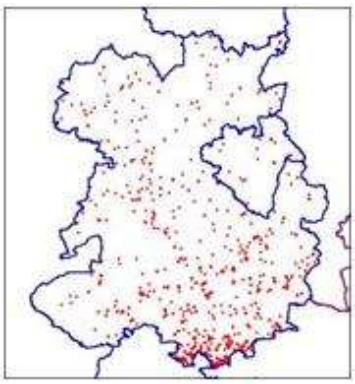
Traditional orchards are not a Priority Habitat in this county.

Figure 38 Distribution of traditional orchards in Rutland

6.42. Shropshire

Table 42 Information derived from the inventory for traditional orchards in Shropshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
1095	341.4	0	2	0	0	100	137	98.77



Traditional orchards are not a Priority Habitat in this county.

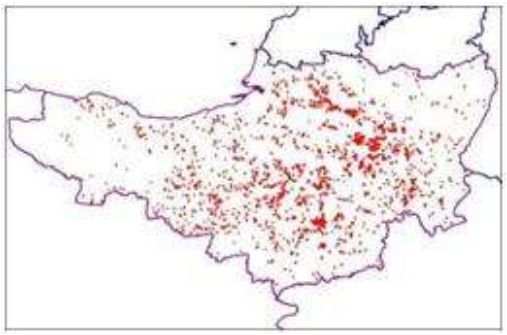
Shropshire Apple Trust works to raise awareness of the importance of traditional orchards (Appendix 7).

Figure 39 Distribution of traditional orchards in Shropshire

6.43. Somerset

Table 43 Information derived from the inventory for traditional orchards in Somerset

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
2741	1687.8	11	60	10	29	61	288	242.98



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

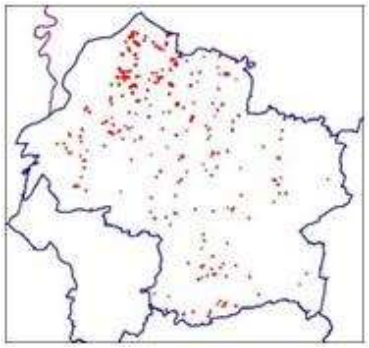
Somerset County Council produces an orchard newsletter (Appendix 7) and a local community orchard project is planned for 2011 – 2013.

Figure 40 Distribution of traditional orchards in Somerset

6.44. South Gloucestershire

Table 44 Information derived from the inventory for traditional orchards in South Gloucestershire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
321	127.9	21	15	8	40	52	12	9.10



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

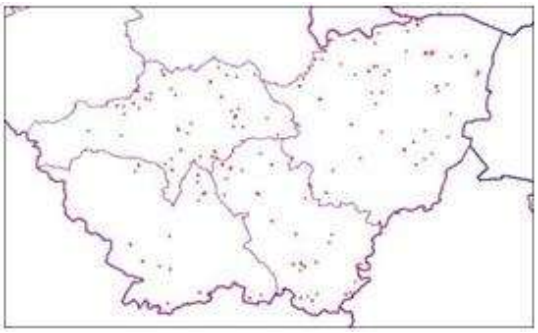
South Gloucestershire Council has supported the traditional orchard project and inventory work. The Council can also provide financial support to local groups or voluntary organisations for environmental projects that benefit the local community (Appendix 7).

Figure 41 Distribution of traditional orchards in South Gloucestershire

6.45. South Yorkshire

Table 45 Information derived from the inventory for traditional orchards in South Yorkshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
211	33.3	4	0	0	25	75	2	0.66



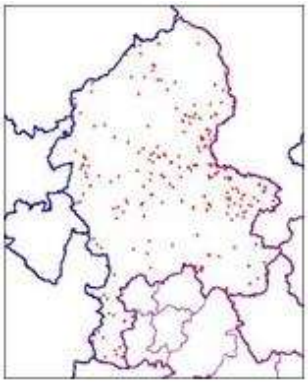
Traditional orchards are not a Priority Habitat in this county however the Northern Fruit Group is actively working to promote the conservation of local and rare fruit varieties in the north of England (Appendix 7).

Figure 42 Distribution of traditional orchards in South Yorkshire

6.46. Staffordshire

Table 46 Information derived from the inventory for traditional orchards in Staffordshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
493	100.4	40	15	14	30	57	25	9.84



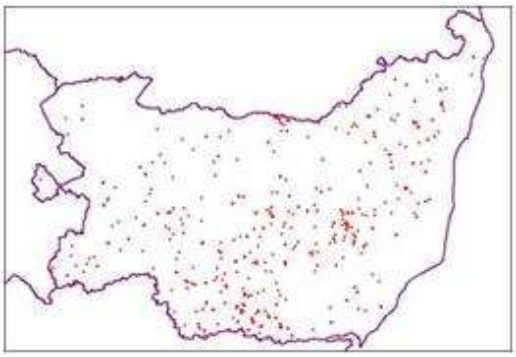
Traditional orchards are not a Priority Habitat in this county.

Figure 43 Distribution of traditional orchards in Staffordshire

6.47. Suffolk

Table 47 Information derived from the inventory for traditional orchards in Suffolk

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
620	181.8	0	0	-	-	-	28	9.17



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

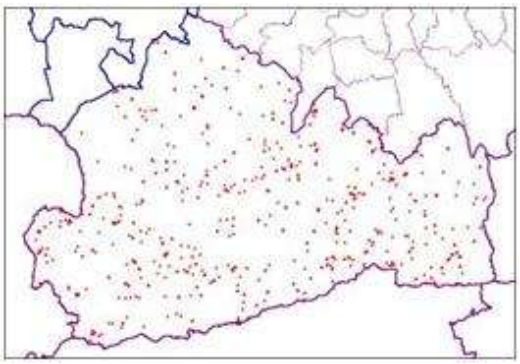
The Suffolk Biodiversity Partnership is undertaking a survey of all orchards in Suffolk which is due to be completed in 2013 (Appendix 7).

Figure 44 Distribution of traditional orchards in Suffolk

6.48. Surrey

Table 48 Information derived from the inventory for traditional orchards in Surrey

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
656	161.9	2	5	7	43	50	10	18.95



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6) and the Surrey Biodiversity Partnership has supported the production of the inventory (Appendix 7).

Figure 45 Distribution of traditional orchards in Surrey

6.49. Tyne & Wear

Table 49 Information derived from the inventory for traditional orchards in Tyne & Wear

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
23	3.2	0	2	0	50	50	0	0

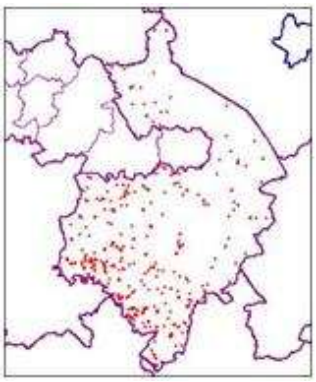
Traditional orchards are not a Priority Habitat in this county.

Figure 46 Distribution of traditional orchards in Tyne & Wear

6.50. Warwickshire

Table 50 Information derived from the inventory for traditional orchards in Warwickshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
589	240.1	6	6	10	26	65	20	21.75



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

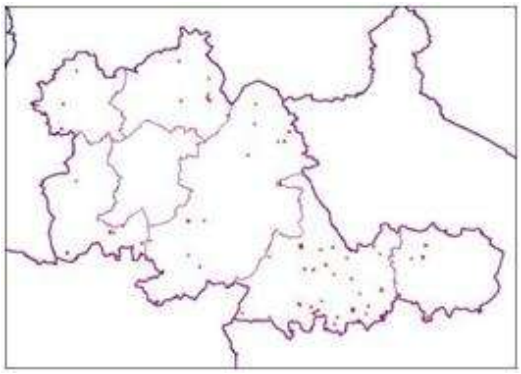
The Midshires Orchard Group is active in the county, conserving heritage fruit trees and orchards (Appendix 7).

Figure 47 Distribution of traditional orchards in Warwickshire

6.51. West Midlands

Table 51 Information derived from the inventory for traditional orchards in West Midlands

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
114	24.2	0	1	0	100	1	2	1.18



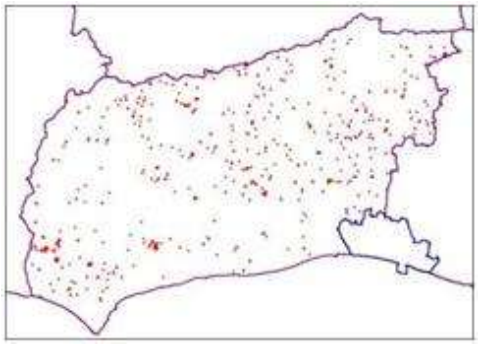
Traditional orchards are not a Priority Habitat in this county.

Figure 48 Distribution of traditional orchards in West Midlands

6.52. West Sussex

Table 52 Information derived from the inventory for traditional orchards in West Sussex

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
668	179.6	18	10	9	51	40	4	2.65



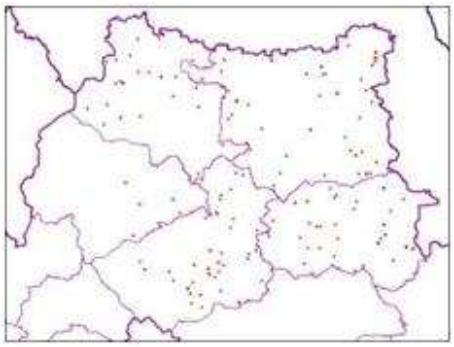
Traditional orchards are not a Priority Habitat in this county however a local landscape project is in progress to assist with the ground-truthing element of the traditional orchard project and inventory and to support landowners and farmers with the management of their orchards (Appendix 7).

Figure 49 Distribution of traditional orchards in West Sussex

6.53. West Yorkshire

Table 53 Information derived from the inventory for traditional orchards in West Yorkshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
286	34	1	8	9	55	36	0	0



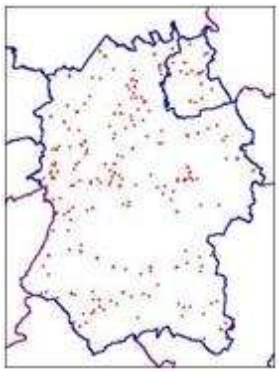
Traditional orchards are not a Priority Habitat in this county however the Northern Fruit Group is actively working to promote the conservation of local and rare fruit varieties in the north of England (Appendix 7).

Figure 50 Distribution of traditional orchards in West Yorkshire

6.54. Wiltshire

Table 54 Information derived from the inventory for traditional orchards in Wiltshire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
505	114.4	36	4	15	15	69	12	4.31



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6).

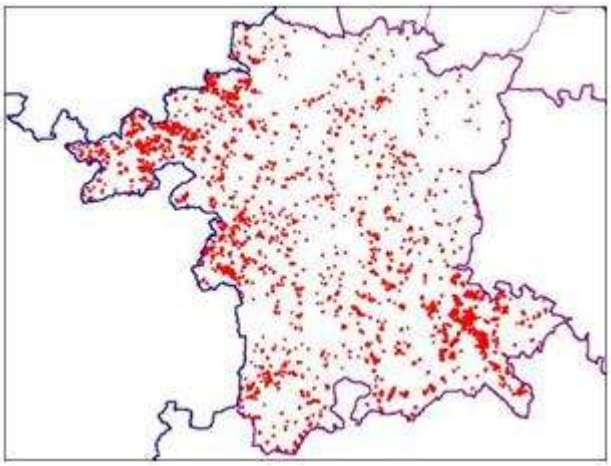
Wiltshire's Traditional Orchards Project (WTOP) has been setup by a group of volunteers (Appendix 7).

Figure 51 Distribution of traditional orchards in Wiltshire

6.55. Worcestershire

Table 55 Information derived from the inventory for traditional orchards in Worcestershire

Total traditional orchards		% orchards surveyed	No. orchard owner questionnaires (ooqs) returned	% Habitat Condition = Excellent	% Habitat Condition = Good	% Habitat Condition = Poor	Total traditional orchards in ES	
No.	Area (Ha)						No	Area (Ha)
2453	2055.8	8	56	19	51	29	241	370.8



Traditional orchards are included within the Local Biodiversity Action Plan (LBAP) (Appendix 6) and there are several orchard projects ongoing and planned within the County. There are known populations of noble chafer in this county.

Figure 52 Distribution of traditional orchards in Worcestershire

Further information

6.56. If further information is required on any of the sites contained within the inventory, please contact PTES, quoting the site number (Incid) to help staff identify any additional site data and advise accordingly. PTES holds all copies of volunteer survey forms and orchard owner questionnaires together with information for many orchard sites that do not meet the Priority Habitat criteria such as relict orchards.

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Appendix 1

Condition Assessment

Orchard Condition Assessment -
Anita Burrough, Lucy Cordrey, Chris Wedge, Rob Williams.

Criteria	Excellent	Good/Fair	Poor	Destroyed
Established orchard, mostly stocked / New trees planted where gaps	**X**	x	x	
Newly planted or young orchard		**X**	x	
Established / mature orchard mostly gaps/no new trees planted			**X**	
Grazed	**X**	x	x	
Mown or cut	x	**X**	x	
Scrubbed over			**X**	
Livestock damage to trees			**X**	
Orchard no longer present				**X**
Standing deadwood trees and limbs	**X**	x	x	
Fallen deadwood trees and limbs	**X**	x	x	

X = determiner
x = present or absent

Category Descriptions/combinations

Excellent Orchard
An orchard with **established trees** and **mostly stocked** i.e. there is no opportunity, or it is undesirable (due to environmental factors) to plant new trees at present or where there are **new trees planted in gaps**. There will be **both** standing and fallen large diameter deadwood present. The orchard floor will predominantly be **grazed** but may be mown or cut at certain times of the year.

Good/Fair
An orchard with **established trees** and **mostly stocked**. If there are gaps present there maybe **little or no evidence of replanting .** There maybe be **both** standing and fallen large diameter deadwood present or just **one** of these elements evident. The orchard floor will be **grazed, mown or cut**.

This category will also include **newly planted or young orchards** as long as no livestock damage is evident.

Poor
An orchard that has either been neglected or abandoned or which comprises **more than 30% scrub cover**. Deadwood in either form may be **present** or totally **absent** but there will be **no evidence of new planting** and the orchard will comprise **mostly gaps.** The orchard floor may be **grazed, mown or cut** but **livestock damage to trees** will be evident.

Destroyed
An orchard that is indicated as being present on maps and aerial photographs but no longer exists when ground-truthed – no fruit trees evident on land parcel.

Note: If a survey sheet is returned indicating that only 4 or less trees remain – this is given an non-traditional orchard code (Non-TO) and will be removed form the final inventory into a "relict" database

Examples:

1.

Evidence of new planting, grazed, older trees present with one deadwood element evident = GOOD/FAIR

2.

Fully stocked, mature orchard, mown, occasional scrub, no deadwood = GOOD/FAIR

3.

Mature orchard with gaps evident, no new planting, grazed, standing and fallen deadwood present = GOOD/FAIR

4.

Mature orchard with gaps, new planting evident, grazed, standing and fallen deadwood present = EXCELLENT

5.

Mature orchard, new planting, grazed, standing and fallen deadwood present = EXCELLENT

6.

Young - Mature orchard, fully stocked, mown, no deadwood present = GOOD/FAIR

7.

Mature, mostly fully stocked orchard, grazed, fallen deadwood present only, = GOOD/FAIR

8.

New planting, grazed, no deadwood present, livestock damage = GOOD/FAIR
(new planting with guards so any future livestock damage is being addressed).

9.

No new planting, grazed, fallen standing and deadwood present, livestock damage = POOR

10.

Mature orchard, new trees planted, fallen and standing deadwood, mown = GOOD/FAIR

Appendix 2

List of partners and sources of existing information

Organisations listed below are already involved, and further partners will be sought as appropriate to local areas:

- Bedfordshire and Luton Biodiversity Recording and Monitoring Centre
- Bedford and Luton Orchard Group
- Berkshire Biodiversity Patrnership
- Berkshire Biological Records Centre
- Camdridgeshire Biodiversity Partnership
- Cambridgeshire Orchard Group
- Cheshire West and Chester Council
- Common Ground
- Common Players
- Derbyshire Wildlife Trust
- East of England Apples and Orchards Project
- Essex Biodiversity Partnership
- EYE Project
- The Greensand Trust
- Gloucestershire Orchard Group
- Greater London Authority
- Hampshire Biodiversity Information Centre
- Herefordshire Council
- Hertfordshire Orchard Initiative
- Hertfordshire County Council
- Kent Cobnut Association
- Lowland Derbyshire Biodiversity Partnership
- Lancashire Biodiversity Partnership
- Lincolnshire Biodiversity Partnership
- London Orchard Project
- Medway Valley Countryside Partnership
- Mid-shires Orchard Group
- National Trust
- Northern Fruit Group
- Nottinghamshire Biodiversity Action Group
- Orchards Live!
- Oxfordshire Nature Conservation Forum
- Oxfordshire Records Centre
- Prestwood Nature
- Shropshire Hills AONB Partnership
- Solway Coast AONB
- Somerset County Council
- Somerst Records Centre
- Surrey Biodiversity Partnership
- Surrey Wildlife Trust
- Sustain
- Sussex Biodiversity Partnership
- Tamar Valley AONB
- Thames Valley Environmental Records Centre

- West Weald Landscape Project
- West Wight Landscape Partnership
- West Sussex County Council
- Wiltshire Wildlife Trust
- The Wildflower Ark
- Worcestershire Biodiversity Partnership
- Worcestershire Wildlife Trust
- Worcestershire County Council

Existing Information (Source_4)

Bedford archives
Local study of orchards in Bedfordshire comprising ground-truthing survey information, photographs, and analysis of OS maps, 2010.

Bedfordshire and Luton Biodiversity Recording and Monitoring Centre
Four GIS MapInfo layers containing information about orchards within Bedfordshire have been supplied comprising historical mapping data from Land Utilisation Survey maps of 1961, OS MasterMap and aerial photographs from 2006/7. Report produced (unpublished).

Thames Valley Environmental Records Centre - Berkshire (TVERC Berks survey)
GIS MapInfo layer of habitat and site data relating to potential UK BAP orchards in Berkshire comprising work from a desk top study using aerial photographs – 2008.

Thames Valley Environmental Records Centre – Oxfordshire (TVERC Oxon survey)
GIS MapInfo layer of habitat and site data relating to potential UK BAP orchards in Berkshire comprising work from a desk top study using aerial photographs – 2008. Report produced (unpublished).

The National Trust Audit
A basic orchard audit was conducted between April and June 2008. The data provided an overview on their historic and current use, location, age, size, condition, wildlife and produce. The data comprised a mixture of existing reports (some dating back to 1980) and new survey. Report produced (Cordrey et al).

Milton Keynes Council
Fruit and Nut Database – excel spread sheet containing ground-truthed records of fruit and nut trees in Milton Keynes, date unknown. Historic map desk-top study of orchards in the Milton Keynes area using OS 1:25,000 1969 – 1978.

Cambridgeshire Orchard Survey (Cambs Phase 1 survey)
Phase 1 of the Cambridgeshire Orchard Survey organised by the East of England Apples and Orchards Project (EEAOP) in association with the Cambridgeshire Orchards Group on behalf of the Cambridgeshire and Peterborough Biodiversity Partnership. Took place between 2004 and 2005 and identified orchards from the Ordnance Survey 1:25,000 Millennium Edition Maps. Report produced (URL: http://www.cpbiodiversity.org.uk/downloads/Biodiversity%20Partnership%20reports/Orchard%20Phase%201%20Report%202005.pdf) [Accessed March 2011].

Cambridgeshire Orchards Survey (Cambs Phase 2 survey)
Phase 2 of the Cambridgeshire Orchard Survey took place between 2006 and 2009 with the aim to gather information concerning the condition, habitats and fruit varieties of traditional orchards in Cambridgeshire identified in Phase 1. Report produced (URL: http://www.cpbiodiversity.org.uk/downloads/Biodiversity%20Partnership%20reports/Orchard%20Phase%202%20Report%202010.pdf) [Accessed March 2011].

Tamar Valley AONB
GIS MapInfo layer of old orchard sites in the Tamar valley AONB.

Derbyshire Wildlife Trust
Derbyshire Wildlife Trust, conducted a desk top study together with a limited field survey that was financially supported by the National Trust's 'Conserving & Restoring Traditional Orchards Project'. GIS MapInfo files of findings supplied, 2010. Report produced.

DEFRA/Natural England
GIS MapInfo layer of traditional orchards within Environmental Stewardship Schemes - 2006 - 2010.

East of England Apples and Orchards Project (EEAOP)
Survey carried out on behalf of the Woodland Topic Group of Norfolk's Biodiversity Partnership. Ordnance Survey's Explorer 1:25 000 Millennium Edition maps were used to locate the orchards supplemented by ground-truthing. 2005 .Report produced (URL: http://www.norfolkbiodiversity.org/pdf/biodiversitysurveys/The%20Condition%20of%20Orchards%20in%20Norfolk.pdf) [Accessed March 2011].

Essex survey
A survey of old Essex orchards was carried out over the winter of 2006 - 2007 on behalf of the Essex Biodiversity Project. The objective was to record the extent and condition of the county's remaining orchard habitat and in particular, to locate any traditional orchards. Ordnance Survey's Explorer 1:25 000 Millennium Edition maps were used to locate the orchards supplemented by ground-truthing. Report produced (URL: http://www.essexbiodiversity.org.uk/Data/Sites/1/GalleryImages/pdf/Essex%20Orchards%20Survey.pdf) [Accessed March 2011].

Worcestershire County Council Orchard Survey
GIS MapInfo layers containing information on orchards within Worcestershire have been supplied. Information gathered by aerial photograph interpretation work and 1976 survey data. 2007.

Herefordshire Biological Records Centre (HBRC)
GIS MapInfo layer of traditional orchards boundaries as identified by county Phase 1 survey (1999-2005) and associated target notes.

Medway Valley Countryside Partnership (MVCP)
GIS MapInfo layer of cobnut plats in Kent from survey work undertaken between 2005 and 2006. Report produced.

Greenspace Information for Greater London (GiGL)
Provided MapInfo files comprising data from habitat classification in Greater London.
Comprises information from:
Habitat Survey of the LB Redbridge
Habitat Survey of the LB Brent
Habitat Survey of the LB Havering
Habitat Survey of the LB Hillingdon
Habitat Survey of the LB Enfield
Habitat Survey of the LB Islington
Habitat Survey of the LB Barnet
Habitat Survey of the LB Harrow

Appendix 3

Preliminary survey form

Traditional Orchard Survey - Preliminary Survey

1. Site number .....

2. Surveyors name.....

3. Orchard owner .....
contact details .....
.....
.....

4. Date .....

5. Visibility of orchard from survey point

Good visibility ☐ Limited visibility ☐ No visibility ☐

6. Determination of orchard type

Orchard no longer present ☐ Bush-style/dwarf stock orchard ☐

Traditional-style orchard ☐

7. Orchard and tree management status - see notes

Grazed ☐ by..... Mown ☐ Neglected ☐

Severe livestock/deer damage to trees ☐ Evidence of herbicide use beneath trees ☐ Scrubbed over ☐

Evidence of tree pruning ☐

8. Tree planting evidence

Entirely new or young orchard ☐ Any young trees present in gaps ☐

No young trees present in gaps ☐ Established orchard with few or no gaps (mostly stocked) ☐

9.Tree interest

Old trees ☐ Standing deadwood ☐ Fallen deadwood ☐ Cavities ☐ Mistletoe ☐

10. Fruit tree species

Apple ☐ Pear ☐ Plum ☐ Cherry ☐

Other .....

11. Number of old fruit trees

1-10 ☐ 11-30 ☐ 31-100 ☐ 101+ ☐

12. Number of young fruit trees

1-10 ☐ 11-30 ☐ 31-100 ☐ 101+ ☐

13. Vegetation DAFOR scale

Grass ☐ Nettles ☐ Thistles ☐ Brambles ☐ Scrub ☐

14. Site grade for noble chafer

Grade 1 ☐ Grade 2 ☐ Grade 3 ☐

Any comments - including surrounding habitat

.....
.....
.....

PTES, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG. Tel: 0207 498 4533 Registered charity number 274206

Appendix 4

On-site survey form

Traditional Orchard Survey – On-site Survey

1. Site number ..... 2. Surveyors name .....

3. Location ..... 4. Date.....

5. Grid reference ..... 6. Orchard name if known .....

7. Average tree girth (cm).....

8. Veteran tree features

Holes in branches ☐	Water pools ☐
Dead wood in canopy ☐	Crevices in bark ☐
Aerial roots ☐	Sap runs ☐
Loose bark ☐	Fungal fruiting bodies ☐
Trunk cavities ☐	Dead wood on ground ☐

9. Noble Chafer signs None ☐ Adult ☐ Larvae ☐ Frass ☐

10. Other habitats Hedgerows ☐ Veteran trees ☐ Rough areas ☐ Ponds ☐

11. Other species of interest Mistletoe ☐ Lichen ☐ Fungi ☐ Birds ☐

Other.....

.....

Comments – e.g. surrounding habitat

.....

.....

.....

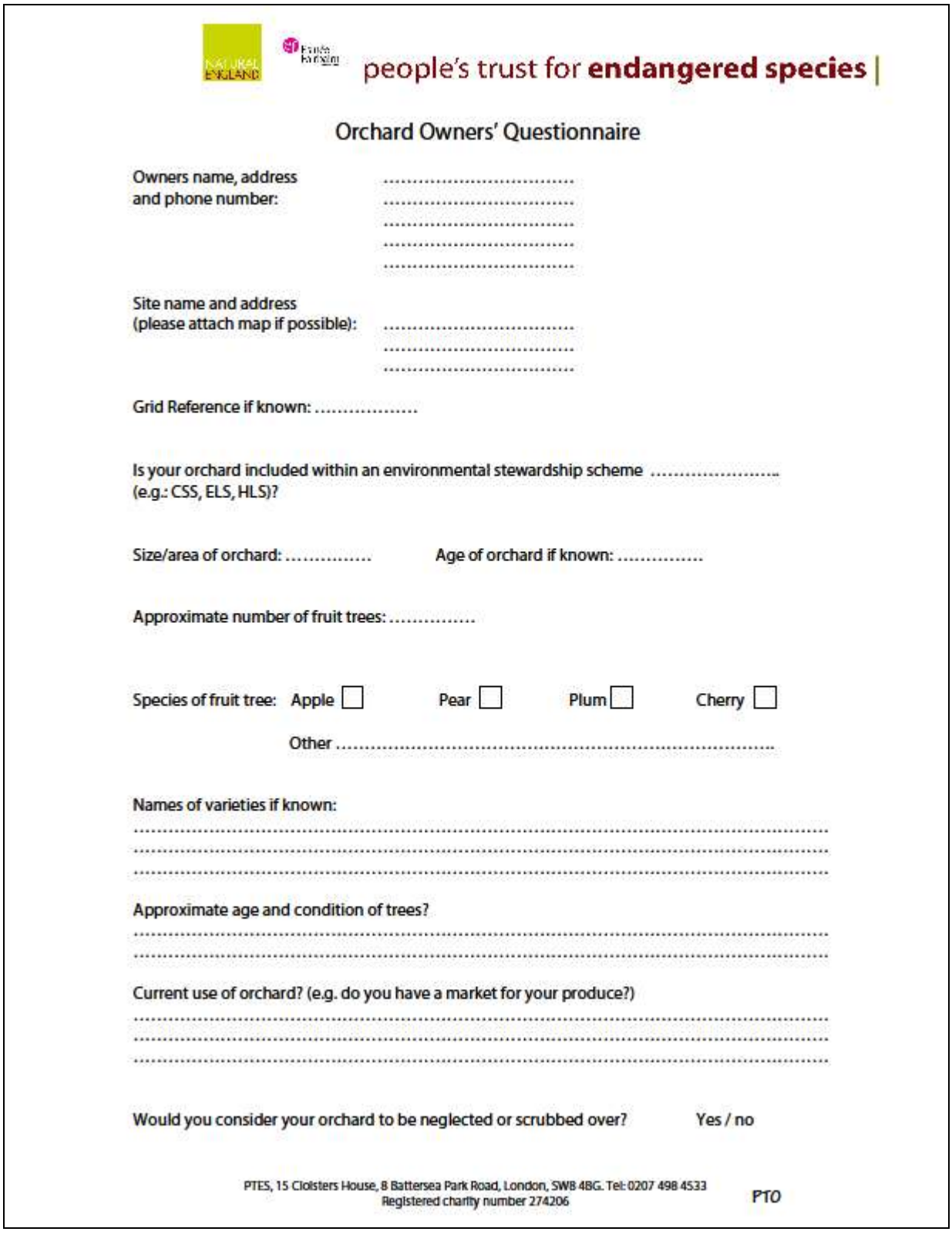
.....

.....

PTES, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG. Tel:0207 498 4533
Registered charity number 274206

Appendix 5

Orchard owners questionnaire



people's trust for **endangered species**

Orchard Owners' Questionnaire

Owners name, address and phone number: .....

Site name and address (please attach map if possible): .....

Grid Reference if known: .....

Is your orchard included within an environmental stewardship scheme ..... (e.g.: CSS, ELS, HLS)?

Size/area of orchard: ..... Age of orchard if known: .....

Approximate number of fruit trees: .....

Species of fruit tree: Apple ☐ Pear ☐ Plum ☐ Cherry ☐

Other .....

Names of varieties if known:

.....

.....

.....

Approximate age and condition of trees?

.....

.....

Current use of orchard? (e.g. do you have a market for your produce?)

.....

.....

.....

Would you consider your orchard to be neglected or scrubbed over? Yes / no

PTES, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG. Tel: 0207 498 4533
Registered charity number 274206

PTO

Historic use of orchard if known:

.....
.....
.....

How are the orchard trees managed? (delete as applicable)

Regularly pruned?	Yes / no	Deadwood retained?	Yes / no
Chemicals used?	Yes / no	Trees re-stocked?	Yes / no

Details:

.....
.....

How is the orchard floor managed? (delete as applicable)

Grazed?	Yes / no	Mown?	Yes / no
unmanaged?	Yes / no	Chemicals used?	Yes / no

Details:

.....
.....

Are there old trees in your orchard that may be hollow or have cavities within them? Yes / no

Do you have any standing dead trees in your orchard? Yes / no

Do you have any mistletoe in your orchard? Yes / no

Would you be happy for a volunteer surveyor to visit your orchard? Yes / no

Any other comments?

.....
.....
.....

Thank you very much for your time and help
Please return your completed form to the freepost address below:

Traditional Orchard Survey
People's Trust for Endangered Species
FREEPOST LON 82
15 Cloisters House
8 Battersea Park Road
London SW8 4YY

Survey information will be placed in the public domain and will be shared, in summary form, with other environmental organisations. This information will not include your contact details.

PTES, 15 Cloisters House, 8 Battersea Park Road, London, SW8 4BG. Tel: 0207 498 4533
Registered charity number 274206

Appendix 6

List of traditional orchard local Habitat Action Plans

Bedfordshire and Luton
http://www.bedslife.org.uk/documents/HAP%202008%20orchards_draft.pdf [Accessed March 2011].

Berkshire
http://www.berksbap.org/traditional-orchards-1 [Accessed March 2011].

Buckinghamshire and Milton Keynes
http://www.buckinghamshirepartnership.co.uk/partnership/bmkbp/traditional_orchards.page [Accessed March 2011].

Cambridgeshire
http://www.cambridgeshire.gov.uk/NR/rdonlyres/18072A44-35EA-4691-BE22-EBFA8015DFB7/0/OrchardHAP2009.pdf [Accessed March 2011].

Cheshire
http://www.cheshire-biodiversity.org.uk/action-plans/listing.php?id=23 [Accessed March 2011].

Cornwall
www.cornwallwildlifetrust.org.uk/bap

Essex
http://www.essexbiodiversity.org.uk/Data/Sites/1/GalleryImages/pdf/Essex%20BAP/HABITATS.pdf [Accessed March 2011].

Gloucestershire
http://www.gloucestershirebap.org.uk/actionplan/priority-habitats.php [Accessed March 2011].

Herefordshire
http://www.herefordshire.gov.uk/herefordbap/14.aspx [Accessed March 2011].

Hertfordshire
http://www.hef.org.uk/nature/traditional_orchards_habitat_action_plan_june_2010.pdf [Accessed March 2011].

Kent
http://www.kentbap.org.uk/habitats-and-species/priority-habitat/old-orchards/ [Accessed March 2011].

London
http://www.ukbap-reporting.org.uk/plans/lbap_complete_plan.asp?X=%7B69F3C94F-292C-4EC0-8A2A-A7B785D2BAB6%7D&LBAP=%7B5215DDB3-A164-46E3-A8E3-C8858A6F54AC%7D&CO [Accessed March 2011].

Norfolk
http://www.norfolkbiodiversity.org/actionplans/habitat/traditional_orchard.asp [Accessed March 2011].

Northamptonshire
http://www.northamptonshirebiodiversity.org/default.asp_PageID=49&n=Traditional+Orchards.html [Accessed March 2011].

Oxfordshire
http://www.oncf.org.uk/biodiversity/habitats.html [Accessed March 2011].

Somerset
http://www.somerset.gov.uk/irj/go/km/docs/CouncilDocuments/SCC/Documents/Environment/Countryside%20and%20Coast/Somerset%20Traditional%20Orchard%20HAP.pdf
[Accessed March 2011].

South Gloucestershire
http://www.southglos.gov.uk/NR/rdonlyres/8311D65B-A903-45B7-A8F0-60A90340CB00/0/PTE080090.pdf [Accessed March 2011].

Suffolk
http://www.suffolk.gov.uk/NR/rdonlyres/1482D92D-C291-4F69-8948-8D1D5E939A23/0/traditionalorchards.pdf [Accessed March 2011].

Surrey
http://www.surreybiodiversitypartnership.org/xwiki/bin/view/Orchards/ [Accessed March 2011].

Warwickshire
http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/1B5C13465EA4768C80256E910044BE27/$file/Orchards.pdf [Accessed March 2011].

Wiltshire
http://www.biodiversitywiltshire.org.uk/WiltshireBAP/Default.aspx [Accessed March 2011].

Worcestershire
http://www.worcestershire.gov.uk/cms/pdf/H2%20Traditional%20Orchards%20Action%20Plan.pdf [Accessed March 2011].

Appendix 7

List of local orchard groups and associated projects

Bedfordshire
http://www.bedsorchards.org.uk/ [Accessed March 2011].

Buckinghamshire
http://www.msog.btik.com/Home [Accessed March 2011].

Cambridgeshire
http://www.cambridgeshire.gov.uk/environment/natureconservation/action/partnership/members/Orchards+Group.htm [Accessed March 2011].
http://www.applesandorchards.org.uk/ [Accessed March 2011].

Cheshire
http://www.cheshirelandscapetrust.org.uk/orchard-project.html [Accessed March 2011].

Cumbria
http://www.lythdamsons.org.uk/ [Accessed March 2011].
http://www.slorchards.co.uk/ [Accessed March 2011].
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

Cleveland
http://www.wildflowerark.org.uk/ [Accessed March 2011].

Devon
http://www.orchardlink.org.uk/ [Accessed March 2011].
http://www.orchardslive.org.uk/ [Accessed March 2011].

East Yorkshire
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

Essex
http://www.essexbiodiversity.org.uk/Default.aspx?pageid=91 [Accessed March 2011].
http://www.applesandorchards.org.uk/ [Accessed March 2011].

Kent
http://www.kentishcobnutsassociation.org.uk/a-brief-history-of-cobnuts.aspx [Accessed March 2011].
http://www.kmbrc.org.uk/recording/projects/surveys.php?page=3 [Accessed March 2011].

Oxfordshire
http://www.msog.btik.com/Home [Accessed March 2011].

Gloucestershire
http://www.gloucestershireorchardgroup.org.uk/ [Accessed March 2011].

Herefordshire
http://www.herefordshire.gov.uk/leisure/parks_recreation/4799.asp [Accessed March 2011].
http://www.marcherapple.net/ [Accessed March 2011].
http://www.bigapple.org.uk/ [Accessed March 2011].
http://colwallorchardgroup.org/default.aspx [Accessed March 2011].

Hertfordshire
http://www.hertfordshireorchardinitiative.org.uk/ [Accessed March 2011].

Isle of Wight
http://www.wwlp.co.uk/projects.php [Accessed March 2011].

Lancashire
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

London
http://thelondonorchardproject.org/ [Accessed March 2011].

North Yorkshire
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

Nottinghamshire
http://www.msog.btik.com/Home [Accessed March 2011].

Shropshire
http://www.shropshireappletrust.co.uk/ [Accessed March 2011].

Somerset
http://www.somerset.gov.uk/irj/public/services/directory/service?rid=/wpccontent/Sites/SCC/Web%20Pages/Services/Services/Environment/Request%20Somerset%20Orchards%20newsletter [Accessed March 2011].

South Gloucestershire
http://www.southglos.gov.uk/NR/exeres/f0121b68-c8c5-4001-b521-e55500f2a957
[Accessed March 2011].

South Yorkshire
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

Suffolk
http://www.suffolk.gov.uk/Environment/Biodiversity/SuffolkOrchardSurvey.htm [Accessed March 2011].

Surrey
http://www.surreybiodiversitypartnership.org/xwiki/bin/view/Orchards/ [Accessed March 2011].

Warwickshire
http://www.msog.btik.com/Home [Accessed March 2011].

Sussex (East &West Sussex)
http://www.westweald.org.uk/news.htm [Accessed March 2011].
http://www.biodiversitysussex.org/news/core-to-action-to-safeguard-sussex-s-traditional-orchards/ [Accessed March 2011].

West Yorkshire
http://www.northernfruitgroup.com/aims.htm [Accessed March 2011].

Wiltshire
http://www.wtop.org.uk/Home [Accessed March 2011].

Appendix 8 Press coverage

Broadcast & Newswires	Date	Circulation/ Audience
BBC Hereford/Worcester - Interview	12 Sep 08	
BBC Shropshire - Interview	12 Sep 08	
BBC Cambridgeshire- Interview	12 Sep 08	123,000
BBC Somerset - Interview	12 Sep 08	
BBC Bristol - Interview	12 Sep 08	
BBC Cumbria - Interview	12 Sep 08	250,000
BBC Lincs - Interview	12 Sep 08	
BBC Glos - Interview	12 Sep 08	
BBC Norfolk - Interview	12 Sep 08	
BBC Devon - Interview	12 Sep 08	
BBC Kent- Interview	12 Sep 08	266,000
BBC Northants - Interview	12 Sep 08	
BBC Wilts - Interview	12 Sep 08	
BBC Oxfordshire - Interview	12 Sep 08	85,000
Radio 4 Today Programme- Interview	12 Sep 08	5,910,000
Radio Cambridgeshire	12 Sep 08	123,000

Table continued...

Broadcast & Newswires	Date	Circulation/ Audience
Radio Cambridgeshire- Interview	21 Sep 08	123,000
BBC Radio Kent - Interview	28 Sep 08	266,000
Radio 4 You & Yours	17 Apr 09	
BBC 1 News	23 Apr 09	
Radio 4 Today Programme	23 Apr 09	
BBC Radio Oxford	28 May 09	
BBC Oxford TV (with Anita Burrough and Gavin Bird)	02-Oct-09	
BBC Oxfordshire - Jo Thoenes (AB)	18-Mar-10	
BBC Radio Surrey (AB)	14-Dec-10	
Passion for the Planet (AB)	Pending	100,000

National Newspapers	Date	Circulation/ Audience
The Telegraph	12 Sep 08	896,476
Daily Express	12 Sep 08	727,180
The Daily Telegraph	15 Nov 08	818,937
The Sunday Telegraph	22 Feb 09	667,692
The Daily Telegraph	24 Apr 09	818,937

Table continued...

Regional Newspapers	Date	Circulation/ Audience
Wells Journal	10 Apr 08	32,945
Central Somerset Gazette	10 Apr 08	32,945
Weekend Citizen (Glouc)	28 Mar 09	28,587
Gloucestershire Echo	30 Mar 09	21,074
The Metro	24 Apr 09	
Western Morning News (Cornwall)	29 Apr 09	41,151
Abingdon Herald	29 Apr 09	13,534
Gazette & Herald (Box, Calne, Chippenham, Corsham)	30 Apr 09	26,508
Braknell & Wokingham Midweek	29 Jul 09	
Manchester Evening News	01 Aug 09	82,445
Oxford Mail	16 Mar 10	22,830
Oxford Journal	18 Mar 10	37,500
Bicester Advertiser	25 Mar 10	4,664
Manchester Evening News (Main)	12 Apr 10	165,238
Manchester Evening News (Home)	12 Apr 10	165,238
Lancaster Guardian	23 Apr 10	14,415
West Sussex Gazette (Main)	28 Apr 10	6,886
Mid Sussex Times (Haywards Heath)	20 May 10	11,427
Bucks Herald (Main)	22 Sep 10	13,823

Table continued...

Regional Newspapers	Date	Circulation/ Audience
Burton Mail	28 Sep 10	12,736
Stratford-upon-Avon Herald (Main)	30 Sep 10	17,394
Bicester Review (Main)	01 Oct 10	8,241
Isle of Wight County Press	08 Oct 10	36,663
Grimsby Telegraph (Main)	16 Oct 10	29,220
Scunthorpe Telegraph (Main)	16 Oct 10	17,305
Western Morning News (Cornwall) (Main)	16 Oct 10	18,448
Western Morning News (Devon) (Main)	16 Oct 10	26,542
West Briton (Truro)	21 Oct 10	13,501
Staffordshire Newsletter	04 Nov 10	17,032
East London Advertiser (Main)	25 Nov 10	6,917
Cornish Times	26 Nov 10	15,000
Yorkshire Evening Post	14 Dec 10	44,818
Teesdale Mercury	15 Dec 10	6,155
Morpeth Herald (Main)	16 Dec 10	2,904
Northampton Chronicle & Echo (Main)	20 Dec 10	17,934
Dorset Echo (Main)	20 Dec 10	18,396
Dorset Echo (Main)	21 Dec 10	18,396
Dorset Echo (Main)	29 Dec 10	18,396

Table continued...

Regional Newspapers	Date	Circulation/ Audience
Lyme Regis News	29 Dec 10	9,627
Telegraph & Argus (Bradford)	01 Jan 11	31,000

National Magazines	Date	Circulation/ Audience
Natural Lifestyle	17 Nov 08	100,000
Garden News	30 Dec 08	36,248
Garden News	2009	36,000
Vegan Society	2009	5,500
Grow It!	March 09	50,000
BBC Countryfile	March 09	35,000
BBC Good Food	July 09	359,772
The National Trust Magazine	Autumn 09	1,752,636
A World of Trees	01 Sep 10	

Online	Date	Circulation/ Audience
telegraph.co.uk	11-Sep-08	
ceefax	12-Sep-08	
news.bbc.co.uk	12-Sep-08	

Table continued...

Online	Date	Circulation/ Audience
mashget.com	15-Sep-08	
telegraph.co.uk	15-Sep-08	
robert-hernreich-charitynews.blog.spot.com	15-Sep-08	
Care2.com	16-Sep-08	
freshplaza.com	16-Sep-08	
oxfordtime.co.uk	14-Oct-08	
orchardsforever.blogspot	01-Nov-08	
Nat-lifestyle.com	17-Nov-08	
telegraph.co.uk	23-Feb-09	
bbc.co.uk	24-Apr-09	
gazetteandherald.co.uk	30-Apr-09	
Wildlifeextra.com	30-Apr-09	
oxfordtimes.co.uk	06-Aug-09	
dailymail.co.uk	21-Sep-09	
aboutmyarea.co.uk	14 Oct 09	
wildaboutbritain.co.uk	2 Mar 10	
oxfordjournal.co.uk	15 Mar 10	
jamesrussellontheweb.blogspot.com	1 Oct 10	

Table continued...

Online	Date	Circulation/ Audience
iwcp.co.uk	8 Oct 10	
ventnorblog.com	21 Oct 10	
putneysw15.com	24 Nov 10	
chiswickw4.com	24 Nov 10	
bbc.co.uk	10 Dec 10	
bbc.co.uk	23 Dec 10	