

A National Orchard Inventory for Scotland

Area Report for: Highland



Collaborating Organisations:

Transition Black Isle

Wester Ross Environmental Network

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prepared by

Crispin Hayes Associates

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Project national partners:

Scottish Natural Heritage

Orchard Research & Enterprise CIC

Funded by:



Scottish Natural Heritage
Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Dedication

This report is dedicated to the memory of David Reid, one of the Local Facilitators whose tireless work on the Orchard Inventory project in the Highlands, helped make it happen. David passed away in April 2018.

Report Authors

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Lorna Gibson, former GIS Officer at Crispin Hayes Associates who made a first deskstudy assessment of nearly two thousand sites across Scotland.

Thanks for all your contributions

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Summary

Keywords

orchard; fruit tree; top fruit; apple; pear; plum; undercrop; EUNIS G1.D4; Highland

Background

There has been growing interest in traditional orchards in Scotland for a little over a decade. This interest has a great breadth; from cultural heritage and horticultural practice, to historic varieties and the gradual disappearance of this unusual Scottish habitat.

The National Orchard Inventory for Scotland Project aims to create a comprehensive orchard inventory for the nation. This has probably not been attempted for over a century, perhaps since the 1885 Congress. The rationale that underpins this aim is that an Orchard Inventory will form the basis for addressing a number of issues linked to the decline of orchards over the last four decades and create a strong foundation for their revival. Simply put, we need to know what's where in order to change the downward trajectory.

The project began in 2013 with a pilot study which since then has received funding support from Scottish Natural Heritage. The programme has grown since that time to add further phases so that at the time of writing more than half of Scotland's orchards have been surveyed and recorded. The national project is reported separately, and is available at the project website www.scotlandthefruit.org.uk

Summary findings

A total of 122 orchard sites were surveyed, of these 98 were found to be intact orchards.

In this area, the total acreage of orchards found still to be in existence at survey was 15.3 ha

Most of the orchards contain less than 30 trees and are in a domestic setting. Two commercial orchards exist, one containing around 2500 trees.

Most orchards contain a diverse mixture of fruit species, reflecting their domestic use.

The new and young tree stock dominates but there are significant numbers of mid and aged trees.

Veteran tree features indicate the orchards contain high levels of biodiversity.

The majority of orchards have some or active management, and this is at a higher rate than typically found elsewhere in Scotland.

Most orchard have less than 30 trees. Only a small minority have over 100 trees.

Soft fruit and also vegetables are grown in a significant minority of orchards.

Most fruit is used for family and friends, little is sold commercially or left to waste.

Livestock is grazed in small minority of orchards, these mainly being fowl and sheep.

The qualitative data demonstrates the depth of history; cultural, economic and otherwise, that this area is custodian to.

To conclude, Highland contains a surprisingly large number of small orchards, most of which are actively managed and from which the fruit is used within the domestic setting. The survey reflects what is shown to be quite an active level in interest in orchards in the area.

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1 INTRODUCTION

There has been growing interest in traditional orchards in Scotland for a little over a decade. This interest has a great breadth; from cultural heritage and horticultural practice, to historic varieties and the gradual disappearance of this unusual Scottish habitat.

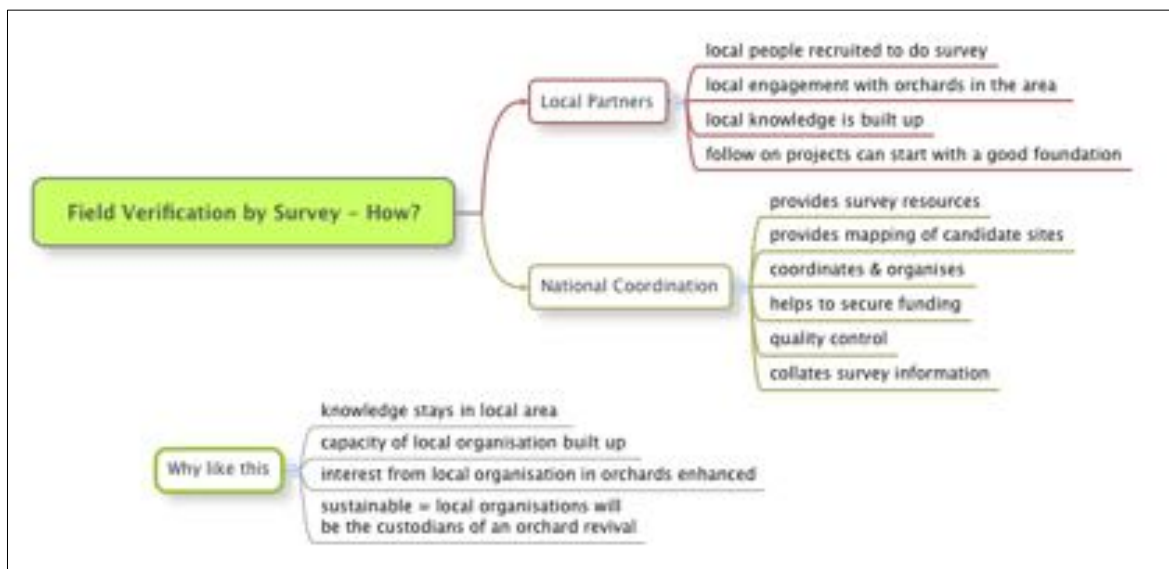
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This document is one of a series of reports that provide results for particular areas, which are usually coherent with the local authority domain. The purpose of producing these 'Area Reports' is to make results relevant to local organisations and local people. It is intended to raise awareness about their orchards and their cultural heritage, and to identify issues that may be contributing to their decline and, in some cases, revival.

2 COLLABORATION

The national project is structured to partner collaboratively with local groups. Resources, systems and coordination are provided nationally, fieldwork is organised and carried out by the local collaborating organisations.



The graphic shows what each partner brings to the field survey work. The reason why we have structured the project like this is also shown. We want knowledge to be retained locally so that capacity is built and a sense of ownership and interest in local orchards is strongly established. We think this will be the most sustainable way to create a foundation for an orchard revival.

As a project partner, the local collaborating group has a copy of the data collected in their area.

3 BACKGROUND TO THE AREA

The Highlands are not usually considered to be a hotspot for orchards within Scotland. However many of the coastal areas enjoy a relatively mild climate and this coupled with locations that afford some shelter from the wind, can provide a suitable localised micro-climate for orchards and other horticulture. This was our assumption from the deskstudy together with some local knowledge. Therefore we set out with our collaborating local organisations to locate and survey Highland orchards, hopeful to find more orchards than we were previously aware of.

In embarking on this task, we would like to acknowledge the Highland Orchard Project, a previous piece of work coordinated by Jonathon Willett at Highland Council. Though less detailed than this Inventory survey, it did effectively begin the process of mapping orchards in the Highlands.

4 METHODOLOGY

The methodology for the project (of which this area is a subset) is described in Annex 2.

To summarise, a two stage approach is adopted.

1. A deskstudy is carried out, looking for orchard sites from mapping, historical data, existing surveys and other sources. This is collated on a Geographical Information System. Each site is given a unique number and a location map created. Nationally the deskstudy considered 1859 sites of which 1728 were considered candidates for field verification.

2. Field verification. Each candidate site was visited and surveyed by a volunteer surveyor. Photos were taken where possible. The survey results were submitted to the national project.

Finally the results are collated and reported.

The Local Facilitation for this area was provided by Kathryn Logan (TBI), David Reid (TBI) and Sue Pomeroy (WREN) of Transition Black Isle and Wester Ross Environmental Network.

Time input for field verification work is reported in Annex 2.

5 STRUCTURE OF RESULTS

The results are structured in this report in three distinct sections:

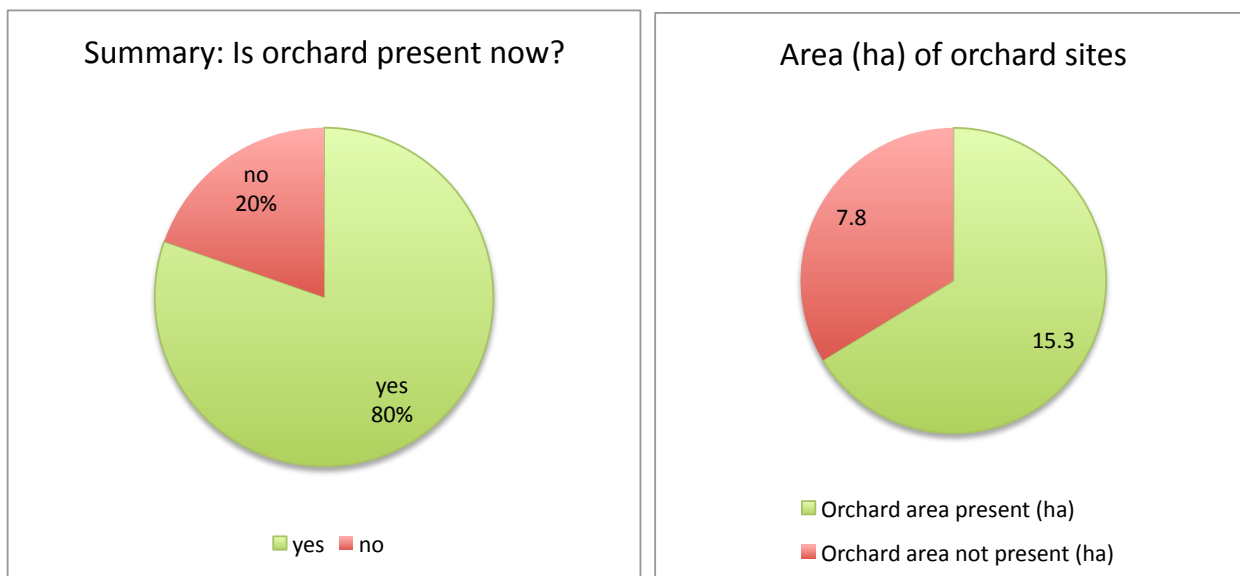
- Numeric and classification information (quantitative), together with overall conclusions.
- Anecdotal and comment information, qualitative aspects.
- Representative photo gallery. A collection of photos with descriptive captions that illustrate the orchards of the area.

Photos have been submitted for a total of 102 sites.

6 NUMERIC AND CLASSIFICATION INFORMATION

Quantitative Data Results

We have analysed the data collected and have turned it into a more presentable form by creating a graphical output. In the section below, those graphs are presented with a commentary.



The graphs above show the headline results of whether orchards were found to be present on candidate sites (left pie chart), and the total associated area (right pie chart).

Field surveywork was completed for this area for 122 candidate sites. Of that number, 98 sites were found to have an orchard present and of those 67 were new orchard sites, and balance resulting from our deskstudy. Our definition of an orchard is a collection of 5 or more fruit trees in proximity. By 'new sites' we mean sites not identified in our deskstudy - so new to us. Many, though not all, are recently planted orchards.

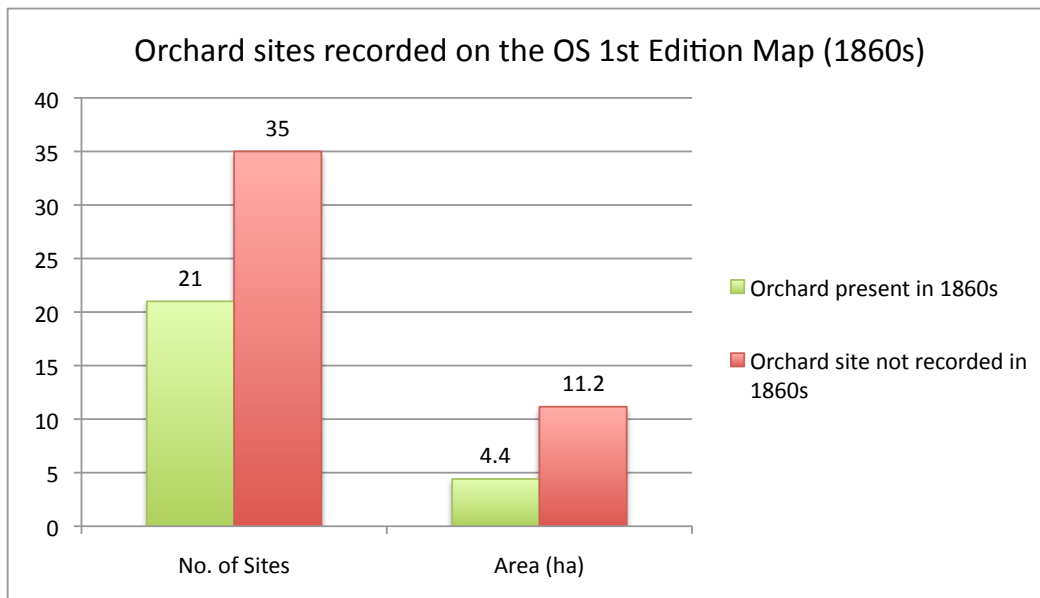
The fieldwork also found that a total of 24 sites were not orchards at the time of survey. Most of these latter sites were identified in the deskstudy as likely to be orchards from mapping, historical, or previous survey data. As such it is likely to represent some of the loss of orchards.

A further 7 site(s) were visited where it was not possible to gain access or make a determination as the existence of an orchard.

In terms of the acreage of sites, the fieldwork found that 15.3 ha of the orchard sites were present in Highland. This represents 66% of the total area of deskstudy + new orchard sites.

The graphs show that there has been some loss of orchards, both in terms of numbers and total area. Around a fifth of orchard sites have been lost, however this has been offset by the creation of many new orchards, including some commercial orchards.

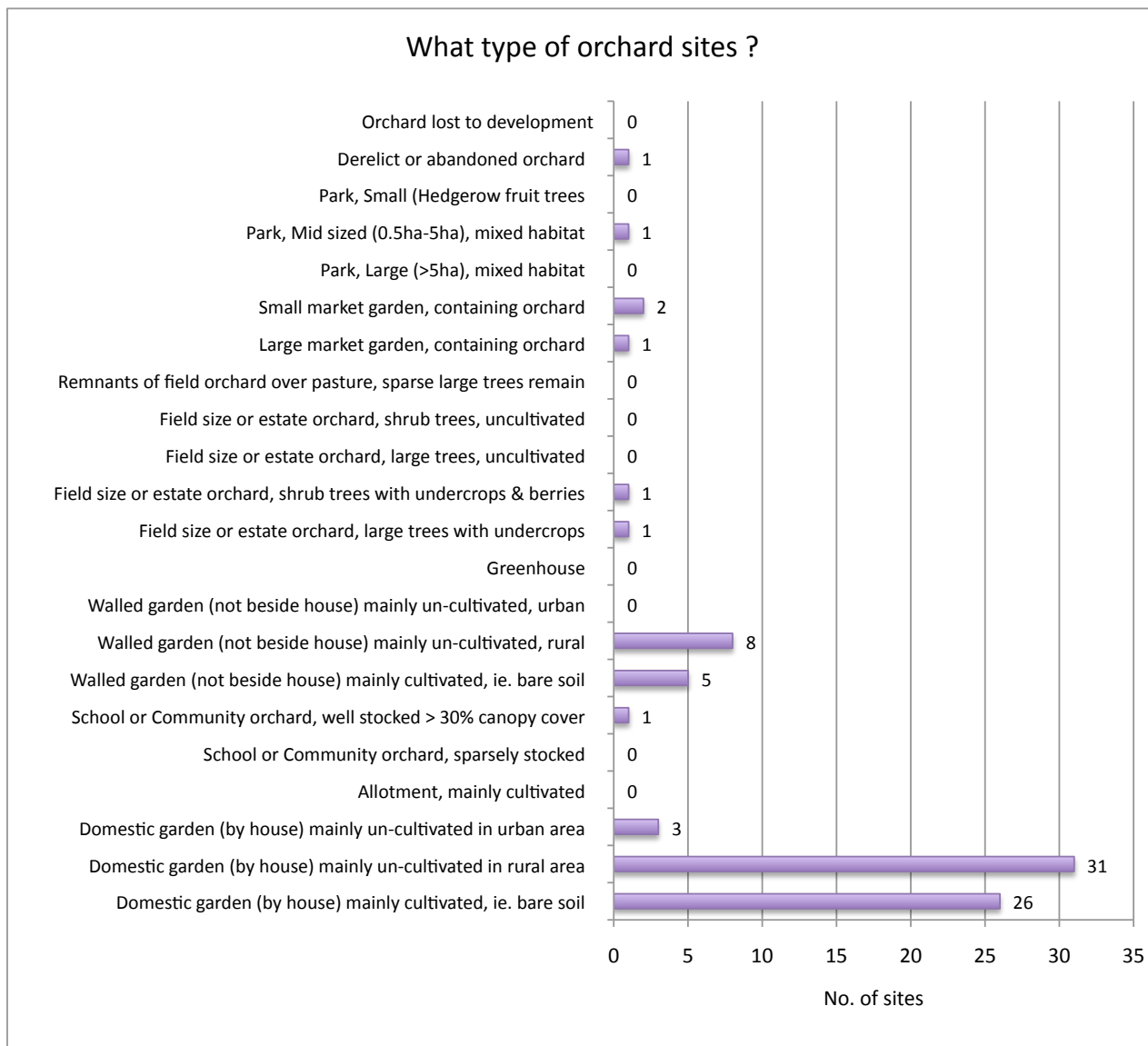
For a historical perspective on the significance of this trend we have also analysed the OS 1st edition data which was assessed for each site during the deskstudy. The OS 1st edition was surveyed in the late 1850s and early 1860s, and covered most of Scotland and was very detailed. It represents a good resource for historical analysis.



In Highland a determination for the presence of an orchard on the OS 1st Edition was made for a total of 56 candidate sites. The graph shows that of these, a total of 21 candidate sites were an orchard. The total area for these orchard sites was 4.4 ha in 1860s.

These data represents an interesting story for the Highland area. Though these data only includes candidate sites that our deskstudy assessed there was a reasonable prospect of an orchard being present, the indication is that the acreage of orchards today may be greater than they were in 1860s.

It indicates that there exists a larger area of orchards today than 150 years ago, though the acreage is a little skewed by one or two large commercial orchards.

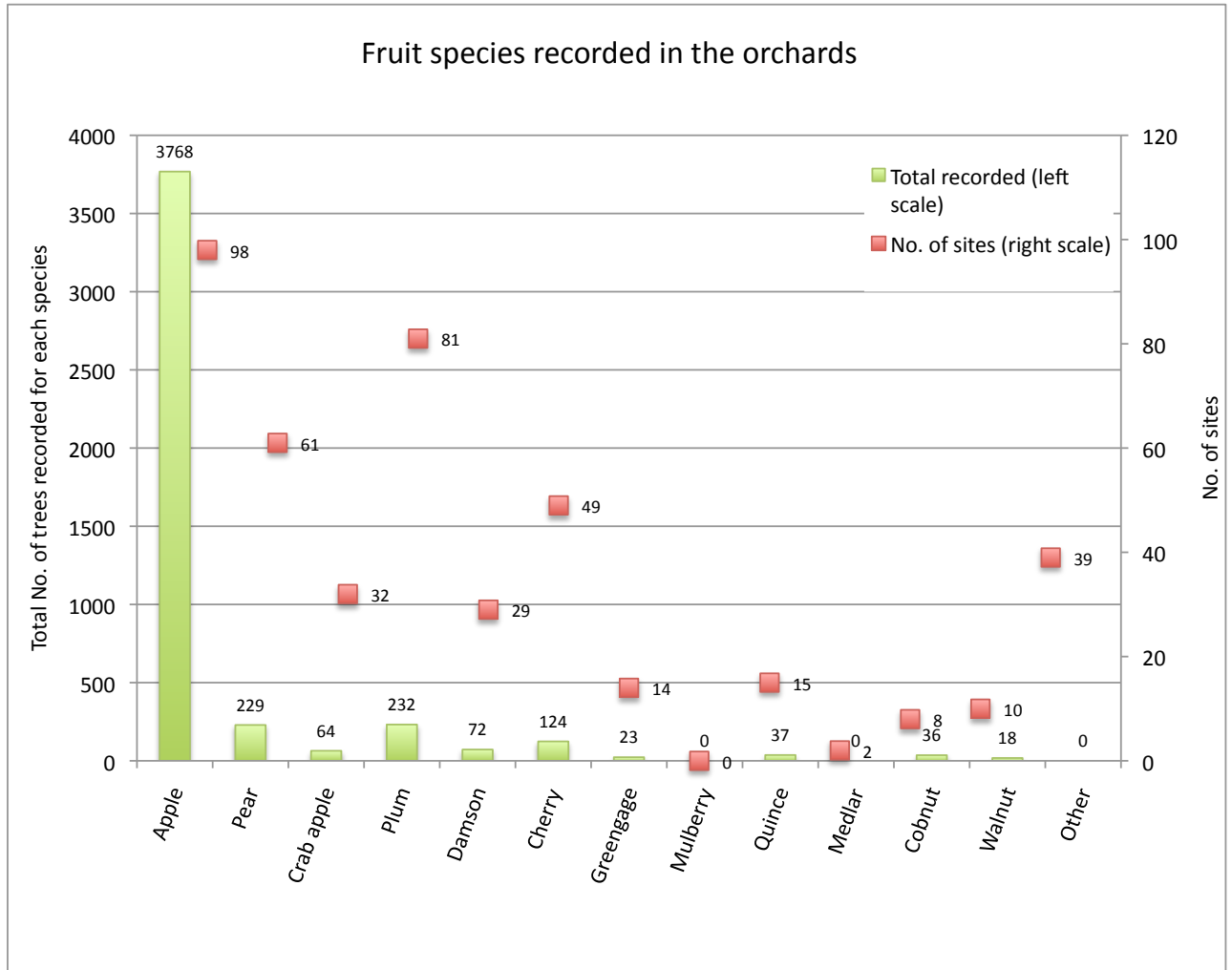


The type of site was recorded as a simple metric that can give a powerful insight into the type of orchard being considered, as well as assisting in the habitat classification using the European Nature Information System (EUNIS). Hence the apparent complexity of site types.

The graph shows the two largest classifications of 31 and 26 sites are domestic orchard by houses. The third and fourth largest classification of sites with an orchard are walled gardens. These are great locations because of the shelter they provide. Only one derelict or abandoned orchards was recorded. A number of other site types are present.

Stewardship and Agricultural Payments

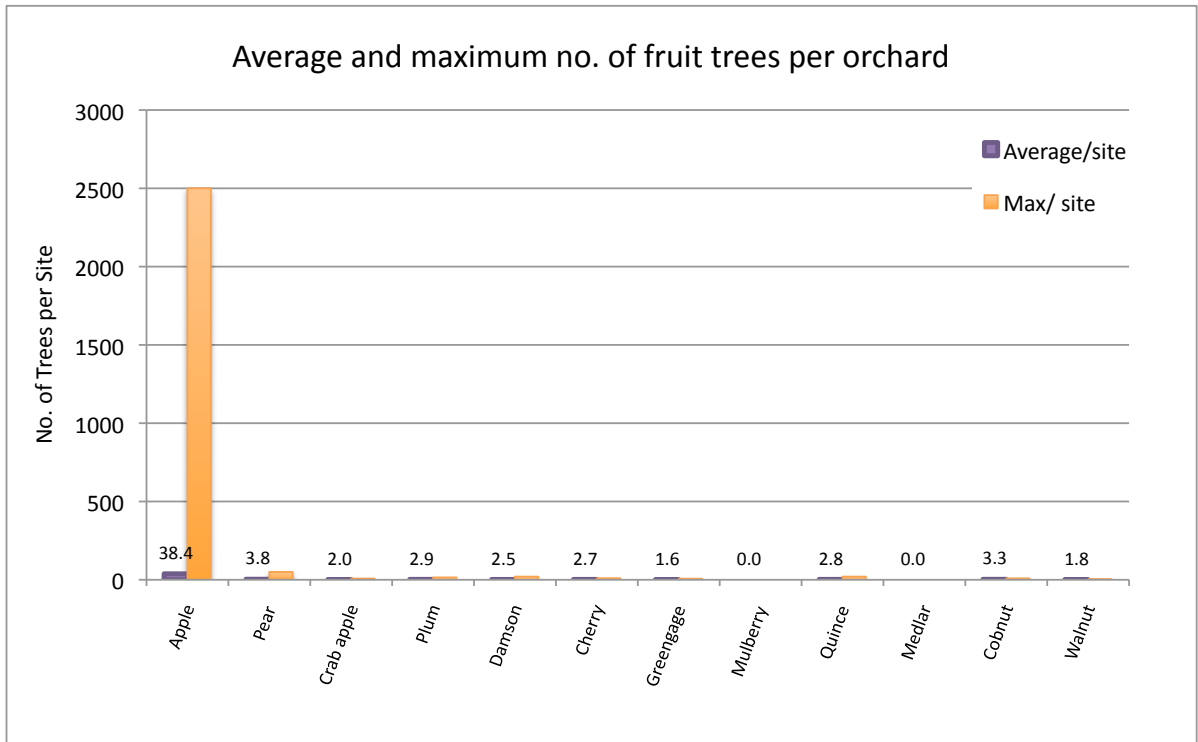
In the area being considered, it has been reported that 1 orchard(s) are part of a Stewardship scheme. In terms of orchard sites where an agricultural subsidy is being claimed, the survey found 2 orchard(s) were registered within the Integrated Administration and Control System (IACS) which relates to EU agricultural payments. This figure is probably an under-representation as there is some incentive to classify the land as other than an orchard.



A broad range of top fruit species were recorded to gain a full picture of fruit produced. The green columns (left scale) represents the total number of trees recorded for each species in the area being considered. The red markers (right scale) represent the number of orchards in which that data was collected. In some cases it was not possible to determine numbers for individual species in an orchard, so the total number of sites surveyed is likely to be greater than the maximum number of sites recorded here.

The total number of individual trees recorded in the survey was 4603. We also recorded a size range for each orchard. An estimate of the total number of trees from this size range data is 4448. This demonstrates reasonable agreement, given that number of individual trees is not always recorded in every orchard.

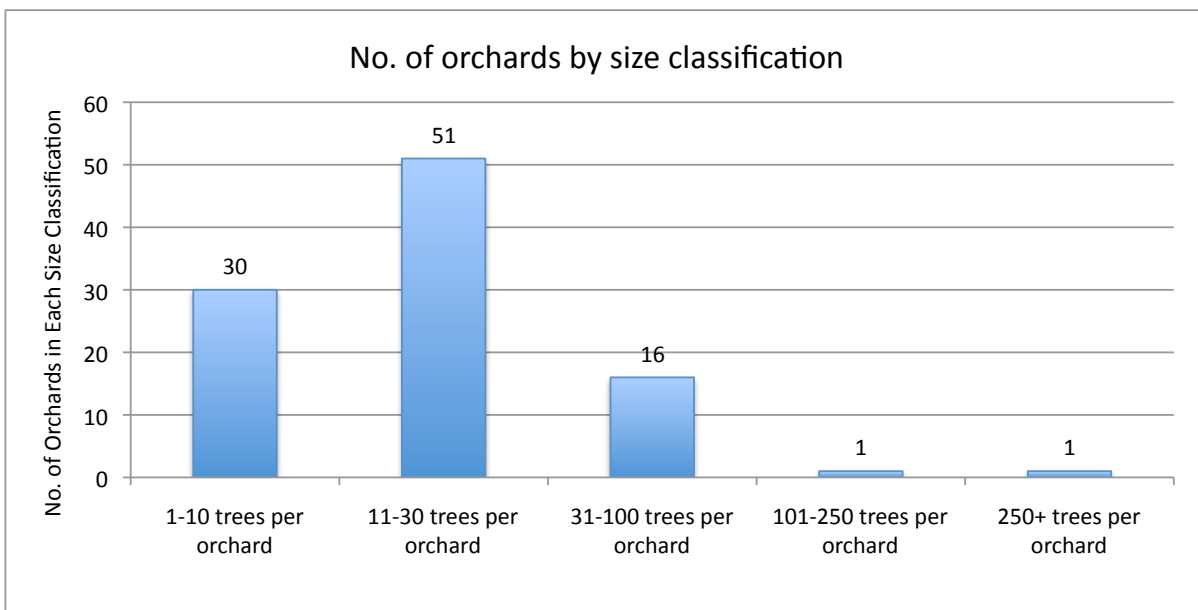
The graph tells the story of this area. It shows a mixture of fruit species, a large number of apple, pear and plum, but also many cherry, crab apple and damson. It is interesting to see walnut and cobnut present, though the perhaps the latter is not surprising given that hazel is present wild across sheltered parts the Highlands.



The graph above represents the average and maximum number of each species in the orchards of the area. It does not represent the typical stocking of an average orchard.

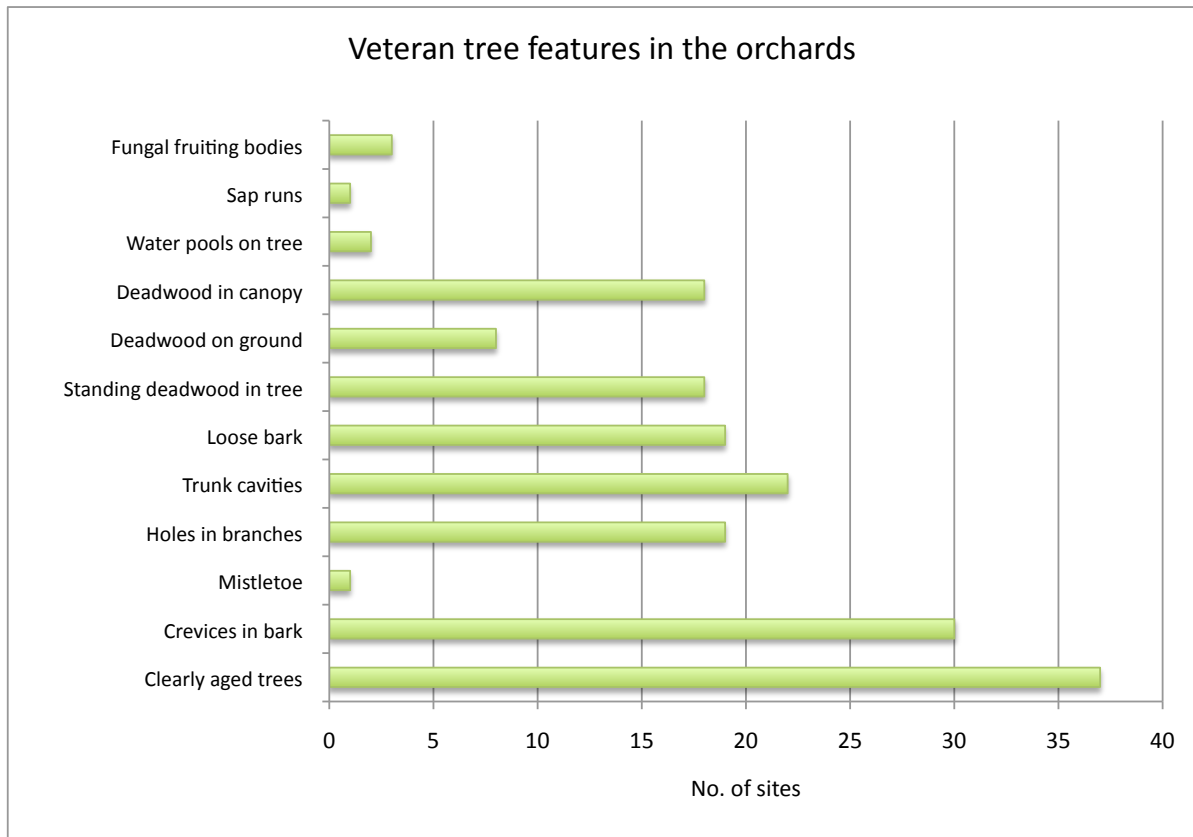
The short purple column on the graph show the average number of each species in the orchards. The taller orange columns show the maximum number of a species found in any orchard in the area.

We can see that the whole graph is rather dominated by a single large apple orchard with around 2500 trees and this has also skewed the average for apples. Figures for the other species probably give a more realistic picture of orchards across Highland. They show that orchards are typically small and mixed, containing a few of several species. Given that most orchards are domestic (as shown previously), this mixed planting makes sense.



As well as asking how many individuals of each species of tree were present, we also wanted a general sense of the size of an orchard, and therefore size range classification was recorded, as shown in the graph above.

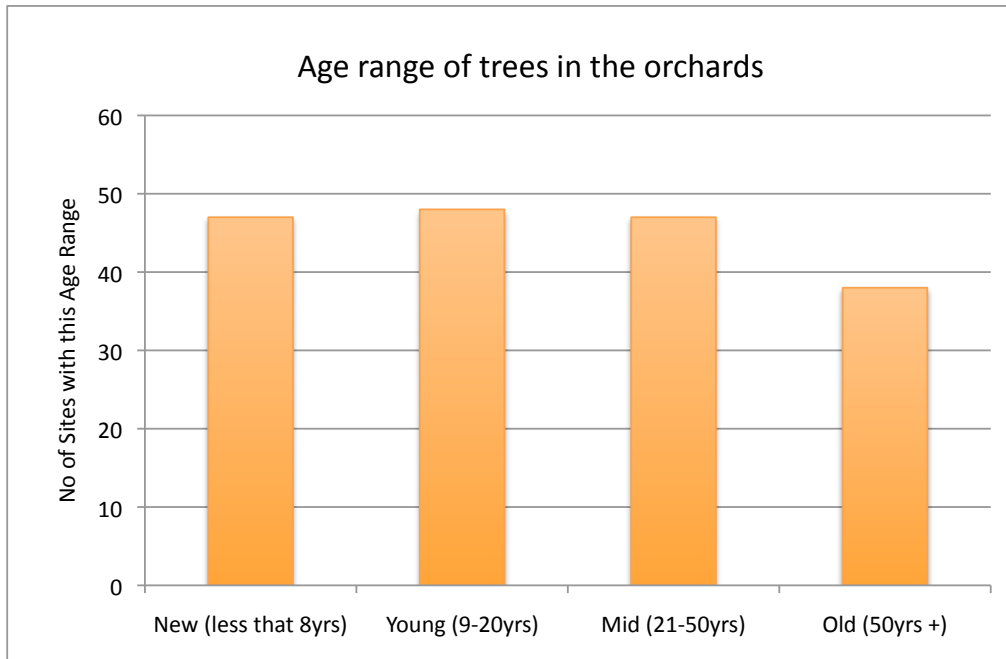
The graph shows that most orchards had 30 fruit trees or less. A few have up to 100 trees. Only two orchards have more than 100 trees and only one more than 250 trees, which we consider to be a commercial size.



Veteran tree features are used as biodiversity indicators. Therefore the more veteran tree features present, the higher the likely biodiversity in the orchards. There was a total of 178 veteran tree features recorded in the orchards in this area. This demonstrates significant biodiversity.

Its useful to assess how mature the trees in an orchard are. We consider trees over around 50 years old to be mature. Mature trees of older varieties generally are more established in terms of their steady yield. However, there is also potential for more disease. A further dimension is that orchards with mature trees have greater biodiversity potential.

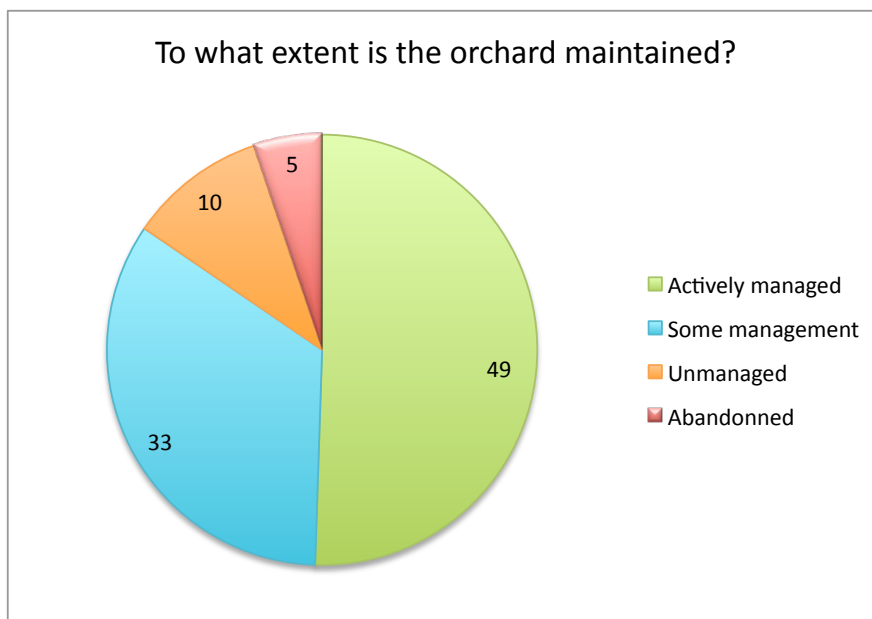
The average proportion of older trees for the orchards was 24%. This figure was calculated from the 78 sites where data was recorded. There will however be a great variability with some orchard being entirely mature, and some being entirely young.



The age of trees contained in each orchard was recorded. Ages were grouped into 4 categories to simplify the assessment in the field.

Each orchard may contain a number or all the age ranges reflecting the plantings over the years. Predominantly old trees indicates a mature collection of orchards. If no new or young plantings are recorded in an area, this indicates that the presence of orchards in the area is potentially threatened.

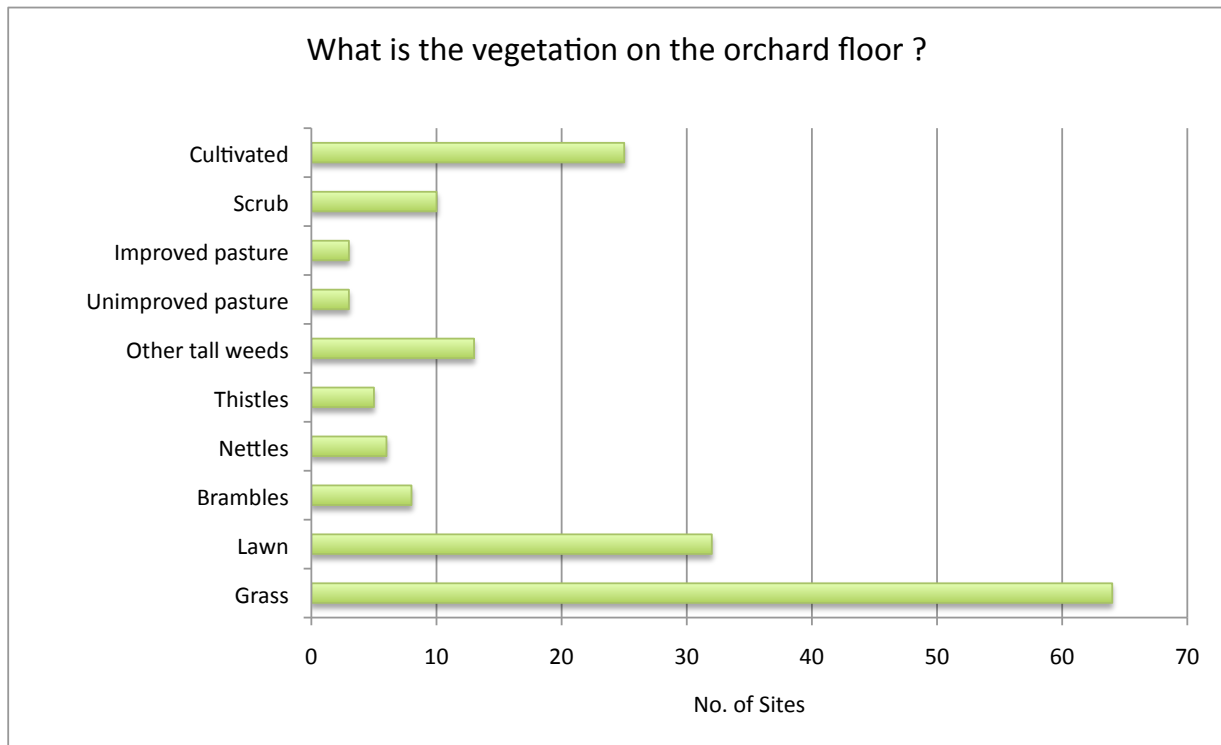
The graph shows all age ranges being represented but the younger ranges dominate. It is some comfort that there are significant numbers of orchards with new and young trees, reflecting a resurgence in interest in locally produced fruit.



The extent of orchard management is given above. A total of 97 sites have data recorded for them. The figures in the chart are the number of orchards determined to be in each particular category.

The graph shows that most orchards have some or active management. This demonstrates higher levels of orchard management than are found in many parts of lowland Scotland.

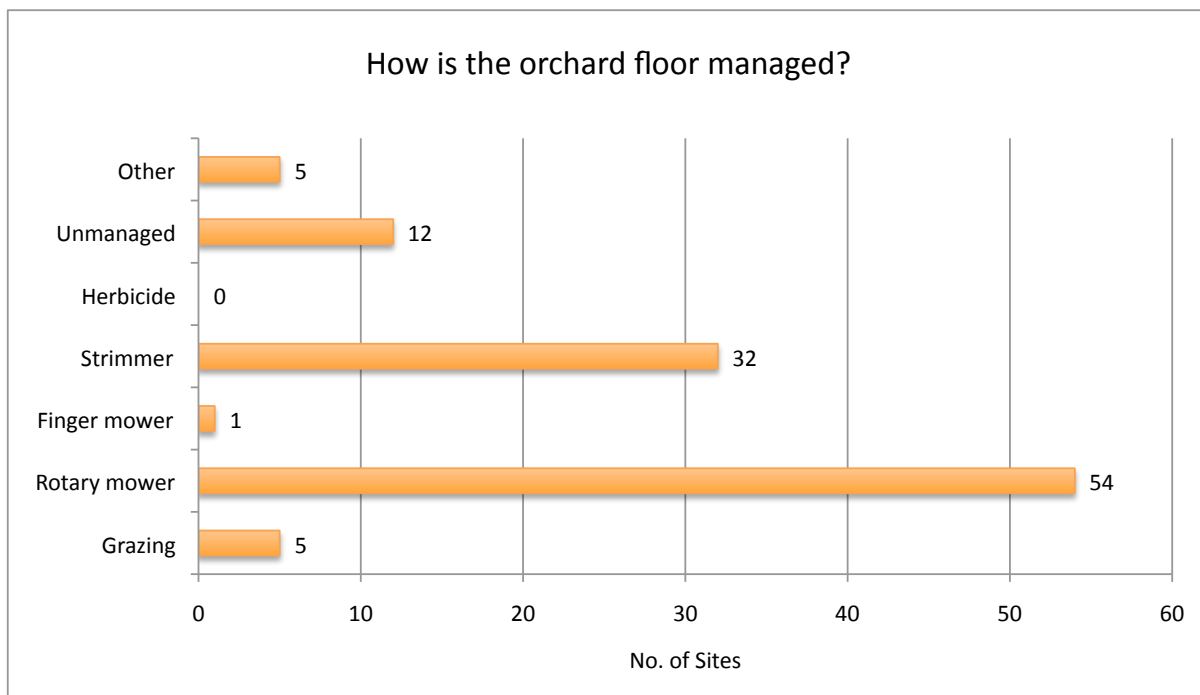
High proportions of abandoned and unmanaged orchards are an indication that there needs to be a local focus on raising awareness on maintenance issues. Maintenance skills project are also a popular way of building capacity locally.



The orchard floor is an important part of the orchard habitat, both for biodiversity but also as a further element of the growing space. The generic term used across various habitats, is the 'field layer'.

Each site may have several field layer types, for example parts of it may be mown into a lawn while other parts are unimproved pasture with thistles. We are also interested in orchards that are cultivated as this was a practice that was once much more common.

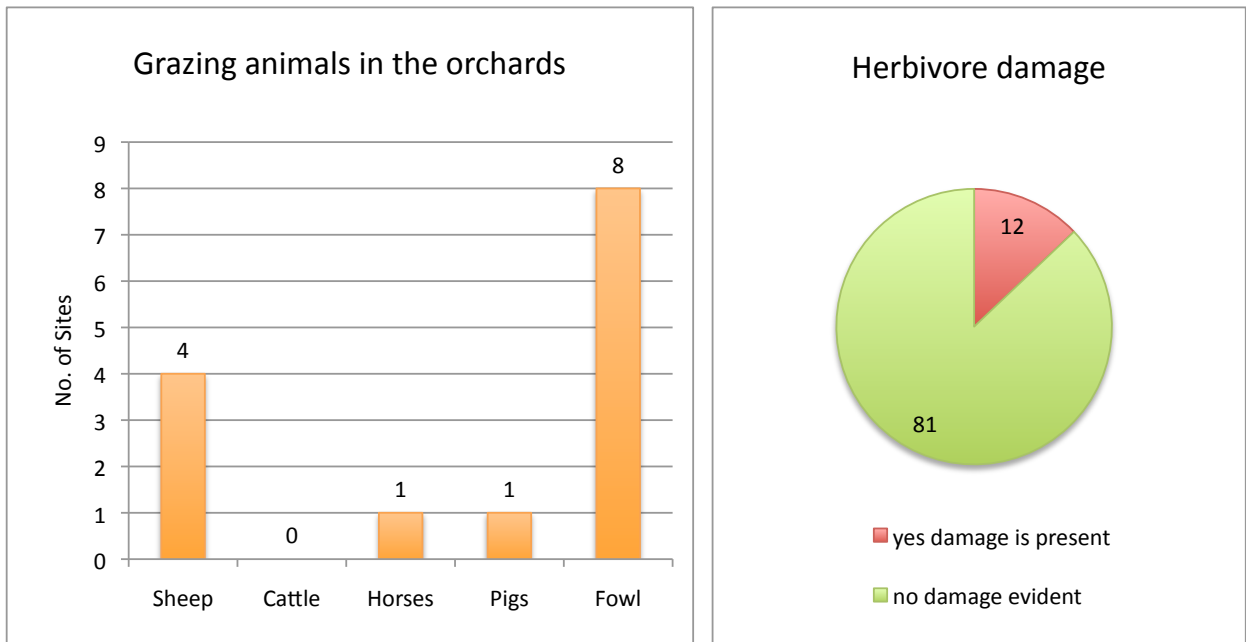
The graphs shows that most orchards have some sort of managed grass as a field layer. However, a significant minority are also cultivated showing a more complex use of the land.



Each orchard can record more than one method for managing the orchard floor. The reference to the finger mower may be unfamiliar. This is a type mower that has a flat cutter bar like a hedge trimmer. The reason for recording this separately is that there is some evidence that this sort of mower does far less damage to invertebrate life in the sward than a rotary mower, which tends to suck up and eviscerate the sward contents.

In our experience herbicide use is under-reported by orchard keepers.

Unsurprisingly, the graph shows that the common method of management is by rotary mower. However, the number of strimmer manage sites comes a close second. Five orchards were recorded with livestock grazing.

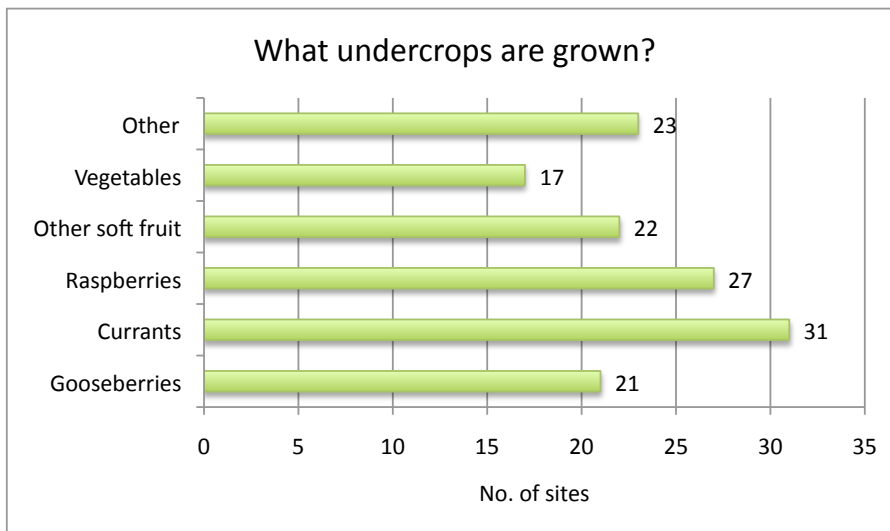


Each orchard can record more than one type of animal grazing the orchard floor.

The graph (above left) shows that fowl and sheep graze a small minority of the orchards, which appears to be surprisingly uncommon practice in this area.

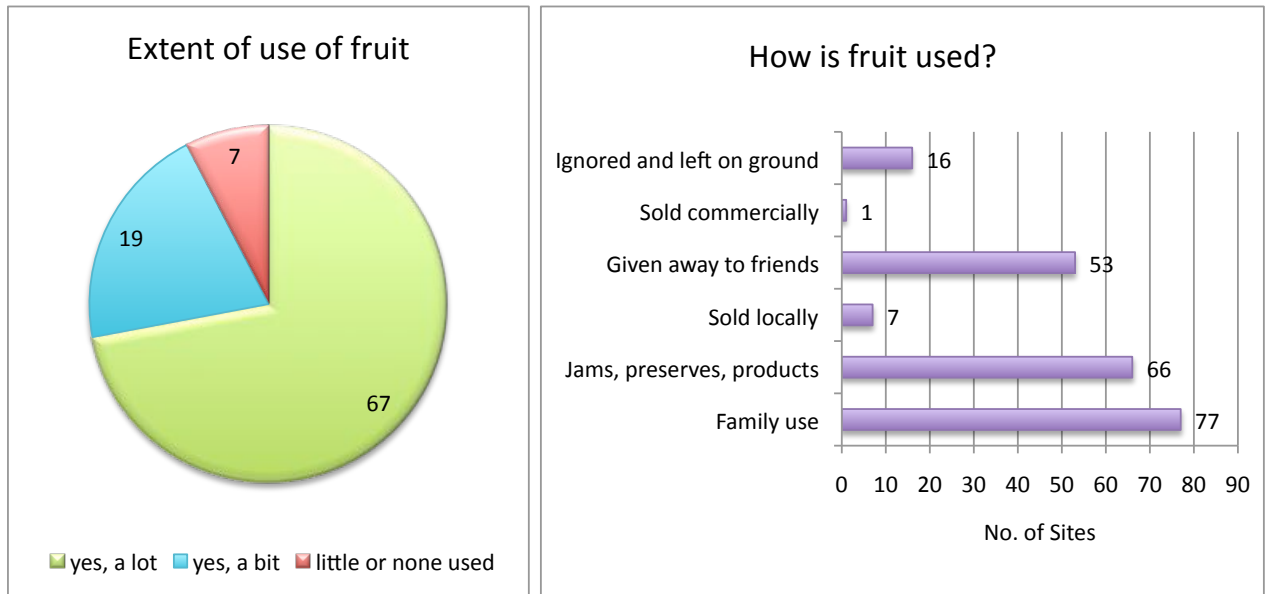
The pie chart shows that where recorded, herbivore damage is evident on a small minority of sites.

Not all recorded damage can be attributed to grazing livestock, as deer and rabbits also play a role.



The growing of other crops within an orchard – known as undercrops - was formerly a much more common practice than it is today. Each orchard can have more than one type of undercrop recorded.

The graph above shows that undercroops are still common in this area, in particular soft fruit. As such this demonstrates the multi-purpose use that orchards in Highland are put to.



The use of fruit was determined for 93 sites. Though the categories in the pie chart are fairly broad, they do give a clear indication of the proportion of orchards that are well harvested. It also gives an indication of the scale of the unused local resource.

The chart shows that nearly three quarters of orchards report that they use the fruit a lot. Very few use little or none of their fruit. This is a significantly higher level of use than is found in most of the rest of Scotland.

The bar graph (above right) provides detail on how fruit is used. An individual orchard can record multiple uses. So while the family may use some, they may also leave unused fruit on the ground.

The graph shows that family use, followed by jam, preserves, products and then by giving the fruit away was most common. A little fruit is sold locally, and 1 orchard sells commercially.

Taken together, these graphs demonstrate that there are unusually high levels of productive use for orchard fruit in Highland.

7 ANECDOTAL AND COMMENT INFORMATION

A qualitative data summary

7.1 Introduction

Anecdotes and comments add a lot of colour to the survey of orchard sites. They are more valuable than they may first appear because they help interpret individual sites and whole areas in relation to their orchards. They also form an important record of local oral history that may not be recorded elsewhere; this may be about the family and its own orchard, or it may be about the characteristics, history and purpose of orchards in the area, and how this formed a part of its economic and cultural heritage.

7.2 Structure and Presentation

Guidance and training for the field surveywork encouraged the collection of anecdotal history, comments, pertinent information relating to the orchard being considered. This was written up on the survey form and submitted to us in that way.

The data presented below are a selected summary, representing what we consider to be the most interesting aspects of the qualitative data collected. We have identified emergent themes from these data and have categorised them accordingly.

The comments have been subject to some editing. Our intention is to maintain them as verbatim as reasonable. The editing has been restricted to typos, spelling and minor changes to assist understanding. We have carried out further editing to comply with data protection. We have therefore also redacted content that would enable an individual person to be identified.

7.3 Anecdotal and Comment Data Categorised by Theme

Estate, hotel and castle orchards

West Coast

Surveyor noted a number of large historical estate, hotel and castle walled gardens in the area. Many of them are in good condition and well used. Public can see an example of such a garden at Inverewe Gardens (a National Trust property) or Castle of Mey (The Queen Mother's Home in Caithness).

Walls provide much needed protection from the winds which are a challenge at the lochside and seaside properties. Often fruit trees are planted near the walls to take advantage of heat retention.

The surveyor acknowledged the role that the commitment and expertise of resident, long-term gardeners plays in their orchards.

This is not one orchard, but three walled orchards. [...] The earliest part of the house dates from the sixteenth century. The house, gardens and orchards are surrounded by high walls which give shelter from the salt winds of the Kyle of Tongue. The oldest of the three orchards is now largely overgrown with brambles and other weeds, but still has some apple trees which produce crops annually. Most of the fruit trees are espaliered on South or South-west facing walls. Some of these stand in borders growing vegetables or flowering plants and shrubs, others are set in lawns. [...] [The gardener] has maintained the gardens for over 15 years. HIGH0434

The East walled garden [of the castle] is extensively used for fruit, veg, cut flowers with mature hedges dividing it up into a series of rooms, this offers protection from the strong winds coming off from the sea as well as an intrinsic beauty and interest. The fruit trees are around the edges of the walls, and I believe fruit well. The garden is highly maintained by the present head gardener [...]. There is an article written about the West walled garden in 1762 "Where plenty of apples, strawberries, and cherries prosper within its bounds despite the harsh climate". HIGH0429

This orchard is in the walled garden at Inverewe, many of the fruit trees are cordons along the back wall, there are two older fan trained trees exceeding 50 yrs or more. The other fruit trees are evenly planted in the grass paths dissecting long planted borders. This walled garden has been in cultivation since the 1800's, and the original orchard was in the next walled area over from this larger curved walled garden. The older orchard is no longer in existence and the area is now and has been a nursery with glass houses. (but this is about to change again).

In the existing walled garden with the fruit trees, many of the older trees have been replaced over the years with new trees and this continues to be the case. There used to be peaches and nectarines along the back wall but are no longer there. The garden continues to be cultivated and utilised .

Although the original Glass house still just about exists and used to have figs, grapes, passion fruit and a huge fruiting cheese plant, these no longer exist, the glass houses are used for propagation and overwintering tender plants that are planted out for the summer.

HIGH0129

This is a beautiful garden built along a river bank, it is highly maintained with some beautiful specimens of fruit trees. The main orchard is at the end of the garden with a mossy lawn under the trees, the orchard gently slopes down to the River Gruniard which borders the whole length of the garden, with a hedge along its bank. The opposite side of the garden is edged with a planted steep bank arising to a road, on the top of this bank are a line of truly impressive huge Beech trees that overhang the garden.

Along the lower path of the garden is a low rustic fence with three well established espalier eating apple trees. [...]

Dissecting the garden is a wonderful long archway with ten apple trees forming the main frame of the trellis again all these bar two are cookers.

It is worth noting that the fabulous gardener [...] has been the gardener of this garden from before 1960! Which means that she has planted all the trees bar two in this garden. [...]

HIGH0419

Unfortunately there is evidence that some of these historical orchards have fallen into disrepair.

This ancient orchard deserves to be recorded as it forms part of the history of the [...] Hotel. The orchard is very derelict, and surrounded by a dry stone wall collapsing in places. This orchard is right on the shores of Loch Maree and situated close to the Hotel on its South East side. There is one entrance as far as I can make out. The orchard was used to rear Pheasants in more recent times by the looks of it. It is barely accessible due to the overgrown brambles, bracken, nettles and flag iris. It would be a lovely orchard to regenerate. HIGH0406

But there are signs that at least some of the historical gardens' productivity will be revived. One such example is new walled garden orchard at Glendale House, currently owned and managed by the Assynt Foundation.

The walled orchard has no signs of having been used as an orchard previously to the plantings in the last 30 years. The exception to this is the cherry tree that is we believe planted outside the walled area. There are two younger cherry trees that have been planted in the last 50 years next to the original cherry, these two cherries are unknown cultivars, the grafts can be clearly seen to determine that they are definitely cultivars.

[...] The Assynt Foundation bought the estate consisting of 40 thousand acres from [the previous owners], they are in the process of applying for funding to rebuild the walled garden and to replant it as an orchard in part and to maintain it for the future. HIGH0409

East coast

Surveyor comments for this area reveal that there are a number of larger estate, castle or hotel walled gardens with orchards. They include newly planted fruit trees and a couple of loving restorations where mature specimens were retained. Current keepers of a couple of depleted historical orchards also expressed interest in their regeneration with heritage varieties suitable for the area.

There are indications of older fruit tree plantings over the wall on the south side of the walled garden. These are no longer present. The current orchard is estimated to have been planted in the last 30 years.

The walled garden used to be planted with potatoes and other veg prior to the current orchard plantings. HIGH0079

the retired gardener of 50 years still lives on the estate. I also met his daughter, who still works for the family. Everyone I met was interested in learning that the old orchard was recorded. The gardener [...] was the only one to actually remember the old orchard which is now shrubs and mature trees as he worked for the previous owners too. I was shown some old photos of the garden, but the fruit trees were not in evidence.

all planted aprox 30 years ago when current owner arrived HIGH0204

Keeper very interested in ensuring plantings are appropriate for the area, and in heritage varieties. Would be interested in hearing of any projects promoting the planting of heritage varieties.

[...] 4 fairly recent plantings - apple

2 apples planted 1978

9 pear trees planted either late 1700s or late 1800s - keeper unsure. HIGH0207

This is an old enclosed garden that has been neglected. The current owner has been in the property for two years and is working on regeneration. The walled garden includes the fruit trees, fruit bushes and vegetable garden. There is an impressive large old pear tree growing up the south facing wall of the house, and espaliered fruit trees along the boundary walls. The owner says the walled garden boundary has been slightly changed from how it was originally - there is a change in the wall. He said there are archives on line about the manse and church history, including how the church provided produce to the poor in the parish.

The owner said the house (a manse) is around 250 years old and believes the orchard trees are very old. HIGH0062

The Old Orchard website <http://www.spanglefish.com/oldorchard/theorchard.asp> has lots of valuable information about [this site]. HIGH0074

The place is run as a hotel for 6 months of the year. The owner is quite interested but doesn't have the time or money to renovate the orchard. His son has attempted to make cider but this was apparently unpalatable! HIGH0118

Sadly, there are also several notes disappearances of the large walled estate orchards.

the house was burnt down 50 years ago and so the land was neglected until the new owners came about 10 years ago. They built another house and have established a beautiful garden but only 1 apple tree remains, with no new plantings HIGH0057

the old walled garden was completely overgrown with ash, birch and sycamore seedlings. The current owners have cleared this and plan to re-establish some fruit trees, but as yet have not done so. HIGH0056

This is what is left of a large, walled orchard with a lovely gate which must have been one of the best of its kind in its heyday. However, it has suffered grievously from lack of maintenance and neglect for many years. One of the walls has fallen down or been taken down, perhaps by a large tree blown down in a storm. There is still a rather sad greenhouse, and there are traces of box and other hedging, but a huge yew and clumps of rhododendrons and other plants have taken over to the exclusion of fruit trees. The ground area is covered by rough grasses, the remains of tall weeds and other shrubs which have not been looked after for any years. Part of the area is covered by logs cut for firewood from windblown timber.

It still has the potential to be restored to its former state, but this would require very large expenditure for its restoration, I should think, and then considerable injections of money to maintain it.

I do not think its current state means it can be included in register of currently viable and/or productive orchards. HIGH0114

In the general survey of 1810 it mentioned that Mr David Urquhart Esq, proprietor of [the site] had planted an orchard of 13 acres, which is the only one of consequence in the north. I have photos of a very flat field which was once the orchard, sadly no sign of it now, only cattle and grass grow there now. HIGH0049

Croft/farmhouse and house garden orchards

West coast

Surveyors describe many smaller but well cared for and productive croft orchards, most of them recorded for the first time.

Those orchards have several challenges to contend with, such as wind, deer damage and bird damage to blossom and fruit. The impact of wind is minimised by careful positioning against buildings and planting of tall hedges. The latter can cause the trees to suffer from shading. Often the more tender crops, including fruit trees and bushes, are grown in glasshouses or polytunnels. On the other hand, many of the orchards have a very picturesque settings.

Surveyor highlighted the importance of growing fruit and vegetables locally, due to remoteness of many properties. Fruit are often used feed the livestock, as well as people. [...] *Crofts rely heavily upon fruit trees as crops to provide necessary food for the crofters and top up feed for the animals living on the croft. Fresh fruit is very welcome when the nearest shop is some 40 miles away and the fruit in the shops has often traveled many miles to get there and so is not always that great!* [...] HIGH0424

Here is a sample of typical croft orchard descriptions, ranging from a small croft garden to larger field-sized plantings:

This orchard is situated on a bank behind the croft house, it is sheltered from most directions, there is a mature hedge at the back of it and it abuts onto a single track road. At either end of the orchard is scrub and mature trees. Due to lack of light the floor of the orchard has nothing growing on it but is dry and crunchy underfoot. The branches of the trees are interwoven due to lack of pruning but seem fine and healthy and produce an abundance of fruit most years.

Whilst the orchard is small it is very traditional in that there are lots of trees planted fairly close together and planted as part of the croft. [...] There is a large beautiful Crab apple to the side of the house which is quite old and has lovely small golden fruits, an abundance of hens and ducks enjoy foraging around underneath and pecking at fallen fruit. HIGH0424

[...] This is a great example of a Highland croft, backed by spectacular mountains, river and bog! In the winter Kinlochewe can have considerable snowfall and is much colder than by the sea. The fruit orchards seem to thrive and are well cared for. Wind damage is the main concern. HIGH0405

This orchard is clearly old and an individual purpose planted orchard with no other crops underneath. The trees are unmanaged and planted rather densely, so much so that it is very dark in the enclosed orchard, the hedges are mixed and very tall. The orchard floor is poor weak growing grass due to the shade.

The trees evidently fruit well, and as part of being so enclosed are well sheltered from storms. [...] Elders form a partial hedge around the orchard, these also look quite old. There is an adjoining soft fruit garden with gooseberries, red currants, black currants raspberries and veg. There is another enclosed area with hens. These areas form a series of rooms which adjoin the old croft house, there are also some lovely plants in the garden around the house. [...] HIGH0423

This garden belongs to a croft, the main trees are planted in front of the house in a small walled garden surrounded by mature trees giving some protection. The apples are planted around the edge of the walls with a beautiful self sown cherry as centre stage. [...] The owners planted all the fruit trees except the old bullace.

Some of the fruit trees are in an adjoining part to the walled garden but again against another wall, there are fruit bushes and veg in parts of the garden as you would expect to find on a traditional working croft. Across the lane in the hen run are two apple trees either golden Delicious or Granny Smith! Also on this side of the lane are the nut trees and the old Bullace which is perched on a stony bank overlooking the road. The Apricot, fig, peach and vine are in a polytunnel.

It is a delightful croft again in view of Little Loch Broom and Sail Mhor and An Tellach. [...] HIGH0421

The orchard is a very compact, tidy, very well-fenced orchard set up and kept by a professional gardener. All trees are on semi-dwarfing rootstock and planted as close together as practically possible. It is situated on a croft in a crofting township close to the sea in front of hills covered with heather. HIGH0103

The main orchard is down in a sheltered small field, it is quite boggy in places, one side is open to the sea and the other a mature willow tree hedge line, at the bottom is a burn. In the same field are two polytunnels, one for fruit and the other for vegetables. The fruit tunnel contains the tender fruit such as the Nectarine, Apricot and Peach and both the cherries also a pear tree and the discovery apple and the Katja apple. [The keeper] also grows lots of blueberries and raspberries and strawberries under the fruit trees. [The keepers] keep bees next to the tunnels for pollination which works very well. We also spray the trees with a high jet spray of water every day when the fruit is forming to stop codling moth. This also works well. [The keepers] put cut hay under the trees and around the strawberries to prevent weeds mainly!

[Grandfather] buys both our children a fruit tree each every year as a Christmas present to be added to our orchard, hence some of the more unusual ones for the Highlands, including the olive which is in the poly tunnel! We still have space to add to our orchard and we hope to do lots more with our fruit in the future. HIGH0401

This is a large new site in Kinlochewe, it is a family croft. The site as with most West coast sites is very exposed, [The keeper] who has planted it is a forestry consultant so knows a lot about trees and planting, we very much looking forwards to seeing a good high yield of fruit in years to come. HIGH0437

This orchard is positioned on a bank next to an old croft house, the bank slopes down towards little loch Broom. There was a lovely fan trained apple tree against the gable end of the croft house [...]. The fruit trees are growing among other mature shrubs and trees but seem quite happy and well established and healthy. The garden is surrounded by mixed mature uncut hedges. This is a traditional croft house and garden. HIGH0422

[The keeper] has lived in this house since 1984 and has planted all of the trees over a period of 30 years, and has planted the more recent ones instead of keeping sheep! The older part of the orchard is surrounded by a tall west coast type of mixed hedge including some rather lovely Hornbeam. The fruit trees share the space with some previously planted oaks, in this part of the orchard are some veg frames, two small glass houses and a nice patch of mint. The two newer parts of the orchard are not protected by hedge or fencing and as a result have some considerable deer damage. [...] Some of the trees have died due to the damage, and others are struggling. [The keeper] is installing a deer deterrent by way of a motion sensor and radio 4 coming on as soon as deer arrive!

[The keeper's] fruit trees vary from year to year in crop yields, she keeps bees which help with pollination. One of her favourite varieties is Grenadier which she recommends as excellent for cooking.

The peaches are in a Keda house with black currant Ebony which has the biggest and sweetest fruits according to [the keeper], also she has a large variety of strawberries and raspberries in her Keda house. The Apricot trees are outside in the hen run!

This is a very exposed site and close to the sea. HIGH0430

This orchard is part of this crofts garden, it is very cramped with trees planted too close together with little or no pruning in the past 5 to 10 years so quite inter grown trees! The trees seem to fruit quite well a few pears and apples with scab, some trees need to be removed altogether. [...] The orchard is surrounded by tall over grown hedges so is very protected from the wind, but is quite dark as a result. The trees were quite difficult to record it needed two of us as they are so muddled! [...] HIGH0402

This orchard is purpose planted in a square area of grass surrounded on all sides by birch trees. it is close to the sea and therefore quite at the mercy of the wind, the trees do provide some protection. The fruit trees seem to be in the region of 30 years old, and I know the previous owner also used the fruit extensively and also gave lots away, as a valued product. Some of the trees are struggling and a few plums have died [...]. The conditions as elsewhere in the Highlands are quite severe for fruit trees which is evident in their slow and often stunted growth. However the apple trees often produce great crops but not the pears or plums. The Blackcurrants which grow in this orchard are always stripped by the birds. [The keeper] used to take his apples to his hotel that he owns [...] and made his own cider press and used to have cider making days with his friends, a great thing to while away those wetter Highland days!

A book that [the keeper] recommends is ""Real Cider Making ON a Small Scale"" by Michael Pooley and John Lomax. [...] HIGH0119

Unfortunately, some new ventures can suffer due to bad choice of site

This orchard is not flourishing due to no soil preparation and having been planted in poor this peat which lies over podsol, which is a iron hard layer of compressed shale, stone or rock. there is little or no growth on any of the trees since they have been planted in the last 10 years, fruit size and quality is poor [...]. The site is very exposed, open on all sides to the wind, wild open moor surrounds the site. Some of the trees are dead, the rest are struggling! [...] HIGH0425

Or lack of protection from grazing animals:

This is a stock fenced orchard apart from the house separated by a track. At some time the owner has allowed stock to graze the orchard as there is extensive damage to the bark on all of the trees in some cases the trees are completely ring barked! As a result some have died [...] and others are obviously struggling. [...] As this is not yet a mature orchard the fruit trees have soft bark so will be susceptible to grazing animals. HIGH0426

House gardens in the area seem also to contain some well maintained and productive orchards:

This is one of the best managed orchards that I have visited, the trees are all so healthy and well pruned into lovely open shapes, also the planting distances are perfect for the root stock size of trees. The orchard is NE facing and surrounded by low white walls, with a slim flower border down one side with a Eucalypt, on the other side of the walls are some mature trees giving further protection. In another part of the garden is a bird cherry. Also at the back of the old house is a vegetable garden and soft fruit inc blueberries and lots of strawberries. When the orchard was first planted a severe period of frost followed and [the keeper] didn't think that any of the trees would survive, but they did. [...] HIGH0427

This is a delightful garden orchard close to the house on gently sloping ground that once was bare field going down to the sea. The fruit trees are incorporated into raised beds with other plantings of herbaceous, fruit and vegetables. There are mixed trees backing the garden with the house bordering one side and a mature hedge on the other, with the garden gently falling down towards the sea, this aspect is more open. The raised beds are edged with Caithness slab and beautifully maintained low thin box hedges. Again being a Highland garden wind is the worst factor to contend with and the occasional bull finch! HIGH0438

East coast

In contrast to the West coast, there are only two mentions of croft-like orchard sites in this area

This is a large (organic) and potentially very productive orchard enclosed by a stone dyke. It is close to the vegetable garden and the house, and not far from the farm. In addition to the orchard there are two plum trees at the house, and a large cherry tree in front of the farm cottages. HIGH0055

This is all planted by us in last 20 years, on damp and abandoned ground. It has been done a part of a 2 acre re-generation of marginal land and amongst a large number of native trees. It has also been done to grow food amongst the shelter. The increase in wildlife and shelter is enormous.

The garden was derelict but does have the one old tree, an unknown variety of apple. HIGH0220

But there is a good number of farm house and domestic orchards, some of them very productive or featuring striking fruit trees:

All the trees, together with another apple just outside what may have been the original orchard boundary, are thought to be well over 100 years old. [The keeper] can remember their productivity in his childhood. HIGH0047

One crab apple and one Codling (cooking apple) were planted around or before 1900. Family photo of farm occupiers in 1922 showed substantial sized crab apple. HIGH0318

This a very compact little orchard which contains bee hives and a poultry shed as well a fruit trees enclose by an eight foot fence to keep out foxes.[...] HIGH0113

Garden has been there a long time, originally a farm house and its garden [...] Garden cordons and espaliers influenced by Le Potager Du Roi from Louie 14th period in Versailles HIGH0082

Some of the current keepers of these smaller orchards show great personal interest and expertise in fruit trees and preserving their orchards:

[The keeper] is the 7th generation to farm here. The present farmhouse was built in the 1700`s If there are any records from a previous survey [the keepers] would be very interested to see any detail , eg dates of planting, varieties. [The keeper] is thinking of replacing some of the old trees, but not the ancient crab apple, fairly soon HIGH0048

The Lord Derby tree was moved from previous home to present location about 30 years ago and is over 50 years old and doing well. Owner very knowledgeable about best uses of the different varieties. HIGH0117

Semi walled garden next to the house. Also contains a variety of non fruit trees of varying ages. Keeper suggests that the middle aged fruit trees were probably planted by a tenant of the farmhouse in around 1935. Keeper is very interested in planting fruit that is appropriate for the area and in heritage trees. [...]

Email from owner:

I am just very interested in trying to get the varieties of these ancient pear trees identified before they disappear for ever. Unlike modern varieties they seem to suit our climate fruit every year and although it may be October or even November, they are very tasty and excellent stewed.

[...]

I would love to think that some may be from trees that one of my forebears [...]. I know from letters I have seen that he corresponded with one of his neighbours [...] about gardening and obtaining plants. After he died his son [...] was largely absent and the property either empty or let and it wasn't until two generations later when my great grandparents came here in the 1880's that the photograph was taken and much attention would have been given to any new planting in an orchard, so I have a faint hope that these trees may be quite ancient.

HIGH0211

Surveyors noted little evidence in decline of this type of orchards:

[...] The orchard appears to have been left for a very long period. Many trees were fallen and decaying and none appeared healthy. No evidence of any recent fruit being produced.

HIGH0063

This is a walled orchard with a lovely gate, built against the west wall of a steading building. The orchard has suffered from neglect, presumably arising from the pressures of modern farming. It appears that half the area has been fenced off and abandoned and become very overgrown. The majority of the trees in the other part appear to be still productive though badly in need of pruning. HIGH0088

Commercial orchards

East coast

Comments on commercial fruit production were confined to areas on the East coast including an active fruit farm, a farm with new large field orchards a semi-commercial food forest as well as a former market garden:

The Fruit Farm grow a lot of soft fruit, but none under nor immediately adjacent to the trees I saw. Orchard fruit is only one line at the fruit farm. The main one is strawberries.
HIGH0324

Orchard part of large, former market garden with herbaceous, vegetable, soft fruit, lawns and other ornamental trees. Set between two fields with semi permanent grass, with sheep/cattle grazing. [...] lower orchard has only 14 of original 40 apple trees planted remaining.

Upper orchard - only wild cherry and fig tree remaining. HIGH0317

Original orchard site here was 80% herbivore damaged - approx 2010 nothing left of it. 2 new orchards on this croft/farm now [...]: Lower Orchard [and] Middle orchard. All trees now have rodent/herbivore guards round them. HIGH0099

Very interesting and productive garden and forest garden. HIGH0340

Unique garden histories

West coast

Apart from the historic gardens mentioned above, surveyors noted several interesting orchard histories, including the tradition of shipping of soil from Ireland, links with druids and spies, and use by a local school.

[...] The walled area was probably an ancient vegetable garden, a keeper of long standing told me that the soil for the garden was brought in by ship from Ireland in the form of ballots when sailing possibly from America and having unloaded it cargo partially it needed ballast to balance it out to continue to the Highlands where it would leave the rest of its cargo and the ballast. This was a common phenomena in the highlands land owners used to often have an agreement with shipping companies to leave the soil ballast with them to improve what would be very poor soil. [...] HIGH0409

The Garden has anecdotal evidence that it dates back to druid times, it was also part of an ancient monastery, there is a very old yew tree poss 3000 years old and an old Ilex of approx 300 years old. [The previous keeper] most certainly developed the garden and planted many of the fruit trees. [The keeper] had a preference for Chinese varieties of plants due to his spell in China as an MI6 agent during the 2nd world war, when he escaped with the help of a Chinese Family he planted his garden with the majority of Chinese plants and left the estate to one of the children of the family who helped him. The estate was sold, and lately [the present owner] bought it and has continued to maintain and add to the garden over the years. It still has many species from China! HIGH0400

This Orchard is remarkable in that it belonged to Laide School, the school itself was a short distance away a tiny traditional West coast school. The orchard was tended by the school children, this must have been at the beginning of the 19th century, there remains one of the original apple trees, a damson must have been planted at some point in the distant past as the whole back part of the orchard is one mass of dense damsons.

A newer school house was subsequently built in front of the orchard [...] but this again is very old, with a slate floored enclosed playground with outside toilets!

The school is a private home today and the remains of the orchard have been turned into a lovely woodland walk down to sand River which is at its far border. This is a coastal garden surrounded by Highland hillside.[...]

Also around the school are some very old gooseberries and raspberries and not so old strawberries.

The elderberry trees are very old and in the orchard so I can presume that the flowers and fruit were both used by the school. HIGH0418

There was also one striking but overgrown walled site of unknown origins, located in a remote area:

This superb walled orchard is set in the middle of nowhere! It is surrounded by mountains and bog and very exposed with stunning views.

There is a wow factor about this orchard as it is situated well away from any dwellings up an unmade track for about a mile and then off this track for about 400 yards. The construction of the walls are a series of six rooms with a paved wide path between, the walls are substantial with beautiful curved details to all the entrances to the rooms. Whether this was built as an orchard or a sheep fank is conjecture at the moment, but it definitely has been here a very long time. The size and defiant age of the trees are too something of a mystery. A remarkable find that needs to be preserved, the keeper of the farm [...] is very keen to protect it and re plant. He welcomes any help with this project! And I can only add that anyone who visits this site can't fail to be excited about it!

It reminds me of the Egyptian tombs in its magnificence and discovery! HIGH0407

East coast

The area enclosed by the unusually high walls is quite large, but most of it is a lawn. The fruit trees are confined to two broad beds bordering a central path.

The house was the home of Sir Roderick Murchison, President of the Royal Geographical Society during the period of the nineteenth century when geological discoveries and Darwin's writings were causing such turmoil. The orchard was developed by descendant round about 1900.

Until quite recently the house belonged to the University of Aberdeen and was used as a field centre. HIGH0322

8 CONCLUSIONS

The results presented above, and also in the following photographic record, lead to the following conclusions:

A total of 122 orchard sites were surveyed, of these 98 were found to be intact orchards.

The total acreage of orchards remaining in this area was found to be 15.3 ha

The survey showed that while a significant area of orchards have been lost, this has been more than offset by newer orchards.

Most of the orchards contain less than 30 trees and are in a domestic setting.

Two commercial orchards exist, one containing around 2500 trees.

Most orchards contain a diverse mixture of fruit species, reflecting their domestic use.

The new and young tree stock dominates but there are significant numbers of mid and aged trees.

Veteran tree features indicate the orchards contain high levels of biodiversity.

The majority of orchards have some or active management, and this is at a higher rate than typically found elsewhere in Scotland.

Most orchards have less than 30 trees. Only a small minority have over 100 trees.

Soft fruit and also vegetables are grown in a significant minority of orchards.

Most fruit is used for family and friends, little is sold commercially or left to waste.

Livestock is grazed in small minority of orchards, these mainly being fowl and sheep.

The qualitative data demonstrates the depth of history; cultural, economic and otherwise, that this area is custodian to.

To conclude, Highland contains a surprisingly large number of small orchards, most of which are actively managed and from which the fruit is used within the domestic setting. The survey reflects what is shown to be quite an active level in interest in orchards in the area.

HIGH0317-01-view_over_orchard-260713.JPG

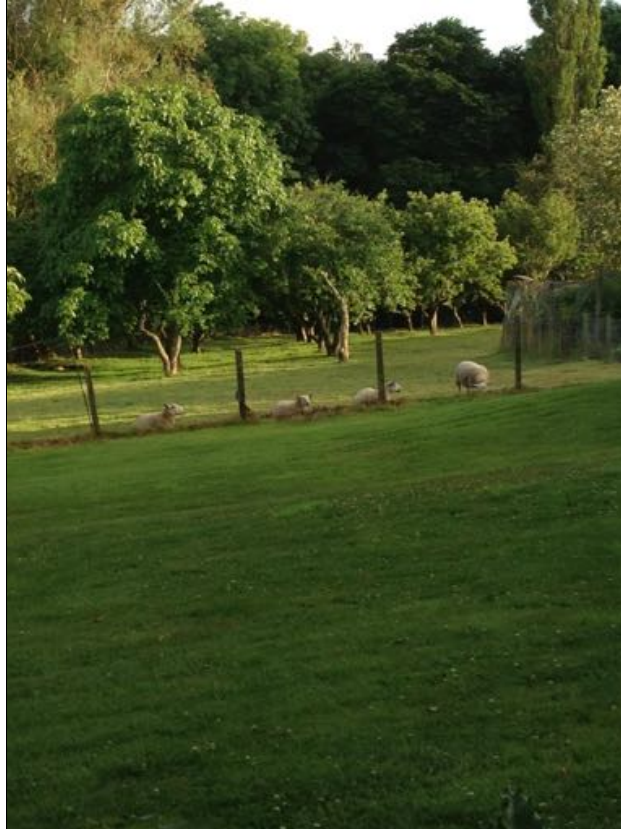


Plate 01. A remnant of a medium-sized orchard at a former market garden site. Still productive but declining.

High0429 Castle of MeyDSCF4395.jpg



Plate 02. This impressive vegetable garden at the Castle of Mey boasts a number of fruit trees, trained against the garden walls.

HIGH0400IMG_3027 (1).jpg



Plate 03. An example of a well-kept walled estate garden orchard with many mature fruit trees among the ornamental plantings.

high0401 2 IMG_0080.jpg



Plate 04. West coast croft gardens often grow fruit trees in polytunnels, along other wind- and frost-sensitive crops.

High0402IMG_3876.jpg



Plate 05. A densely planted West Highland coastal croft orchard, sheltered from the winds by high hedges. It suffers a little from shading and would benefit from some pruning.

HIGH0050IMG_1499.jpg



Plate 06. An old plum tree in a productive, well-managed, mixed age estate walled garden.

High0404 IMG_3718.jpg



Plate 07. A newly planted and exposed orchard at a croft on a shore of a loch.

HIGH0300_2016-11-08 16.43.25.jpg



Plate 08. A small, mixed age and well cared for orchard in a small house garden with some lovely >80 year-old apple trees. An example of many such gardens in the area.

HIGH0405 IMG_3732 (3).jpg



Plate 09. This is a great example of an orchard at a Highland croft on the West Coast. The fruit orchards seem to thrive and are well cared for, despite being exposed to frosts and wind.

HIGH0405 IMG_3752.jpg



Plate 10. A typically picturesque setting for a newly planted Highland croft orchard on the West Coast. Free ranging fowl, a polytunnel and a net cage can be seen in the background.

HIGH0406IMG_3756.jpg



Plate 11. A very derelict Highland hotel orchard on the West Coast. It is surrounded by a dry stone wall collapsing in places and barely accessible due to the overgrown brambles, bracken, nettles and flag iris. It would be a lovely orchard to re-generate.

HIGH0117IMG_1518.jpg



Plate 12. A lovely old specimen apple tree in a well-cared for farmhouse garden. This Lord Derby tree was moved from previous home to present location about 30 years ago and is over 50 years old and doing well.

HIGH0118IMG_1536.jpg



Plate 13. One of 30+ mature apple trees in a large estate walled garden. This is an example of a large mature orchard which is productive but trees are slightly neglected and fruit is underused.

HIGH0048 2016-11-14 11.21.22 (1).jpg



Plate 14. A productive and very much loved family farm house orchard with some very old specimen fruit trees.

HIGH0048 2016-11-14 11.21.22.jpg



Plate 15. A productive and very much loved family farm house orchard with some very old specimen fruit trees.

HIGH0129IMG_3879.jpg



Plate 16. National Trust's Inverewe Gardens on the West Coast of Highlands provide a great example of a w... preserved historical estate site, typical of the loch or sea-side locations.

HIGH0340-1.JPG



Plate 17. A unique, semi-commercial forest garden. Step over apple trees at the edge of the paved area.

HIGH0340-421.JPG



Plate 18. A unique, semi-commercial forest garden.

High0409 IMG_3917.jpg



Plate 19. A walled estate kitchen garden due to be partially planted with fruit trees by the Assynt Foundation, ... part of the regeneration plan for the property.

HIGH0088.3570.JPG



Plate 20. An overgrown farm house orchard.

High0419 IMG_3986.jpg



Plate 21. A well kept and productive small estate garden on the West coast of the Highlands. The garden has been kept for a single gardener since before 1960s and has a number of lovely mature specimen fruit trees such as this apple tree arch.

HIGH0046 4.jpg



Plate 22. A house garden with mixed age orchard. The older trees in this orchard are remarkable for age rather than girth - in fact the older trees are small to medium specimens.

HIGH0049-4.JPG



Plate 23. A site of a historical 13 acre orchard, now a pasture.

HIGH0055.3589.JPG



Plate 24. An impressive old specimen apple tree in an orchard at a croft/farm.

HIGH0343-4.JPG



Plate 25. Cordoned goosberry bushes. Two separate instances of this growth form were noted in the survey.

HIGH0343-6.JPG



Plate 26. An example of a trained fruit tree in one of the domestic garden orchards.

High0421 IMG_4055 (1).jpg



Plate 27. A typical West Highland coast croft orchard with fowl grazing underneath the fruit trees.

High0421 IMG_4055.jpg



Plate 28. A typical West Highland coast croft orchard with fowl grazing underneath the fruit trees.

High0421 IMG_4056.jpg



Plate 29. Many of the Highland croft orchards on the West coast boast one or two impressive mature trees. Here is a multi-stemmed ancient bullace tree.

High0422 IMG_4059.jpg



Plate 30. An impressive specimen fruit tree next to a Highland croft dwelling on the West Coast.

High0423 IMG_4065.jpg



Plate 31. An example of a Highland croft orchard on the West coast, overshadowed by tall hedges meant to protect it from the wind.

High0425 IMG_4092.jpg



Plate 32. This Highland croft orchard on the West Coast is not flourishing due to being planted in poor peat which lies over podsol, without any soil preparation. Site is also very exposed. There is little or no growth on any of the trees since they have been planted in the last 10 years.

High0426 IMG_4099.jpg



Plate 33. Grazing animal damage in a new farm orchard on the West coast of the Highlands.

High0427 IMG_4111.jpg



Plate 34. One of the best managed mid-age house garden orchards on the West coast of the Highlands.

HIGH0318-01-specimen crab apple-041216.jpg

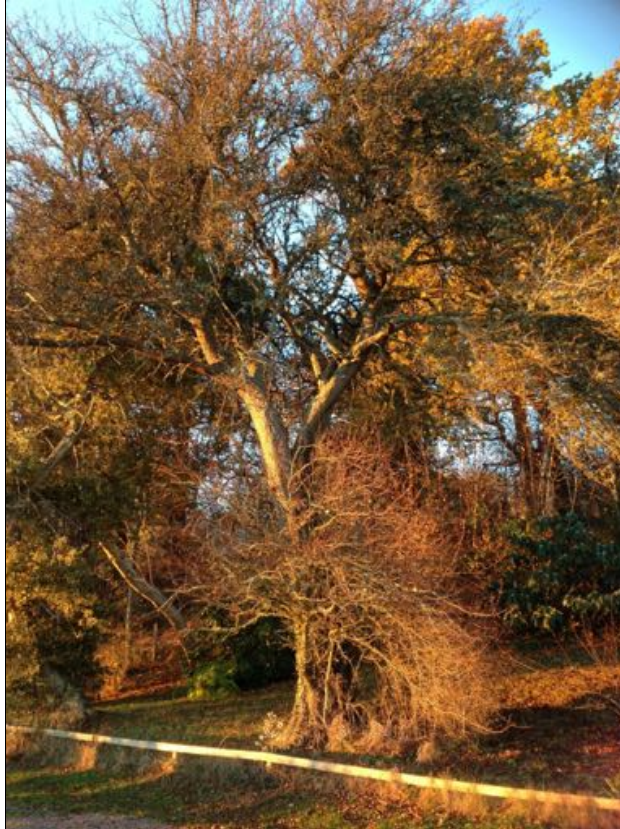


Plate 35. An amazing specimen of a crab apple tree, planted in early 1900s, in a farmhouse garden orchard.

HIGH0318-02-veteran_codling-041216.JPG



Plate 36. A veteran Codling apple tree from 1900s in a farm house garden orchard.

HIGH0319 2016-12-08 15.09.55.jpg



Plate 37. Another example of a well trained, mid-age fruit tree in a small orchard of a home garden.

HIGH0220.JPG



Plate 38. A relatively recently planted croft garden, mixing fruit trees with native plantings for increased shelter and wildlife.

HIGH0204 younger setting.JPG



Plate 39. A mid-age new orchard planted in the walled garden of an estate house. Prior to planting there was no orchard on this site.

HIGH0003 IMG_3641.JPG



Plate 40. This large walled site on the West coast was shown as an orchard on a historic map. It has been abandoned as an orchard for some time. It lies next to a large, impressive farmhouse, which also appears to have been unoccupied for some time and now shows signs of disrepair, dereliction and even dilapidati...

HIGH0103 IMG_3615.JPG



Plate 41. The orchard is a very compact, tidy, very well-fenced orchard set up and kept by a professional gardener. All trees are on semi-dwarfing rootstock and planted as close together as are practically possible. It is situated on a croft in a crofting township close to the sea in front of hills covered with heather. Hive can be se...

High0434 (3).JPG



Plate 42. Fruit trees trained on a South-facing wall in a well kept historic estate orchard on the West coast. The high walls shelter the orchard from the wind and salt coming over from a nearby loch.

High0434 (4).JPG



Plate 43. A part of a well kept large historic estate orchard at Kyle of Tounge on the West coast. The gardener has maintained the gardens for over 15 years.

HIGH0062-2.JPG



Plate 44. A large estate garden with a lovely orchard. This had been neglected for many years and a new owner is restoring the site.

HIGH0113_3658.JPG



Plate 45. This a very compact little home garden orchard which contains bee hives and a poultry shed as well a fruit trees enclose by an eight foot fence to keep out foxes.

HIGH0082-7.JPG



Plate 46. A former farmhouse garden orchard with some new fruit tree plantings and examples of trained trees. Keeper said that the 'cordons and espaliers influenced by Le Potager Du Roi from Louie 14th period in Versailles'.

HIGH0061-1.JPG



Plate 47. A walled castle garden with >35 apple and other fruit, a mix of young to mid-age trees.

HIGH0063.JPG



Plate 48. An abandoned farm orchard.

HIGH0208.JPG



Plate 49. A new small domestic orchard in a rural setting.

HIGH0056.JPG



Plate 50. An example of a walled orchard site where the overgrown neglected garden was recently cleared after the change of ownership, removing any traces of a previous orchard.

HIGH0047.1JPG.JPG



Plate 51. Some impressive veteran plum trees in a farm house garden orchard.

HIGH0202-3.jpg



Plate 52. A new school orchard.

HIGH0313.1.JPG



Plate 53. A new small orchard in a domestic garden in a rural setting.

HIGH0316.2.JPG



Plate 54. A small but very well cared for domestic farm-house orchard with great examples of fruit-tree maintenance.

HIGH0316.3.JPG



Plate 55. A small but very well cared for domestic farm-house orchard with great examples of fruit-tree maintenance.

HIGH0203-1-general view from road.jpg



Plate 56. A new orchard of 30+ apples and other fruit trees, a part of a productive rural domestic garden.

HIGH0307.4.JPG



Plate 57. A school orchard.

HIGH0309.1.JPG



Plate 58. An example of mid-age cordons at a small domestic orchard.

HIGH0005 P1014272.JPG



Plate 59. A productive walled garden with 14 mature trees trained against its walls.

HIGH0099-2.jpg



Plate 60. A site of a large new orchard commercial farm planting which was damaged by ringbarking by deer and other animals. >100 fruit trees have now been replanted on two other sites at the farm and properly protected.

HIGH0114.2.jpg



Plate 61. A run down walled garden, where the historical orchard has disappeared.

HIGH0207-P1020405-FoulisCastle-3.jpeg



Plate 62. A large castle garden with a few fruit trees, including some very old veteran pear trees. The owner is interested in regenerating the orchard planting, including heritage pear varieties.

HIGH0312.1.jpg



Plate 63.

HIGH0312.4.Bloody Ploughman.jpg



Plate 64. Bloody Ploughman apples (Perthshire variety) in one of the newer orchards in the area. Many local keepers expressed an interest in including local varieties of fruit trees, suitable for the area.

HIGH0324_10.jpg



Plate 65. A commercial fruit farm in the area. Apples are grown in addition to the main crop of strawberries.

ANNEX 2: METHODOLOGY

A2.1 Methodology for GIS Deskstudy

The following methodology was implemented for the Deskstudy.

GIS system: MapInfo Professional v11.5 software with Data Capture Tool

Identifying locations; Various sources of data to determine orchard locations:

- Visual search of aerial and historic mapping.
- Existing survey data. Sites listed in existing surveys are reassessed.
- Additional existing datasets:
 - ◆ The OS MasterMap 'Orchard' attribute.
 - ◆ RCAHMS-Historic Land-use Assessment database
 - ◆ Regional orchard projects datasets
 - ◆ National Trust for Scotland Demeter Plants Database
 - ◆ Agricultural Census, historic data (not site specific)
 - ◆ Dunn 1885 Apple Congress report (time constraints meant that only a few sites from this marvellous tome were considered)
 - ◆ and other publically available datasets, such as community orchard listings.

A more detailed description of the deskstudy methodology and its results are published in reports for Scotland as a whole. These are available at www.scotlandthefruit.org.uk

A2.2 Methodology for Field Verification

The implementation of field verification is structured as follows:

- Fieldwork is devolved to a local collaborating organisation. Ideally this is a competent local not-for-profit organisation with a track record demonstrating ability to organise and deliver locally.
- Local Facilitator. The local collaborating organisation employs or contracts a person, the Local Facilitator, to be the local interface and organiser of volunteer surveyors. This has been a paid role.
- Recruitment of surveyors. The local organisation uses various channels to recruit volunteer surveyors. The channels include local press, presence at events, membership lists, other organisations, and formal & informal networks.
- Resources are provided by the National Coordinator (in this case Crispin Hayes Associates). Site specific resources such as site location maps and candidate site lists are shared via cloud services with the Local Facilitator. Other generic material is distributed via www.scotlandthefruit.org.uk which is used as the project website. This includes the webforms used to record survey data.
- Allocation. The Local Facilitator allocates sites to volunteers, and manages their progress, ensures instructions including the risk assessment are understood.
- Mentoring. Some volunteer surveyors are very competent at all aspects. Others require a little mentoring. The Local Facilitator carries out this role, if necessary taking the volunteer on a training site visit.
- Survey Data. The Local Facilitator ensures that survey data is submitted together with photos, and that all files are identified with the site unique identification. Quality checks are also carried out, and queries referred to volunteers.
- Data processing. Further quality checks are carried out on the data, and corrections made, if necessary with reference to the Local Facilitator and the volunteer surveyor.

- Merging. The field verification data is added to the Deskstudy data for each site via the Geographical Information System and other database tools.
- Amendments and snagging. Revision of site boundary and other Deskstudy details are carried out on a site by site basis. Snagging is carried out as required.
- Output. Further work may be required: for example redacting personal data fields, and extracting some site subsets, before the finalised dataset is output.

A2.3 Field Verification time input statistics for this area

Some statistics were recorded on the time input of various aspects of the Field Verification.

Time-on-site is reported on each surveyform by the surveyor. The average time on site in this area was 47 mins. The maximum time on site was reported as 150 mins, while the minimum was 10 mins.

In Highland, the total time-on-site was recorded as 88 hours.

This does not include preparation or travel time, just the time on site.

The time to fill in the survey webform is recorded automatically by the forms service. It shows that on average it took 35 mins to complete a submission in this area.

The total time recorded for filling the survey webforms is 74 hours for this area.

This does not include preparation, fettling photos and ensuring all file uploads have the correct Orchard ID as filenames.