

Rivers Heritage Site and Orchard (RHSO) Management Plan

Initially written: January 2020 (Rob Richardson)

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The Site

History

The oldest trees in the orchard were planted between 1945 and 1949.¹ The trees outside the main orchard at the western end of the meadow were planted in the late 1970s / early 1980s, just before the nursery closed. This was a mother orchard providing grafting wood for the nursery and also served as a show orchard to demonstrate trees to customers. There are multiple cultivars of apple (mostly identified) as well as plum, cherry and pear (less comprehensively identified). After the nursery closed, the orchard was rescued by previous volunteer groups (Friends of Rivers Nursery and the Rivers Nursery Site and Orchard Group). Newer trees were planted around 2005 – 2010, many of ceremonial / memorial trees by local people.

Today



The site is located between High Wych and Sawbridgeworth. The land is owned by Deville Estates (a property developer) and leased to Sawbridgeworth Town Council, renewing on a three-yearly basis (last renewed in 2019). RHSO maintains the site and holds events on the site with permission of the landowner and leaseholder. There are no public rights of way through the orchard, but the permissive access to the land is granted by the landowner to the general public. The orchard is used extensively by the local community as an access route and for leisure. The orchard is drained by a ditches on the south-eastern and south-

western borders. Grass and wild flowers are allowed to grow throughout the site and is mowed every September. There is no supply of water for irrigation.

Site boundaries

The orchard is surrounded by scrub on half its south-western border and completely on its other sides. The south-western border near the southerly corner is open to agricultural land and the prevailing wind. Filling this gap to protect from the wind may be desirable. The scrub consists of mixed vegetation, including hawthorn and blackthorn. At the western end of the orchard, there are many large cherry trees, grown from suckers. Some cultivated fruit trees also lie in this scrub. The scrub is a valuable wildlife asset² but does encroach on the fruit trees at the south-western and north-eastern borders. In the meadow, the hedge includes some tall trees and encroaches badly on the fruit trees.

Site Access

Access to the orchard is:

1. From the meadow, through a gap in the hedge at the eastern corner.
2. From the Rivers Hospital access road, over two bridges over ditches at the southern corner.
3. Through the scrub at the northern end from the public footpath linking Gilders / The Crest in Sawbridgeworth to High Wych.

Trees

There is a mixture of species (apple, pear, plum, gage and cherry) in the orchard and in the meadow (in which one apricot is also planted) at multiple stages of maturity. The original veteran trees (likely around 70 years old and the most important in the orchard) are generally planted on non-dwarfing rootstock, trained originally to half-standard / goblet shape spaced at 3 m intervals. This is rather close for non-dwarfed trees, leading to problems with trees branches crossing neighbouring trees. The condition of these trees is highly variable. Many are still strong, vigorous trees, while others are decaying or dead. These were heavily neglected for many years towards the end of the life of the nursery and need restoration. All cherry trees suffered from a disease around 2014, although most have recovered with pruning. The plum trees have grown very tall, have weak branches and have broken in wind in recent years.

The newer trees, planted by previous volunteer groups, appear to be on semi-dwarfing rootstock (likely MM106 (apples), quince A (pear) or colt (cherries)). Many have not thrived in the orchard, likely due to several factors:

- dwarfing rootstocks do not compete well with grass or the larger trees
- they have been grown in positions in which trees of the same species previously grew in possibly depleted soil
- shade from the neighbouring trees stunts the growth
- watering the site is extremely difficult

- many may have been pruned at full-standard height, likely too tall for the rootstock

As many of these are memorial trees, they cannot be actively removed.

Fauna

Many species use the site as habitat, and this should be encouraged. Rabbits, muntjac and voles are present on the site and may damage the trees.

Management Priorities

The following are the most important factors to consider when planning management of the orchard, starting with the highest priorities

1. Safety of the public using the site.
2. Ensuring maximum life of the existing veteran trees.
3. Maintaining site biodiversity.
4. Preserving the Rivers Nursery legacy by ensuring the orchard is stocked with Rivers varieties and trees from the Rivers catalogue.
5. Access to the site for services, such as grass cutting.
6. A good, accessible apple crop for apple day and juicing.

Site Management

The grass around the orchard is allowed to grow around the orchard to maximise biodiversity of the site except where this inhibits growth of the fruit trees. The main paths around the perimeter of the site are maintained by footfall, but mowing once per month in summer can help maintain these in a safe state. Further paths are mowed through the site to give the public reasonable access while still maintaining biodiversity and protecting the fruit trees. Paths usually need to be mowed once per month from May until September, depending on weather.

The grass should be cut and removed once per year to prevent establishment of undesired vegetation. This should be done in late September to ensure maximum site safety for Apple Day and reduce re-growth before winter. Most wild flowers in the orchard have completed their life-cycle by this point. Currently, this is done by a professional at a cost of approximately £1000, paid for by Sawbridgeworth Town Council as part of their lease of the site.

The bridges at the southern corner are in good condition. These can get slippery in winter. Use of metal wire over the wooden bridges and wood chip can help. The path should be inspected to ensure it is level, smooth and free from trip hazards. Trolleys are moved over this bridge frequently at RHSO events, so the ramps at either end should be kept in good condition. Some wheelchair users use this route into the orchard. In 2014, we looked into installing a wheelchair path from the road into the orchard but this was rejected by the landowner as they thought they may be liable if such a path encouraged vulnerable people to use the hospital road for wheelchair access. Unfortunately, providing good wheelchair

access to the site remains a challenge. Vegetation should be pruned from around the bridges when it impedes access.

The route into the orchard from the meadow at the eastern end has multiple exposed tree routes, is uneven and gets very muddy in winter. Several solutions have been suggested here, but none deemed ideal. Importing topsoil to cover the roots is likely only a temporary solution and constructing a path or board walk is prohibitively expensive. The path is safe to use in daylight, but not accessible to wheelchairs and, given the long walk over the meadow is unlikely ever to be without major resurfacing. Woodchip can help in winter. A long term solution to access at this corner would be desirable but, given the situation regarding land ownership, may have to wait.

Access at the northern end is through a narrow path through the scrub and is almost inaccessible in winter. This path is generally self-maintaining. Vegetation can be cut back as necessary.

Dead trees should be left as tall stumps to provide habitat, but should be cut back to just above the main trunk to ensure branches do not become dangerous. If the stumps become unstable, they should be removed.

The ditches should be inspected yearly and cleared if flow is impinged.

Boundary Management

The hedges should be allowed to grow naturally, except where this causes harm to the fruit trees or poses danger. The scrub along the north-eastern boundary encroaches on the fruit trees and should be cut back to ensure a good margin (preferably around 2 m) between the fruit tree and the hedge. Cut encroaching branches as low as possible to prevent regrowth quickly encroaching on the tree again. The scrub on the south-western boundary has grown tall and encroaches on the trees. Little has been done here in recent years, but should be assessed soon. The hedge by the trees at the edge of the meadow is also very tall and encroaching on the trees. This should be managed as much as possible. The taller trees may need professional management in due course.

The scrub beyond the ditch on the south-eastern side of the orchard needs little management except where it overhangs the ditch and poses a risk to people walking on the perimeter path. The scrub at the north-western side of the site is distant from the fruit trees and can grow naturally.

Hedge prunings can be left along the margins to provide habitat, except for wild cherry suckers, which should be burned, removed from the site, or kept away from the fruiting cherry trees in order to prevent disease spread.

Management of veteran trees

The approach depends on the species of tree. Relevant risk-assessments should be reviewed prior to starting. Priorities are:

- Reducing the weight, shortening, or removal of dangerous branches (including where this impinges on paths or grass cutting access).
- Removal of diseased wood (low dead-wood can be left as invertebrate habitat as this is usually not diseased).
- Ensure good air and light circulation around all branches to reduce disease (by decongesting the tree).
- Ensuring easy picking of fruit without damaging the tree (by decongesting the tree).
- Reduce the weight of a large branch before cutting to reduce risk of damage to the tree (from bark tearing) and to you and fellow workers. Use a “3-cut” technique where possible.
- Fruit trees should be pruned by hand tools only (unless experienced professional pruners are contracted).

Apples

A program of regenerative pruning of veteran apple trees was started in 2014/5. Many trees on the site have, through neglect, suffered die-back of the lower branches due to excessive congestion in the canopy blocking light and air circulation. This leads to an “umbrella-shaped” tree with no lower growth. The congested canopy increases the likelihood of disease. A general approach that should be taken to all veteran apple trees is:

- Do not remove young growth from the lower trunk/branches of the tree – this makes ideal regeneration growth (unless the tree has produced excessive watershoots).
- Maintain a clear, open centre in the canopy.
- Keep the canopy decongested.
- Remove no more than 20-25% of the canopy in one year.
- Do NOT perform an overall canopy reduction – focus on one branch at a time.
- Ensure the centre of mass of the tree is close to the trunk.
- Be careful with wind-exposed, tall trees.
- Don’t waste time fine-tuning the top canopy if this is to be removed in the next few years.
- When pruning a side branch, cut just outside the collar of the branch. Do not leave a stump, as this will increase the risk of disease.
- When pruning a main branch, prune to a side branch that is no less than 1/3 the area of the branch being removed. Make the cut either at 90° to the branch (to minimise exposed area) or at an angle so that it extends the angle of the side branch. Avoid horizontal cuts that can collect water.
- Do heavy pruning of apple trees in winter (December, January, February) when the tree is dormant. Lighter pruning, or removal of diseased wood, can be done at any time.
- Control water shoots when necessary.

The regeneration process can take two forms. If the veteran tree has good, young low growth suitable for regeneration:

1. Prune or train the young growth into the future shape of the tree. Excessive shoots can be trimmed. Be more conservative than formative pruning of a young tree – the tree should have plenty of vigour to support lots of growth if the top of the canopy has been reduced and it is easy to break a low branch when pruning to canopy.
2. Open the centre of the canopy to ensure light and air access to the young growth. Removal of this wood should promote the new growth the flourish.
3. Each year, reduce the top canopy of the tree, usually focussing on one main branch at a time. Ensure the tree does not become unbalanced. Aim to remove about 20% of the canopy each year.
4. Eventually, the low growth will establish itself fully and the upper canopy can be removed completely.

If the tree does not produce any low growth suitable for regeneration:

1. Clear out the centre of the tree. Removal of wood from the top may promote new shoots.
2. Decongest the canopy (even if this does not help new growth, at least fruit will be accessible)
3. Reduce the canopy on neighbouring trees if shade is a problem.
4. When new growth is established, proceed as above.
5. Do not go for excessive canopy reductions without new growth established – this may just lead to water shoots at the top of the tree that are difficult to manage.

The more vigorous trees (e.g., Bramley, Newton Wonder, Annie Elizabeth) can be pruned fairly hard, but may produce lots of water shoots that can be hard to manage. This may not be an issue if the same branch is to be reduced in the next few years. Less vigorous trees (such as Cox's Orange Pippin, James Grieve) do not tolerate heavy pruning and need a more conservative approach focussed on clearing the centre and decongesting the canopy.

Unless diseased, prunings can be left around the orchard perimeter. At frosty times, some can be left in piles amongst the trees to distract rabbits from the tree trunks.

Pears

Many veteran pears are not well established. This may be a result of dwarfing rootstocks (likely quince A) not competing well the grass. These can be managed as for the younger trees. Many suffer from aggressive rootstock shoots / suckers, that should be removed. The old, established pear trees are less vigorous than the apples and restorative pruning is not required. The established pears should be maintained by:

- Removal of diseased wood (and dead wood high in the canopy).
- Keeping the centre of the tree open.
- Decongesting the canopy of the tree.
- Pruning new growth to encourage branching where required.

- Training branches to establish the shape of the tree.

Plums

Many of the veteran plum and gage trees are very tall and large branches are starting to break. They do have good young growth, however, and may restore nicely. Plums (and other stone fruit) should be pruned in summer or early autumn and tools cleaned (e.g., using isopropanol) between trees to reduce spread of disease. Light pruning of new growth can be done just after the buds have opened.

Volunteers can prune / train the new growth on these trees to shape the new growth.

Heavy pruning of the plums is necessary to prevent these trees becoming dangerous or splitting in ways that are harmful to the tree. This will need to be done professionally as a top priority.

Cherries

All cherry trees suffered badly from disease in 2014/5 resulting in considerable dieback. Both young and veteran cherry trees have responded well to aggressive pruning of dead / diseased wood. One pole-grafted cherry is suffering badly and needs to be addressed soon. As for plums, heavy pruning should be done in summer and tools decontaminated between trees. Light pruning of new wood can be done just after buds have cracked. Inspect all veteran cherries for diseased wood each June/July and remove this aggressively when found. Reshaping of the tree can take place when the disease burden has been removed.

Management of Young Trees

The priorities for all young trees are:

- Establishing good growth.
- Formative pruning / training to establish the shape.

If these are met, it should be easy to restore the tree even if neglected for several years.

Trees that are not competing with grass should have the grass removed / suppressed from around the base. Currently this is done with membranes which control the grass well, but can lead to vole damage or damage from ants nests. Once the grass is suppressed by the membrane, a trial of membrane removal for a year could be considered, although even semi-vigorous MM106 rootstocks can require lifelong grass suppression. Mulching would be a suitable alternative, but ensure the mulch does not carry disease. Feed the trees with organic fertiliser (e.g., chicken manure) in the early years. Remove fruit from trees <4 years old or that are not growing well.

Guard the trees with open mesh guard (especially apples as these are subject to rabbit damage). Avoid spiral or closed side guards. Stake all young trees using

proper tree ties, allowing for some movement to promote formation of anchorage roots.

Pruning (apples / pears in winter, plums / cherries in summer) should focus on establishing a good basic shape (goblet for apple / pear, half-standard for cherry / plum). A reasonable approach is:

1. Remove dead / diseased wood.
2. Clear the centre.
3. Remove crossing wood.
4. Thin out congested growth.
5. Establish leaders / tip prune as necessary.

Some young apples, probably on MM106 rootstock, have been formatively pruned with the branching very high, which is probably detrimental to the tree. Where possible, low branching should be encouraged to restore the tree to a lower height.

The youngest trees and cherry trees should be watered in extended hot and dry periods. Currently, water has to be brought onto site in buckets.

Planting new trees

The orchard should be expanded so that all Rivers varieties are present. Other planting should be of trees that are noted in the Rivers catalogues. Future trees should be planted on vigorous rootstocks (e.g., M25 for apples). Suppress grass and guard / stake in early years. Avoid planting new trees on congested areas of the orchard. Consider planting trees in areas away from those planted with the same species. When restocking the orchard, stagger the planting of trees to ensure different ages of trees are present.

Top priorities

1. Deal with the potentially dangerous veteran plum trees.
2. Maintain good, safe site access.
3. Removal of diseased wood from veteran trees (especially cherries).
4. Restorative pruning of the veteran apple trees.
5. Identification of unknown cultivars (in collaboration with Peter Laws / FruitID).
6. Promote growth of the young trees that have not taken well.
7. Restocking the Rivers varieties.

¹ From "Rivers Nursery of Sawbridgeworth" by Elizabeth Waugh.

² See previous wildlife surveys. These are rather out of date and, perhaps, should be repeated.