**A Beginner’s Guide to Rescue Pruning in Traditional Orchards**

**Why Rescue Prune?**

Rescue pruning, as used here, means pruning with the objective of maintaining trees that are in danger of structural collapse. Typically it involves large, often veteran, orchard trees on standard rootstocks that have been neglected, overshaded, damaged or a combination of all three. Motives for rescue pruning might be to maintain trees with particular wildlife, cultural, landscape or sentimental values.

**Pre-pruning checks.**

The usual above ground causes of collapse will be canopy imbalance or major weaknesses to trunk or main limbs. Firstly check the canopy balance by viewing the tree from all angles. It is surprising how often a tree can appear to have a well balanced canopy from one viewpoint when in reality if looked at from another direction is clearly unbalanced. Try to assess why the canopy might be out of balance. Is it being overshaded and if so, is time better spent addressing the overshading vegetation?

Check the trunk and major limbs for large holes and obvious cracks which might produce failure. But remember hollowing is not in itself a danger to the tree but breaches of the hollow cylinder might be.

Does the tree have a heavy Mistletoe load? Mistletoe can kill large sections of canopies, effectively unbalancing the tree. It also has a large sail effect especially in the winter and trees can fail in winter storms due to the wind resistance of heavy Mistletoe loads, particularly if they are high in the canopy. Remember though that Mistletoe has a suite of rare invertebrates associated with it.

Finally assess which branches you intend to remove, how feasible this is and which is the correct approach – see following sections. Remember that dead wood has very little weight and contributes very little to canopy imbalance; crucially it has important wildlife value and should be retained wherever possible. Remember also that high branches generally will cause more imbalance than those lower down.

**Safety**

Next do your safety checks and risk assessment. This section is not a comprehensive safety assessment, rather a set of issues for you to consider. You must do an adequate risk assessment for each tree.

Using fully extended pruning saws is hard work, if you get tired (which you will) then take a break to recover.

Falling limbs are heavy – make sure that you have a clear escape route when branches fall and that colleagues and members of the public are not endangered. Consider removing large branches in stages rather than in one piece. Consider wearing a hard hat. Goggles can also be useful to prevent sawdust in your eyes.

Always have at least two pruning saws and a branch hook. Saws become stuck in cuts with extraordinary regularity (particularly when removing large branches) the best way of safely extricating a jammed saw without damaging the blade or yourself is by dismantling the branch with another saw. Sawn off branches are also forever getting stuck in the canopy but can nearly always be dragged out with a good branch hook.

Remember that you do not always have to work from the ground. It may be easier and safer to use a ladder or even climb the tree if you have appropriate skills and insurance.

Winter pruning is usually preferable because the lack of foliage makes it is easier to assess the tree and easier to carry out the work. However “stone” fruits – cherries, plums etc. should only be summer pruned to avoid the risk of silverleaf disease. This means that the branches are heavier due to sap and foliage. Cherry wood is particularly hard work to cut and is brittle and rescue pruning of cherry orchards should not be taken lightly.

Finally, always check for power lines and remember that you should not use a pole saw closer than 15 m to them.

**Effects of Canopy Removal**

Whilst re-balancing the canopy will help to keep the tree standing it will also have other effects. The size of the canopy and the size of the root system are usually in balance. That is the root system is large enough to supply water and nutrients to the canopy and the canopy is large enough to supply photosynthesates to the roots. Removal of large areas of canopy means that the root system will become stressed due to the reduction in supply of sugars to the root tissues. This can have the unwanted consequence of reducing the anchorage of a tree that is already out of balance. In addition, removal of large canopy volumes (especially in the winter) induces the tree to produce significant amounts of vegetative growth in the following spring (often in the form of water shoots), thus further diverting the supply of sugars from the roots. It is good practice therefore to restrict canopy removal to no more than 25% in old, declining trees and 33% in younger, more vigorous trees. It may therefore be necessary to stage the reduction/re-balancing of the canopy over several years in order not to overly stress the tree.

**Techniques.**

When cutting back branches always cut back to a lateral shoot which is at least 1/3 the diameter of the branch you have removed. Failure to do this will usually result in the death of the remaining branch.

Try to assess how and where the branch will fall and the likelihood of it “hanging up” in the tree. You may well have to remove a few, small non-target branches in order to position the pole saw and to allow easy removal of the felled branch. Where possible, undercut the branch first to prevent the bark tearing away below the cut. This can be difficult and arduous, especially when working at height with a fully extended pole saw. If you cannot make an undercut then always remove the branch in pieces to reduce tearing with the final cut.

Always cut at the branch collar and do not leave long stubs. This will ensure maximum production of callus wood to seal the wound.

Do not use wound paints.Although the use of these was comprehensively debunked decades ago, the myth is still propagated – usually by the folk who try to sell you these useless products. Wound dressings - seal in moisture and decay; sometimes serve as a food source for pathogens; prevent wound wood from forming and eventually crack, exposing the tree to pathogens. Wound dressings do not prevent entrance of decay organisms or stop rot. For some inexplicable reason, some people are compelled to try to manage a process that plants have evolved over millions of years. Every year, trees form many thousands of tiny abscission layers as leaves senesce and fall. Wounds left from branch breakage are callused over and compartmentalized quite naturally without the help of proprietary formulations. It’s important to recognize that trees do not heal. Instead, they isolate damage through formation of suberized, lignified wood that physically and chemically repels invasion. Callus wood develops at the edge of the wound and gradually expands towards the centre. This wound wood remains for the life of the tree and forms without the aid of the chemical industry.

**Clearing up.**

Do not underestimate how long it will take to process what you have removed from the tree!

What are you going to do with it? The most sustainable option is to pile it in a corner of the orchard to quietly rot down and provide a habitat for a myriad of invertebrates. Leave the wood in as long lengths as you can and ideally put some in the shade and some in full sun – some invertebrates like hard sun-baked wood and others damp, soggy stuff.

If this is not possible and the wood is to be removed for fuel, then take it away as soon as you can. If you leave it to season in the orchard then all the saproxylic invertebrates (insects that feed on dead wood) will have colonised the wood and then you will take them away and burn them – they don’t appreciate it.

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