

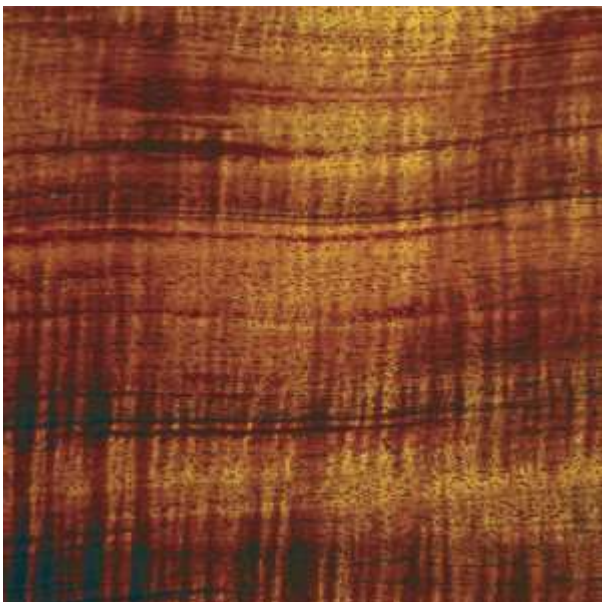
# Getting the Best from Blackwood

Blackwood or *Acacia melanoxylon* is one of Australia's most popular and beautiful hardwoods. Like Huon pine and jarrah, it's one of the few native timbers that the average Australian may recognise. It has been used for furniture since the earliest days of European settlement in the southern states and remains one of the most significant native timbers within the furniture industry. Many woodworkers will have encountered blackwood in the workshop, and many of you will have come away from the experience with mixed emotions.

## Colour matching

Blackwood is a very attractive timber that has a wide range of natural colour. From light golden tans through red and even purple tones, on to dark warm chocolate tones, there is no truly 'typical' look. It often embodies some figure and because of its high silica content often gets a three dimensional quality and shimmer. The grain is prominent and can be used to good effect to emphasise shapes. It takes a fine finish and ages gracefully.

Because the colour of blackwood can vary so widely from tree to tree (and even within boards from the same log) it is a difficult timber to colour match. The maker must look for colour, tone and grain compatibility. Even the most experienced maker can be driven quietly mad trying to select matching boards for a dining table. To make matters worse, the sapwood is distinctive and must be avoided wherever possible.



## Avoiding marks

Compared to eucalypts such as jarrah, blackwood is relatively soft and easy to bruise. Fortunately it is also easy to steam marks out again! Extra care must be taken when applying clamps and assembling

parts, as knocks or pressure marks will show. When a client with young kids comes to me wanting a dining table, I make sure to warn them that blackwood will show more youthful indiscretions than some of our other timbers.

## Gluing

Blackwood glues well with all the normal timber glues. Beware of using cross-linking PVAs as the acid catalyst can stain the timber green. This is not a problem if you have enough spare dimension to sand or plane away the stain, but can be an issue on work with small tolerances. The long hollow fibres can also 'bleed' glue out of the endgrain, which can sometimes be an issue. This is particularly noticeable with polyurethane glues, as the froth will travel a remarkably long distance along the hollow fibres. With the correct glue and the right amount of clamping pressure, you should be able to achieve very neat glue lines.



*The chair back above was glued up with Titebond polyurethane glue. Notice how the glue (which reacts to moisture and froths up) has travelled up the long hollow fibres of the blackwood and bled out the endgrain. The way to handle this is to pre-oil the components. After the glue has set, the froth that has travelled up the fibres can be scraped off with a sharp chisel and the area touched up with a little 400 grit paper, leaving no glue stain.*

## Planing and paring

Blackwood works well with sharp hand tools, as long as you pay particular attention to grain direction. Plane against the grain and you will live to regret it; the fibres will catch and tear out, causing you much grief. The high silica content of blackwood dulls blades surprisingly fast, so expect frequent trips to the waterstones (or oilstones, if you still live in the dark ages). I recommend the HNT Gordon range of planes with the high speed steel blade, as blackwood likes a plane with a high angle and a narrow throat. That said, I also achieve pretty good results with my trusty old Stanley fitted with a Ron Hock A2 blade. When paring joinery with a chisel, your tools must be super sharp. The fibres will crush rather than pare if you haven't done your job at the sharpening station properly.

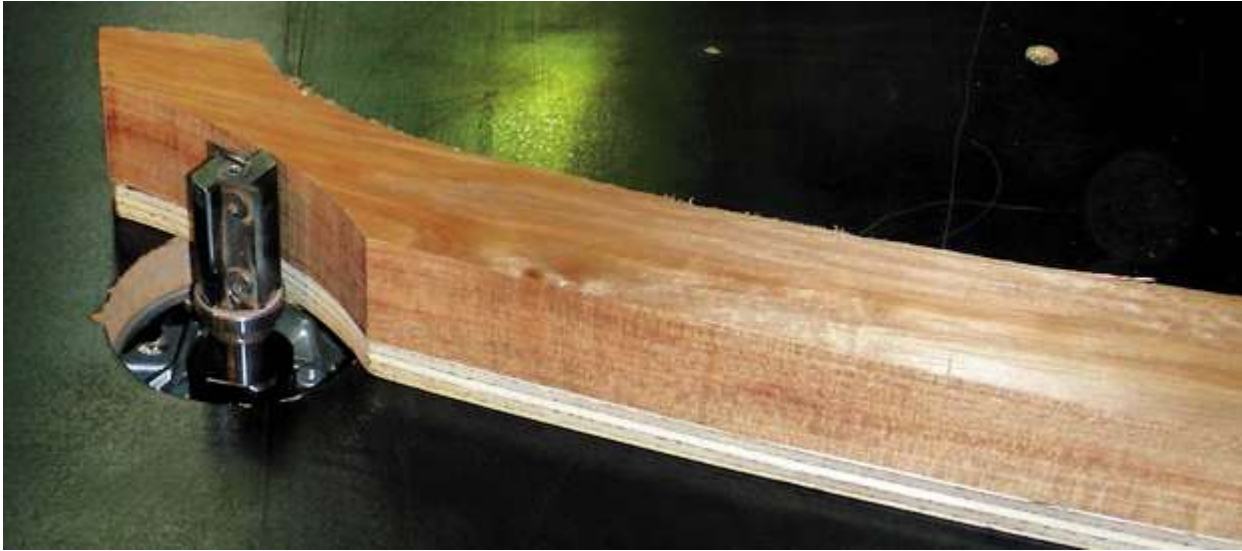
## **Beware of burning...**

Blackwood just loves to burn when a high speed power tool is used on it. Router cutters in particular will burn blackwood at the drop of a hat. All that silica heats up and scorches the fibres, giving you a big sanding problem. The answer is to keep your cutters as sharp as possible, adjust the rpm of the machine (if possible) and control your feed rate. As a general rule, woodworkers have dull router cutters that they run too fast and pass over the surface too slowly. The tip speed of a large diameter cutter running at 18,000rpm is very high. If you then slow down your feed rate, those tips are rubbing against the same fibres a heck of a lot. If the cutter is struggling at a medium feed rate, you are either taking too big a cut or your cutter is too dull, or both (usually both). The same applies for tablesaws, spindle moulders, drills and even bandsaws.

The second best way to burn blackwood is with an electric sander. Dull abrasive on a belt sander or small diameter disc sander is a guaranteed fire-starter, especially if sanding endgrain. When in doubt, sand by hand. I rely on air-driven random orbital sanders, but not everyone has the air for it (they are very hungry). We also use a finisher with a 3.7m belt that has a much lower speed than a belt sander. We keep the grit fresh and apply the stock with a gentle touch, but blackwood will still sometimes scorch a little on the fine grits such as 240.



*Above: For the purposes of demonstration, I deliberately slowed the feed rate of the work on the endgrain to induce a burn. This will require considerable sanding to remove. I then purposely went around the corner and 'uphill' (against the grain) with the cut, causing tearout.*



*Above: Identify your 'down hill' (with the grain) runs with the bearing at the bottom. The router is turned off for clarity and you should note the direction of rotation from the blade shape on the cutter.*

## **...and tear-out**

In addition to burning, blackwood is very prone to dramatic tear out when using the router or spindle moulder. The long fibres can catch and rip a potentially disastrous lump of wood out of your precious project. You must always rout 'downhill' to avoid the tear-out. I've had my spindle moulder modified (by a professional, I hasten to add) so that we can put it into reverse. When spinning out complex shapes on a following jig, we simply flip the cutter and the direction of rotation as required to always run downhill the whole way. The same can be achieved by having two router tables set up, one with a top following bearing and the other with a bottom following bearing. You simply attach the template to the workpiece with screws or industrial double-sided tape and flip the workpiece between the two routers as required.



*Above: This blackwood stool rail was accidentally passed the wrong way over a spindle moulder cutter some time ago (not the cutter shown). I keep it to show my employees what happens when you go the wrong way on blackwood. They only ever do it once.*

## **Strength**

Blackwood is an excellent chairmaker's timber because of its relatively light weight, good gluing properties and long fibres. Small sections can be a little frail if subjected to sharp blows (such as a thin stretcher that receives a good kick) but assuming the basic design of the chair is sound, blackwood is fine. I cannot think of a furniture application for which blackwood is inherently unsuited.

## **Using the router**

*Care must be taken when routing out a shape in blackwood with a one-to-one following bit and a template.*



Accurate bandsawing to the line is the first step to a good result. This ensures that you are removing the barest minimum amount of stock possible with the router. Routers were never designed to remove a lot of material in one pass.

I highly recommend the use of one-to-one router bits with disposable knives. The initial purchase price is slightly higher, but you can change the knives on a whim and keep the cutter super sharp. The other advantage is that the cutters remain exactly one-to-one with the bearing. Conventional cutters lose a little of their diameter every time they are sharpened. After a few trips to the sharpener, they are noticeably smaller than the bearing, which can cause problems with precision work.



*Above: There is a very slight uphill cut along the side here, but I chose to proceed so that I could round the corner and travel across half the curve on the endgrain in one motion. I stopped at top dead centre of the curve on the endgrain, flipped the template and cutter and came from the other direction to complete the endgrain curve. This ensured that I was cutting with the grain at all times. Had I continued uphill against the grain on the endgrain, it would have ended in tears.*

## **Don't be put off...**

Let's face it, blackwood is a difficult timber to work. If you don't play by its rules, you will be gluing lumps of breakout back on, making a hash of the colour match, laboriously sanding out burns and trying to hide the crushed shoulders of your tenons. Get it right, and the piece will glow. Blackwood will keep you on your toes and make an honest woodworker out of you.

This article was written by Evan Dunstone in 2007 for Australian Wood Review Magazine. It first appeared in AWR#54.