IDENTIFYING WOOD
Some basic pointers

Introduction

There are thousands of tree species in the world. They are broadly divided by CLASS, either Angiosperms, flowering plants such as Kowhai or Rhododendron (hardwoods) or Gymnosperms, naked seed plants such as Radiata Pine and Rimu (softwoods). Palms, Bamboo and our Cabbage trees also fit into theAngiosperm classification but are in a separate sub-class. Gymnosperms evolved many hundreds of millions of years ago but now number about 1000 species whereas Angiosperms evolved 250-200 million years ago and now include hundreds of thousands of species. The Classes are subdivided by FAMILY i.e., Pinaceae (which includes the pines some cedars and firs) and Podocarpaceaea (which includes Rimu Totara and Macrocarpa) then by GENUS such as Pinus. Most of the species in the genus have similar characteristics. The botanical name for all species usually is abbreviated to genus and species e.g., Rimu Dacrydium Cupressinum although, particularly with plants used in gardens, where the plant has a different forms, flower or leaf colours there can be many varieties.

Common names are often based on wood colour or other characteristics and disregard the botanical names. One species can have many common names e.g., Rimu or Red Pine. On major continents common names vary from one country to another so that one species can have dozens of common names. For timber selling purpose traders may invent names

that suggest that the timber is similar to a relatively valuable species. The terms oak, walnut and mahogany have often been applied to timber that slightly resembles those species e.g., Pacific Jarrah, a dark coloured hardwood from South America (Manilkara bidentata), also known as Massaranduba, Bullet wood, Balata, Asubo or Cow tree, is much harder and more durable than Jarrah from Australia.

The old European definition of hardwoods being deciduous, broadleaved trees and softwoods being evergreen needle-leafed trees is misleading. There are numerous anomalies e.g. Balsa is a hardwood and Macrocarpa is a softwood, most New Zealand hardwood trees are not truly deciduous and larch, a softwood, is deciduous, Tanekaha, a softwood, appears to have broad leaves while She-Oak, a hardwood, has needle-like foliage.

The main questions to be answered are:

1. **Where did it come from?**

This is a good way of reducing your options. If it was picked up on a beach near a river mouth or was found in a native forest area then it is likely to be a native species. A lot of native species are restricted to certain parts of the country, for example Kauri does not occur naturally south of a line from Maketu to Kawhia.

If it came from a farm, a garden or a park then it is likely to be something other than a native species. Was it planted in a shelter belt, among orchard trees or as a solitary specimen

tree? If it was an old power pole, crossarm, wharf decking, post or some other identifiable building component then again there are a limited number of species that are likely to be used in those situations. The age of the building that it came from may also give a clue as to what species it might be, e.g., Kauri was very common in buildings until the l930's but was seldom used for general construction after that.

2. Do you have foliage, flowers, cones or bark"

These are the best way of identifying a tree. If you can get any of these it is a good starting point but you may need all four before identity can be determined. For example, there are 700+ Eucalyptus species and more than 100 of those have been introduced into New Zealand. Identification beyond "it is from a gum tree" requires details such as tree form, bark type, adult leaves, and flowers or cones.

Pines are often similar hence the colour and texture of bark on branches and the main trunk, number of needles in a follicle, cone size and shape may all be needed for positive identification.
Some species have different foliage or form in juvenile and adult trees hence, different shaped leaves on various parts of a tree may aid identification.

3. What are its prominent features?

If none of the above details are available then look at features such as sapwood/heartwood, colour, smell, weight, texture, growth rings, medullary rays, and knots or other defects.

Sapwood and heartwood are often different colours. Some species such as poplar and taws have little obvious heartwood, others such as Robinia and Macrocarpa have very little sapwood. Colour of heartwood and sometimes sapwood is one of the best indicators of species. Rimu has reddish brown heartwood, often with darker streaks and patches, sapwood is usually paler, orange brown, sometimes grey-brown. Totara has pinkish brown heartwood, cream to greyish brown sapwood. Red Beech is similar to Totara in both sapwood and heartwood. Weight or density will often help to separate species which seem similar in colour. Red Beech is usually heavier and harder than Totara which is heavier than kaikawaka although all three species are similar in colour. Texture refers to the frequency and size of pores and resin canals which effect how easy it is to get a good smooth surface finish. Softwoods tend to be relatively fine textured. Hardwoods vary from fine textured species such as Poplar and Red Beech to very coarse textured species such as Kwila and Jarrah.

Growth rings are formed each year as the growth rate of a tree changes seasonally. That means that softwoods and hardwoods from temperate regions are more likely to have prominent growth rings than those from tropical regions. Native timber species generally have growth rings that are only one or two millimetres wide whereas introduced species often have much wider growth rings. Kauri and Macrocarpa are a similar colour but Macrocarpa will have wider growth rings. Some hardwoods have prominent pores which occur more frequently during spring growth e.g., Elm, Ash and Robinia and this feature (ring porous) produces very

prominent growth rings.

Many hardwoods have very prominent medullary rays, particularly those from the Oak and the Protea families. Banksia and Rewarewa are members of the Proteaceae. Smell, particularly when a piece of wood is being cut will help to identify some woods. Macrocarpa has a distinctive cypress smell, unlike Kauri. The heartwood of Rimu produces an instant dust whereas other members of the podocarp family and Rimu sapwood do not. Knots or other defects are useful for segregating similar species. Some eucalypts produce red gum veins (Kino) whereas other eucalypt species do not. Radiata Pine has numerous irregular branch whorls but Corsican Pine has regular even branch whorls.

4. What are the microscopic features?

Microscopy and sometime hand lenses can be used to identify woods. This is often complex and can be expensive ($150 or more per sample). Some related species cannot be separated microscopically kg., Ash-type Eucalyptus species. Radiata Pine is different to Corsican Pine but not to Ponderosa Pine microscopically.

Experience is the best teacher. The more pieces of wood that you look at and identify, the easier identification becomes.