The Wollemi Pine
The Full Story
I. INTRODUCTION

The discovery of the Wollemi Pine, *Wollemia nobilis*, in 1994 in Sydney’s Blue Mountains is considered to be a major botanical find in human history – akin to finding a dinosaur alive today. It is one of the world’s oldest and rarest trees and a member of the Araucariaceae family which is thought to have existed 200 million years ago. Previously, the Wollemi Pine was presumed extinct as only fossil records remained.

As fewer than 100 adult trees exist in the wild, the species has been the focus of a unique propagation program. The propagation and worldwide release of the Wollemi Pine was identified as a key conservation strategy in the Wollemi Pine Recovery Plan (developed by NSW National Parks and Wildlife Service and the Botanic Gardens Trust).

The first release to the public was a charity auction in Sydney in October 2005 where 292 trees fetched over £400,000. This was followed by the general release in Australia in April 2006 and the pre-release in the UK in conjunction with RBG Kew a little later. The major release in Retail outlets was in May 2007 and gave the opportunity for British and Irish consumers to play a role in the conservation of this rare and endangered species.

Royalties from the sale of Wollemi Pines will be invested in the conservation of the Pines in the wild as well as other rare and threatened plant species. Having Wollemi Pines in homes, gardens and parks worldwide will safeguard against the species becoming extinct and minimise the threat of unauthorised visits to the wild population.

HSK is working with Proven Winners to act as the main trade supplier of the Wollemi Pine in The UK.

The mission of Wollemi International is:

“To conserve the Wollemi Pine for future generations and to raise awareness of conservation internationally. Through public participation, we will re-populate the Wollemi Pine and return royalties to fund conservation of the Pines in the wild and other rare and threatened plant species.”
2. COMPANY BACKGROUND

Commercial Organisation

The RBG Sydney took over the responsibility for the commercial sales of the Wollemi Pine and set up companies for marketing and production. The sales in Europe were licensed to Proven Winners Europe Ltd.

The propagation of the Wollemi Pine is carried out vegetatively (by taking cuttings) as the collection of seeds from the wild population is not only difficult and dangerous but could also potentially damage the trees.

DPI Forestry is recognised as a world leader in the propagation and commercialisation of the Araucariaceae family, of which the Wollemi Pine is a member.

The Wollemi Pine is fast becoming an international celebrity. It has been presented as a diplomatic gift by Australian embassies in Europe and Asia to leading botanical institutions. It was displayed as a key feature at the Australian Pavilion at World Expo in Japan. Botanic Gardens and museums around the world are involved in trialing and displaying the Wollemi Pine. The RBG Kew have had plants for trialling for the last four years and in 2005 had a ceremonial planting outside the Orangery by Sir David Attenborough, who said of the Pine,

“How marvellous and exciting that we should have discovered this rare survivor from such an ancient past.”

The launch and auction of the ‘Collectors Edition’ Wollemi Pines, direct descendants of the Wollemi Pines in the wild, was a great success and a fitting tribute to 11 years of research and conservation work. Thousands of Wollemi enthusiasts visited the ‘Wollemi Pine Wilderness Unveiled’ exhibition at the Sydney Royal Botanic Gardens in October 2005 and the Sotheby’s auction was unprecedented with 100% of the 292 trees sold and over £400,000 raised.
Once the announcement was made that advance ordering of the Wollemi Pine for retail release should start in the UK on 29th May 2007, demand became very strong, making it one of the most exciting new plant introductions for home gardeners. The combination of the Wollemi Pine’s ancient history, its link to the dinosaurs and its mysterious discovery in 1994 has captured the imagination of the general public as well as keen gardeners. The Wollemi Pine is set to become a “must have” item and popular gift for many people.
## 3. FACT SHEET

<table>
<thead>
<tr>
<th>Claim to fame</th>
<th>One of the world’s oldest and rarest trees.</th>
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<tbody>
<tr>
<td>Scientific name</td>
<td><em>Wollemia nobilis</em></td>
</tr>
<tr>
<td>Family</td>
<td>Araucariaceae</td>
</tr>
<tr>
<td>Genus</td>
<td><em>Wollemia</em></td>
</tr>
<tr>
<td>Relatives</td>
<td>Kauri, Norfolk Island, Hoop, Bunya and Monkey Puzzle pines.</td>
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<tr>
<td>Discovered</td>
<td>In 1994 by David Noble, a NSW National Parks and Wildlife Officer and avid bushwalker.</td>
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<td>Where</td>
<td>In a secret location approx. 200km west of Sydney (Australia) within the Wollemi National Park, part of the Greater Blue Mountains World Heritage area.</td>
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<tr>
<td>Age</td>
<td>The Wollemi Pine belongs to the 200 million year old Araucariaceae family. The oldest known fossil is 90 million years old. The oldest living tree is thought to be around 500 years old.</td>
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<tr>
<td>Wild population</td>
<td>Less than 100 mature trees are known to exist in the Wollemi National Park and nowhere else in the world.</td>
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<tr>
<td>Characteristics</td>
<td>Conifer with attractive, unusual dark green foliage and unique chocolate brown bubbly bark. Tendency to sprout multiple trunks, creating a bushy effect.</td>
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<tr>
<td>In cultivation</td>
<td>Hardy, versatile, easy to grow and low maintenance. Will adapt to a diverse range of climatic zones, thriving in semi-shaded to full sun outdoor conditions. It also grows in well-lit indoor environments and tolerates air conditioning.</td>
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<tr>
<td>Conservation</td>
<td>Royalties from Wollemi Pine sales support conservation of the Wollemi Pine and other rare and threatened plant species.</td>
</tr>
<tr>
<td>Best use</td>
<td>Unique gift for special occasions, a stunning patio and indoor plant, or a feature plant for parks and large gardens.</td>
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4 INTERESTING FEATURES

4.1 FOLIAGE

The Wollemi Pine produces three types of foliage depending on its age and position on the tree.

New juvenile frond-like foliage is apple green and changes to a blue-green colour as the plant grows.

Mature foliage is more Jurassic-like, featuring two rows of leaves on the branches, not unlike the spines on a Stegosaur’s back.

In the colder months, the foliage has a warm, bronze appearance.

Each growth season, the branch buds flush, creating distinct sections on the branches from which the age of the Wollemi can be estimated.

4.2 CONES

The Wollemi Pine is bisexual (monoecious) and produces small male and female cones on the same tree. The cones appear on the tips of separate branches from approximately 9 years of age. The seeds are produced by the round female cones and the long male cones produce the pollen.
4.3 BARK & COPPICING

Unique, chocolate brown bubbly bark will form as the plant matures, from approximately 6 years of age. The common name of the bark is rapidly becoming known as ‘Coco pops’ due its resemblance to the well known breakfast cereal.

The Wollemi Pine has a habit of developing multiple stems, called ‘coppicing’, which may have evolved as a defence against drought, fire or rock fall in the steep canyons where it grows in the wild, thereby ensuring its survival. This means that the Wollemi Pine will be naturally multi-stemmed giving it an attractive bushy form compared to its single-stemmed conifer relatives. However, it is possible to prune/train the Wollemi Pine as a single stemmed street tree.

4.4 POLAR CAPS

During the colder months, the Wollemi Pine becomes dormant and its growing buds develop an attractive white waxy coating with ruby pink lines. This protects its growing tips and is thought to have helped it survive many ice ages. When spring arrives, the caps disappear and the new growth bursts through. It is not uncommon for new buds (from one to multiple) to grow from beneath or through the polar cap.
5. CARING FOR THE WOLLEMI PINE

The Wollemi Pine is not only attractive and striking in appearance, but also easy to grow and low maintenance. Here are some tips however, on how to get the most from your Wollemi Pine. It is a very versatile plant and can be grown either:

1. In a container for inside or outside
2. Planted in the ground

On arrival the plant should be given a good watering and allowed to drain.

If receiving the tree from late August through to the following spring we advise that it is kept inside in its original pot in a well lit area. Watch the apple green foliage emerge from the white Polar Caps in spring. Place outside or plant out from late May through the summer.

5.1 GROWING IN A CONTAINER

It is envisaged that many Wollemi Pines will be grown in containers for patios, verandas and balconies rather than in the ground.

If required, plant growth can be controlled in a number of ways to suit any garden by:

• Increasing, or restricting the container size
• Altering the fertiliser levels
• Pruning the apical shoots and fronds to suit

Container

The container size can therefore vary from something containing 10 litres to 100 litres of compost, depending on the size of specimen you require. Initially, transferring the tree from a 3 litre pot into a pot between 10 and 30 litres will suffice for at least 2 years.

Potting

The compost should ideally be reduced peat. Most proprietary Tree and Shrub or Ericaceous composts will be suitable. Mix the contents of the mycorrhizal sachet, enclosed with the pack, in with the compost. This is a naturally occurring fungus that lives in symbioses with the Wollemi Pine. Although not essential for success, it will help the tree at times of stress by providing extra root protection. Place some grit, stones, or earthenware ‘crock’ in the bottom of the pot, making sure there is a hole in the base so that excess water can drain out. Knock the tree out of the original pot and put it into the new container so that the original surface is just below the new compost. Apply enough water so that water is seen to leach out of the bottom of the pot. Staking should not be necessary, but if you do want to control one of the lead stems’ this can be achieved using a stake and tie.

Watering

Water the tree by saturating the plant as soon as the growing media becomes dry in the top 5cm of the pot – this may be once or twice a week in summer and less in winter. As a general rule, the lower the light level and temperature, the less water is
required. Wollemi Pine does not like 'wet feet' and will not tolerate over watering. It will not survive if it is held for excessive periods in constantly wet compost. Do not therefore keep the plant sitting in a saucer of water or dish.

**Fertiliser**

As mentioned previously, growth can be controlled easily. If you wish to have a larger plant, the addition of a low phosphate 'controlled release' fertiliser at 5gm (one teaspoonful) per 3 litres of compost applied to the top surface, twice a year in the summer will keep the tree growing. Alternatively use a water soluble fertiliser, such as one suitable for Tomatoes, once a week during the growing season. If the tree becomes too big for the pot either pot on to a bigger container or prune the plant in early spring.

**Location**

For an outdoor living area such as a balcony, courtyard or patio, choose a well lit location, but preferably not exposed to the full sun in mid-summer. If the tree is to stand outside over winter, choose a sheltered position and make sure that the compost does not become over-saturated by rain. If placed directly from shade into the full sun, the plant may develop some initial tip-burn and yellowing of the foliage. This is not uncommon for rainforest and Araucariaceae species. It will, however, regain its normal deep green appearance in a few months, and should thrive.

The tree will also make a good houseplant for you to enjoy watching your tree grow and observing the extraordinary features as it matures. If kept indoors, place the plant in a very well-lit position but out of the full sun in mid-summer. From May to September it will appreciate a 'holiday' outside for a few days a month. In many cases we are finding people bringing the plant inside in winter and taking it out during the summer months.

**5.2 GROWING IN THE OPEN GROUND**

**Timing**

The best time to plant the Wollemi Pine is in late spring as the ground starts to warm and the winter frosts cease.

**Location**

Choose a location, ideally sheltered from the coldest winds and hardest frosts and, if possible, on ground that is sloping or slightly raised. Full sun or partial shade is ideal. If the Wollemi Pine is to be grown as a large specimen, the spacing around the tree from other trees and shrubs should be at a minimum of 3m and preferably even more. If a grove or hedge effect is intended and you wish to control growth by pruning, then the planting can be as little as 2m apart.

**Planting**

Dig the hole at least twice the size of the original pot and mix some organic material such as leaf mould or green compost, a sprinkling of low phosphate general fertiliser and the contents of the mycorrhizal sachet around the sides of the hole or with the
back fill. Carefully knock the plant out of the pot and place so that the original compost is just below the surface of the new hole. Firm the soil around the tree and, if in windy position, stake and tie.

Watering

Water the tree in well and apply weekly. Water in dry periods throughout the first season to establish the plant. After the initial establishment, the tree will withstand quite dry conditions, but may need watering in extreme heat. The Pine does not like ‘wet feet’ so a well drained soil is best. If the soil is heavy clay or overlying clay, it is advisable to use some well drained loam based compost as back fill in the planting hole. In its natural area the pH is exceptionally low but our experience is that the Wollemi Pine will grow happily in a pH range of 4.5 to 7, but a pH below 6 is preferable.

5.3 GENERAL GROWING INFORMATION

Hardiness

Trials are being conducted around the world to establish how much cold weather the pine can withstand. We know that it has survived temperatures of -12°C and may be able to tolerate much lower temperatures.

Growth Rate

In optimal conditions a young Wollemi Pine (up to 18 months of age) will grow around six inches each year. Grown without controlling the growth, the tree is expected to reach 20 metres in its lifetime. Although there is likely to be a dominant trunk, it is quite possible that the tree will produce many trunks over time. In the Wollemi National Park, the oldest tree, nearly 1000 years old, has 100 trunks.

Pruning

The Wollemi Pine can be pruned heavily, with as much as two-thirds of the plant size removed. You can prune both the upright stems and the branches. New buds will usually generate from below the cut, and to stimulate growth after pruning add a controlled release fertiliser. It is best to prune in the early spring months. Use sterile, sharp pruning equipment to match the size of the stem or branch being pruned. If your Wollemi Pine has been planted in the garden as a feature tree, there is no need to prune unless you wish to reduce its size or encourage multiple-stemming.
Pest and Diseases

The tree can be susceptible to red spider mite and aphid. Tortrix moth has also been seen on the tree in the UK. The caterpillar makes a cocoon in the tips of the new fronds, eating and distorting the young foliage. Use a normal insecticide control if any of these should occur. Like any conifer, the Wollemi Pine can be susceptible to diseases. Following these few growing tips and keeping your plant as healthy as possible is the best disease prevention. If you should have any concerns about pest or disease, seek advice on the best controls from your local garden centre.
6. TROUBLESHOOTING & COMMON FAQS

6.1 WHAT IS THE BEST WATERING REGIME FOR THE WOLLEMII PINE?

The most likely issue that may affect the health of the Wollemi Pine is an incorrect watering regime. Ensure not to over water – just saturate the plant when the top 5cm of the growing media is dry. This may be two of litres of water for smaller pot plants and up to 15 litres for larger pots. Do not leave the plant sitting in a saucer of water if it is in a pot.

Watering may need to be done from once a week to daily. It depends on the light levels, temperature and evapotranspiration area. Generally, the lower the light levels, the less water loss. Light is also important, especially if the plant is indoors. Ensure that it is in a well-lit position but not in the direct sun and take it on holidays outside to a shaded and sheltered location one week in every month between May and September.

**General Rule:** It is better to under water than to give too much. It is possible to kill by kindness.

6.2 WHY HAVE THE BRANCHES ON MY TREE BEGUN TO DROOP?

When the Wollemi Pine is stressed by over watering/under watering or grown in low light areas. The result is generally that there is a lack of young root. If the plant is in a pot, take off the pot and inspect the roots on the outside to see if there are white roots. If the roots are very brown and the outer layer can be stripped away the remedial action is to gently take away some of the compost, repot and re-establish the root by gentle watering.

6.3 WHY HAVE THE LEAF TIPS OF MY WOLLEMII PINE GONE BROWN?

There are three possible reasons for the tips of the leaves of the Wollemi Pine to go brown.

- Insufficient water, which causes the ends of the branches to die back
- An incorrect pH balance of the soil or growing media
- Insufficient fertiliser or too much fertiliser. Always ensure controlled release fertiliser is evenly placed around the tree and not in contact with the stem

Note that a yellow tinge on the very tips of the leaflets is a normal and common occurrence in both the wild and cultivated Wollemi Pines.

A: Yellow colour at tips of leaflets is a natural occurrence in Wollemi Pines
B: Severe case of tipping, likely induced by one of the three factors described
The advice to give on these occasions is:

Re-pot either into a bigger pot or one of the same size as in the procedure in 5.1. pH should not be a problem if ericaceous compost is used. In a high calcium water area it would be best to water with rain water but try not to get the customer too concerned. In most cases the problem will correct itself with good care techniques.

It is common to see a white deposit on the tree stem. This is the residue from the sap exudates the tree produces when it is cut or wounded.

6.4 IS THE WOLLEM I PINE SUSCEPTIBLE TO COMMON GARDEN PESTS?

Like most ornamental plants, the Wollemi Pine is susceptible to common garden pests. These include caterpillars and sap sucking insects, such as aphids, scale insects, Tortrix moth and mealy bug. Symptoms of such pests may include pale, yellowing and/or wilted growing tips, honeydew and sooty mould and often, presence of ants. Treat by removing any pests by hand and spraying with the appropriate chemicals. Do not use leaf shines or white oils as foliage burn can result.

6.5 IS THE WOLLEM I PINE SUSCEPTIBLE TO DISEASES?

The Wollemi Pine has been found to be relatively resistant to most diseases. However, a fungal pathogen Phytophthora cinnamommi is one disease that affects many conifers, including the Wollemi Pine. A few Wollemi Pines in the wild were infected with Phytophthora cinnamommi as a result of it being carried in on the footwear of unauthorised visitors. These trees have been treated and there is no longer any immediate risk of the disease spreading. There has been no evidence of Phytophora cinnamommi in commercial production.
Another fungal pathogen that can be associated with stem, branch and tree dieback or decline in Wollemi Pine is *Fusicoccum* species, although this disease is very rare in the UK. At advanced stages of the disease, the fungus is visible as brown patches with tiny black raised spots (like a pin-head) on the leaves. This fungus is more active during the warmer, wetter months, and is generally only seen on plants under stress, such as insufficient light, drought, over-watering or poor drainage.

In general, if fungal pathogens are detected, it is suggested that a mixture of broad spectrum fungicides suitable for ornamentals are used at recommended rates. Always follow the instructions on the label when using pesticides.

### 6.6 COULD THE WOLLEMI PINE BECOME INVASIVE?

Ecologists studying the Wollemi Pine have claimed that the Wollemi Pine is highly unlikely to become a ‘weed’. The biological attributes of weed species are inconsistent with conifers in the Araucariaceae family. There is a slight possibility that Wollemi Pine seeds could germinate as a result of seed fall in highly favourable conditions, though, any major infestation is unlikely.
7. SELLING THE WOLLEMI PINE

As one of our valued re-sellers, you play an exciting and important role in the life of the Wollemi Pine by bringing this piece of ancient history to home gardeners across the UK to enjoy. You are involved in not only selling a unique tree but a fascinating story of discovery and conservation that has captured the imagination of the public world wide. The more you are able to tell this story in your retail environment, the more you will engage your customers and generate sales of the Wollemi Pine.

Wollemi Pine Product

7.1 WOLLEMI PINE UNIQUE SELLING POINTS

In your merchandising and displays, highlight the Wollemi Pine’s ancient history and link to the dinosaurs. Showcase its versatility as a feature tree and container specimen.

7.2 UNIQUE SELLING POINTS OF THE WOLLEMI PINE ARE:

- The Wollemi Pine is rare, precious and unique
- The Wollemi Pine outlived the dinosaurs
- Easy to grow and low maintenance
- Versatile as a feature tree or patio/indoor plant
- Ideal gift for special occasions. Birthdays, Weddings, Anniversaries, Christmas, Fathers’ Day. An ideal gift for someone who has everything!
- Royalties fund conservation of the species and other threatened plant species

- Rare, precious and unique

As there are less than 100 mature trees in the wild (this is the only known population in the world), the Wollemi Pine is thought to be one of the rarest trees in the world. It has many unique features (e.g. bubbly bark) and is considered a precious natural treasure as key efforts are made to ensure its ongoing survival in the wild.

- Outlived the dinosaurs

The Wollemi Pine is part of the Araucariaceae family which dates back 200 million years, around the time of the Jurassic period. The discovery of the Wollemi Pine in 1994 is the equivalent of finding a dinosaur still alive on earth today.

- Easy to grow and low maintenance

If the care instructions (Section 5) are followed i.e. the plant is watered correctly, receives sufficient light and fertiliser levels, the Wollemi Pine is easy to grow and low maintenance.

- Versatile as a feature tree or patio/indoor plant

As the Wollemi Pine can be maintained in a pot, it makes an ideal container plant for patios and courtyards. It can also be used as an indoor plant in well-lit positions as
long as it is taken outside for regular holidays one week in every month between May and September.

**Ideal gift for special occasions**

The Wollemi Pine is a precious gift from an ancient past and a perfect gift for special occasions such as:

Weddings, special birthdays and anniversaries, Mother’s and Father’s Day, Christmas and Easter etc. A perfect gift for someone who has everything!

### 7.3 KEY MESSAGES

- The Wollemi Pine is one of the world’s oldest and rarest trees.
- The discovery of the Wollemi Pine is considered to be one of the major botanical finds in recent history.
- There are less than 100 mature Wollemi Pines in the wild – the exact location is a closely guarded secret.
- Royalties from the sale of the pine will be invested in the conservation of the Wollemi Pine and other rare and threatened species.
- Acquiring a Wollemi Pine will help protect the species and safeguard its continued survival.
8. PACKAGING AND PRESENTATION

The highly anticipated retail release of the Wollemi Pine in the UK and Ireland on 26 May 2007 was a significant milestone in the conservation of this rare and threatened species. The general public can now purchase a piece of living history and become a part of the global conservation effort.

All 3 litre Wollemi Pines will be supplied with a care booklet, certificate, and a pack of Rootgrow Mycorrhizal (friendly) fungus which the customer will receive when they buy the tree. The Wollemi Pine will be supplied with a label in a stylish printed pot.

8.1 AUTHENTICATION CERTIFICATE AND ENVELOPE

An authentication/gift certificate will be supplied to the customer as proof of purchase of an authentic Wollemi Pine from an appointed retailer. These certificates will be presented in a Wollemi envelope along with a care booklet. The envelope can be transformed into a certificate holder/display.

The certificates of authenticity have been designed to allow a customised message to be added for gifting purposes. We encourage you to stamp the back of the certificate with your retail/garden centre details.

8.2 CARE BOOKLET

Each plant will be supplied with a care booklet entitled ‘The Wollemi Pine, Caring for your living fossil’. The booklet includes sections on the history of the Wollemi Pine, Top Tips for Wollemi Pine Care, Interesting Features and Frequently Asked Questions. Supply the customer with the care booklet and certificate in the Wollemi envelope provided at the time when the plants are purchased.

8.3 POT

The pot that the 3 litre tree is supplied in has been specifically designed to enhance the beauty of the trees. It is a Polypropylene pot that can be recycled.
9. PROMOTIONAL AND MARKETING IDEAS

9.1 PROMOTIONAL IDEAS

Off site displays
Bring your plants to the people! Display your Wollemi Pines off-site at high profile and well attended events to encourage ordering e.g. at local exhibitions, museums and special events. This enables you to share the excitement of the Wollemi Pine and encourage new customers to visit your nursery.

Guest speakers
Organising guest speakers such as horticulturalists, palaeobotanists, gardening media and personalities is a great way to engage your customers and promote sales.

School Promotions
Activities such as quizzes on Wollemi Pine facts, poetry competitions, colouring in competitions and crosswords, etc. will encourage young families to learn about the Wollemi Pine.

Plantings
Special plantings can be organised at significant local sites such as schools and parks. Members of the community, government, celebrities etc can be invited as VIPs to encourage media attention.

9.2 PROMOTIONAL MATERIALS

Banners
The vertical banners we supply show images of the Wollemi Pine and encourage consumers to order their own living fossil. Dimensions are 178 x 60 cm.

Brochure
An information brochure is available outlining the discovery and history of the Wollemi Pine as well as its suitability and versatility. The brochure can also be customised by placing your retailer stamp on the back so you can promote your store retailing the Wollemi Pine.

Photography by:
Jaime Plaza – Botanic Gardens Trust, Sue Stubbs, Per Ericson, Russel Shakespeare, J. King, HF&S, G. Pegg, HF&S, Bruce Harnett, Wollemi Australia