

Snaffle the Apple

Saving the lost, lonely and loveable

Katrina Richards, Nelson branch

Many tree croppers have collections of old and interesting apple varieties. These are usually a mix of 'heritage' varieties from overseas, and old New Zealand varieties grown from pips or bred here before, say, 1945. For example, Adam's Pearmain originated in the UK in 1826; Mayflower grew from a pip planted near Hokianga Harbour in the 1850s; Takapuna Russet is an Auckland sport of Reinette du Canada from the 1800s; and Kidd's Orange Red was bred in New Zealand in 1924. Many apple collections also include recently propagated trees that were discovered growing feral on roadsides or farms. Monty's Surprise was discovered by Mark Christensen in the 1990s. My own Rakopi Russet is a locally collected 'worthy seedling'.

The apple (*Malus*) is thought to have originated from a wild ancestor in Kazakhstan, Central Asia. Apples don't breed true from pips; each seedling apple tree is a unique individual. So, if a seedling dies, that apple variety is gone forever. The solution is to 'clone' trees by propagating them by vegetative means—using scion wood, grafting, budding and, sometimes, rooted cuttings or layering.

There are thousands of named apple varieties in the world, each a clone of an original tree, albeit grafted onto a rootstock trunk. Historically, there were vastly more named varieties of the 'domestic' apple (*Malus pumila* var. *domestica*). In 1994, the UN estimated that 85% of named apple varieties in the world have already been lost.

For example, the USA in the 1850s had about 15-20,000 named seedling apple varieties, mainly used for hard cider. After skills in grafting were developed, USA fruit tree catalogues began to offer thousands of named varieties for sale. However, vast numbers of USA varieties were lost when apple growing was commercialised in the 1920s. In 1927, American growers were told to grow the 'New England Seven' (Gravenstein, Delicious, McIntosh, Northern Spy, Wealthy, Baldwin and Greening) and destroy everything else. More old varieties were lost in the blizzards of 1934, which killed millions of old apple trees in the USA.

Nonetheless, some American orchardists could see the value in growing the old varieties that had been selected and named generations before. They collected scion wood from orchards that were being ripped out, and the first 'heirloom' apple collection in the USA was begun in 1934. It is long gone, but its legacy continues in other apple collections.

Living libraries

Apple tree collections or 'living libraries' are an obvious way to preserve apple diversity. There are several renown examples in New Zealand and overseas. The USA has the world's largest apple collection: about 6,883 varieties grow at Cornell University's Agricultural Experiment Station in Geneva, New York. The largest heritage apple collection in the UK is at the Brogdale Research Institute, Kent. They grow 2300 varieties of British heritage apples on the 60 hectare site of the Nation Fruit Collection. Other interesting collections include the Maine Heritage Orchard, established in about 2012 with nearly 300 local apple varieties, and the Leicestershire Heritage Apple Project, UK, with about 100 different local apples, most of which are not in the national collection at Brogdale.

New Zealand's largest heritage fruit tree collection is the Open Orchard Project at Riverton, Southland, under the care of Robert and Robyn Guyton. It began in 2007 and now includes more than 800 varieties. Their aim is to collect, identify and propagate local old trees. They sell grafted apple trees and scion wood in a very popular annual sale, offering up to 65 heritage varieties (the list is on their webpage). They create heritage orchard parks, and gift grafted trees back to families and communities who donate scion wood. The project has been involved in the planting of over 7,000 fruit trees in Southland. An example of this is the 34 apple trees gifted to a community orchard at the Tuatapere Domain, Southland. In the Catlins, Apple South did a blind taste test of 222 old apples trees in orchards and 80 local feral apple trees. The best were added to the Riverton collection for preservation, propagation and eventual restoration to Catlins families.

About 40 years ago, Dieter Probst collected hundreds of different kinds of apple trees at his farm in the Motueka Valley, Nelson. He obtained scion wood from other collectors, orchardists and now discontinued research programmes. After growing trials, he kept 235 varieties, later whittled down to 176 (or less). These

could all be grown organically and be relied upon to bring in an income from tree, fruit and juice sales. Dieter has recently retired and sold his farm to a youthful couple, who are keen to continue his 'living legacy'.

Sadly, some private collections hardly outlive the person who planted them. Henry May, the 70-year-old owner of Tidnor Woods Orchard, UK, struggled to find anyone to take over his collection of 300 traditional British cider apples. Eventually, the National Trust, better known for saving stately homes, stepped in. They took scion wood and made sure each tree in his collection was duplicated before the land was sold, then planted grafted trees on National Trust estates.

In Oregon, USA, Nick Botner amassed the largest private collection of apple varieties in America. When he was 90 years old, he allowed the Temperate Orchard Conservancy to try to duplicate his collection before he sold the farm. The trees were old and neglected, they didn't have much fresh growth, but they managed to get scion wood and graft trees to duplicate 3,500 of his 4,500 apples. They also submitted apple seeds from his trees to the Global Seed Vault in Svalbard, as another way to preserve genetic diversity.

Even if a collection is government-run, changes can happen concerning management, funding and policies. In the UK, what is now the National Fruit Collection was moved from London to Surrey (in the 1920s), then to its current home in Kent (1950s). Another move was on the cards in recent decades. It used to be managed by the Department for Environment, Food and Rural Affairs, but Government funding was stopped in the 1980s. The University of Reading now manages the collection. In 2008, it propagated and sold three sets of 1000 of their most important apple varieties. Sets went to Prince Charles, the Co-operative supermarket group and a private collector in Scotland. This new 'commercialisation' was controversial, but it is safer to duplicate at least some of the collection in different counties.

Sometimes, an old apple variety that you want for a collection cannot to be found; then you need to search for it. Or, you find an old tree, but have no name for it. In the USA, the Apple Search Organisation is passionate about finding, saving and identifying 'lost' apples. They use old nursery catalogues, reports from county fairs, maps, diaries and oral histories, and post 'wanted' lists on the internet. So far, they have found over 1,000 'lost' apple varieties. They donate scion wood from these to heritage apple nurseries and collections, and ensured young grafted trees are restored to their original owners.

'Apple whisperer' John Bunker has tracked down, identified and collected scion wood from 80 to 100 different apple varieties in Maine, USA (it has taken him 30 years). 'Apple sleuth' David Bencotter tracked down two 'extinct' apple varieties in Washington, USA: Arkansas Beauty and Nero. These identifications were verified by experts using taste, colour, shape and core appearance, using criteria based on 19th and early 20th century documents and portraits. In Washington, USA, the Lost Apple Project has been set up through a local historical society, to help identify and save old apple trees. In New Zealand, the Open Orchard Project in Southland has identified more than 110 old fruit trees. They work with international experts to identify varieties based on 45 characteristics, and hope to identify more each year.

Heritage apples and worthy seedlings should be celebrated. Apples are not boring; old apples are fresh news. They are disease resistant, and hold a wealth of genetic material that is valuable in breeding new varieties for commercial use. Collections in the UK include old wonders such as Faversham Creek, which grows in salt marshes and tastes salty, and George's Red Apple, which has red flesh. The UK has an annual National Apple Week. Renewing America's Food Traditions and Slow Food USA declared 2010 the year of the heirloom apple. Groups such as the Sebastopol Gravenstein Apple Presidium in California have adopted and promote old apples that are locally significant and have commercial potential.

In New Zealand, old orchards are disappearing under urban sprawl and commercial orchards are full of only new apple varieties. On the other hand, there is also a resurgence in interest in heritage fruit varieties, tree crops, cider making, real food and community orchards. So, now is a good time to be thinking about supporting apple diversity and the conservation of apple collections.

What works?

Apple collections can be large or small, new or long-established, on private, institutional or public land. After reading about collections in New Zealand and overseas, I think successful apple collections use five strategies, which are interwoven. These are:

Usefulness: apples should only be included if they have value or usefulness. This sounds harsh but that includes apples for eating, cooking, cider, preserves and ones that embody history, geography, memories, beauty and quirkiness.

Local history: focus on 'saving' trees that grow, or used to be grown, locally. Local can mean one abandoned farm, a province, state or entire nation, depending on the size of a collection. This preserves local cultural history, fosters a sense of community ownership, and means trees will suit local conditions.

Identification: trees need to be documented, identified, mapped, labelled and described using words and photographs. Authenticated variety names are ideal, but names can be tentative identifications, traditional names for old trees or 'pet' names given to worthy seedlings. There are several good sites online that can help people identify old apple varieties, but often an expert opinion is required.

Community involvement: getting schools, social clubs and the public involved in a collection seems to work better than going it alone. 'Living libraries' need to engage with people—even if the public never sets foot in the orchard. Open orchards, orchard parks, grafted trees in public spaces, and tree and fruit sales help to promote apple diversity and specific heritage varieties. Public access for picking fruit means individual trees in public spaces will, hopefully, also become valued.

Care and safety: Apple trees need to be cared for, pruned, fed and watered for ongoing health, good harvests and to be sources of scion wood. Rare and unique trees need to be made 'safe' by being duplicated. Cryogenics might one day be feasible, but the best idea is to grow duplicate trees, created by grafting. Trees can be planted in pairs in a collection, but duplicates at another location are safer. In theory, I think a collection could be duplicated using apple tree 'cloud storage'—sub-sets of trees planted at several locations, which together duplicate a collection in its entirety.

What can we do?

- Celebrate heritage apples and worthy seedlings at fairs, festivals and in the media.
- Promote seasonal apples, apple tastings, cider making and recipes for specific apples.
- Find information on collections and varieties, makes lists, maps, labels and share knowledge.
- Support, learn from and train new 'apple sleuths' who know how to identify old apple trees.
- Support community orchards, open orchard projects and private collectors.
- Find sites for duplicating trees from collections, on private, institutional or public land.
- Sell grafted trees and scion wood, give workshops and teach people skills to care for trees.
- Provide scion wood and examples of fruit to nurseries and research institutions.
- Collect scion wood, propagate from and care for old trees—before it is too late.
- Plant pips and taste feral apples, get scion wood from the best, name and share them.
- Make personal connections, share stories, and talk to each other and the public.

Sources:

cahnrs.wsu.edu/alumni/reconnect/agriculture/alumnus-sleuth-researchers-resurrect-lost-apples/

www.mofga.org/Publications/MaineOrganicFarmerGardener/Winter20162017/FirstHeirloomAppleCollection/tabid/3271/Default.aspx

www.smithsonianmag.com/smart-news/group-trying-clone-thousands-heirloom-apple-varieties-180961374/

www.stuff.co.nz/business/industries/82816934/riverton-the-heritage-fruit-capital-of-new-zealand

www.stuff.co.nz/nelson-mail/lifestyle-entertainment/4954656/Grower-prepares-a-living-legacy

www.suttonelms.org.uk/apple74.html

www.telegraph.co.uk/news/earth/earthnews/3343577/Prince-of-Wales-saves-British-apple-breeds.html

blogs.scientificamerican.com/food-matters/the-heir-and-the-spare-preserving-heritage-and-heirloom-apples/

www.theguardian.com/lifeandstyle/2016/jan/27/national-trust-steps-in-save-tidnor-wood-orchards-cider-apple-trees

pitjournal.unc.edu/article/where-have-all-apples-gone-investigation-disappearance-apple-varieties-and-detectives-who

Figure 1. My apples displayed at the Wakefield Apple Fair, April, 2017.

Figure 2. Grafted fruit trees planted at the Tasman Domain, Nelson.

Figure 3. The Sarau tree at Upper Moutere, thought to be planted by German settlers in 1840s.



Copyright © New Zealand Tree Crops Association. Reproduction of this article is permitted provided that credit is given to the New Zealand Tree Crops Association, *TreeCropper* and the author. The New Zealand Tree Crops Association (NZTCA) is a voluntary organisation promoting interest in useful trees. Visit our website www.treecrops.org.nz for more information. Disclaimer: Whilst care has been taken, NZTCA accepts no responsibility for errors or omissions, or for any consequence arising from reliance on information published.

