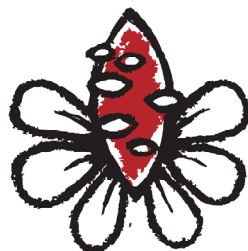


Australian Native Flora Board

Instructions, materials and equipment



Red Banksia
Art from Nature

Equipment



Figure 1. The Kit

The kit

The kit contains the following items:

1. Main Body of the board
2. 225g of Epoxy Resin
3. 75g of Epoxy Hardener
4. Native flora (Pods, branches and gum nuts)
5. Pearl powder
6. Blue dye

The only absolute must have piece of equipment is a set of digital scales. It must be accurate to within a few grams. I bought this one from Safeway for around \$20 (#13 in Figure 2). You can also use your kitchen scales. I also recommend using Methylated Spirits for cleaning and thinning the Epoxy. The rest of this equipment can be substituted and you don't have to use exactly what is outlined here.



Figure 2. Useful equipment

Equipment you may find useful

Here is a list of optional equipment that can make your life easier and less messy. All of these can be substituted and you don't have to exactly what is outlined here.

1. Blowtorch. Great for getting rid of air bubbles. You can use a hair dryer or a heat gun instead. I bought this unit from Jaycar electronics.
2. lastic shot glasses. I use these to prop up the board from the working surface. You can use anything as long as they are all exactly the same height (about 50mm) (supermarket)
3. A plastic measuring cup. You will not need it to measure anything because the epoxy is mixed by weight not volume. The cup is used for mixing the epoxy and so you might want to dispose of the cup afterwards.
4. A flat ruler to make sure that the pods are not sticking out from the river
5. 5-minute epoxy. I recommend this because it is fast and once cured it doesn't react with the epoxy resin. This will be used for gluing handles and sticking pods to the river bed
6. Plastic drop sheet. (hardware shop)
7. Disposable brush. (supermarket)
8. Methylated Spirits (hardware shop)
9. Sanding block. You can also use a rectangular block of wood. (Your local hardware shop will have these).

10. Sandpaper. Used for sanding the gum nuts and pods to make sure that they fit in the river. I use 80 Grit and 240 Grit. (hardware shop)
11. Clean cloth
12. A spirit level for making sure the surfaces are perfectly flat
13. An accurate set of digital Scales
14. Disposable gloves (hardware shop)
15. Stirring stick – also disposable.

Let's start

Please follow these steps carefully. Do not skip any steps. The creative part of this kit is when you layout the river. You can do whatever you wish within the river but do not alter the construction and the finishing steps. Remove the body and handles. Please note that I have indicated in Figure 3 where the handle, the body and the river are. The front face of the body is referred to as the “presentation face”. I will be referring to these terms later in this document.

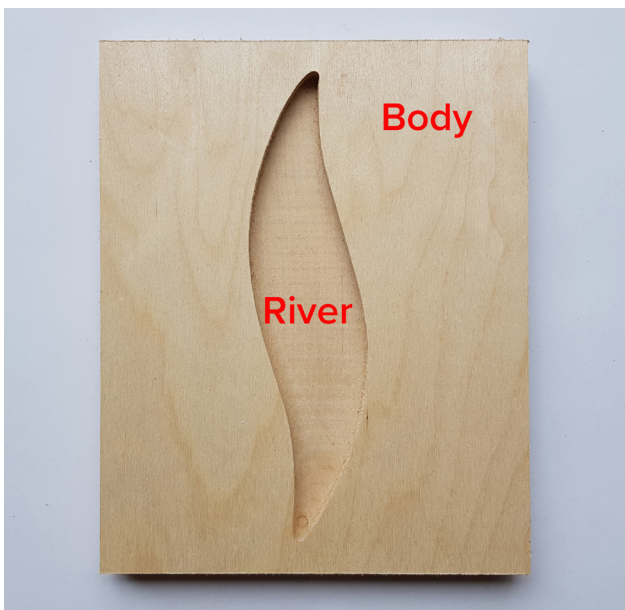


Figure 3. The Handles, the body & the river

Sanding the body

Use a small piece of 240 grit sand paper and the sanding block to clean up the sides of the body and the river.

The edges and the inside walls of the river should be smooth to touch after you have completed this step.

WARNING! DO NOT sand the presentation face of the board. The veneer is 1mm thick and you can easily sand through it! Use a sanding block and make sure that you keep the block flat and steady. Hand sand the inside walls of the river



Figure 4. Sanding the edges of the main body

Painting the river bed

The river can be painted in any colour of your choosing. This is part of the creative process. I generally paint the rivers black for the native kits. It's all up to you. White rivers go well with the coloured resins. I use house paint, but you can use hobby paint or any other timber paint you like. Make sure that you give the paint enough time to dry before handling.

WARNING! Take extreme care not to get any of the paint on the presentation face of the body. Do not try to paint the river walls all the way up to the top of the board. They will not be noticeable in the final finish. Only paint the river bed. If you get any paint on top of the board immediately mop it up with a clean cloth and use a damp cloth (water) to clean it up. If you don't have steady hands, then cover the presentation face with paper and low tack sticky tape.

Paint stains on the presentation face of the board are very difficult to get rid of. If you have managed to get paint on the board and it has left a stain, then the last option is to very gently sand the

affected area with 240 grit sand paper and a sanding block. The veneer is only 1mm thick and if you keep sanding, eventually, you will sand through the top veneer and the board will be ruined.

TAKE CARE AND DON'T BE SLOPPY!



Figure 5. Painting the river bed

Sanding the pods & nuts

The depth of the river is 12mm. Any nuts or pods that you put in the river must be 11mm or less. I have cut the Banksia pod to roughly the right height (you may have to adjust). The native branches that I have provided are also less than 11mm. The gum nuts and she-oak nuts must be sanded down to the right height.

You should have more than enough nuts & pods to fill a river this size. You won't need all of them. Select the ones that you like most. To speed the sanding process, you may wish to cut excess wood from the bottom of the nuts with a set of garden shears. This is optional and you will get the same result with sanding, it just takes longer.

Spread a sheet of 80 grit sandpaper on a flat surface. You need to reduce the height of the nuts to less than 11mm. You can do this by sanding from the top face of the nut or from the stem. I recommend that most of the excess height should be either cut off or sanded from the stem end. Sand each gum nut on the sand paper with smooth long strokes until you have reached the 11mm mark. Refer to Figure 6.



Figure 6. Sanding the pods

After you have sanded the pods to the right height, replace the rough sand paper with 240 grit and finely sand the presentation face of each pod. This is the face that will be seen through the epoxy. I suggest that you do this with every pod & branch you wish to replace in the river.

The bottom of the pods should be flat to allow them to sit in the river bed.

Take your time with this step. It is time consuming but is a crucial step. You can use a set of garden shears to cut most of the stem from the pods and greatly speed up the sanding. You can also use a belt sander tipped on its side to sand the pods.

Laying out the river

This is the artistic and creative part of this kit. Before you start laying out the river, sand the whole presentation face (body and the handles) with 240 grit sandpaper. Do this very gently and be careful not to sand through the top veneer. This step will provide a good "key" for the epoxy to adhere to in later stages. Place the pods and branches in a design that you find pleasing. There are no hard and fast rules here. You can use my design as a template if you wish. You can also add other native elements that are indigenous to your area. See the foraging & preserving guide included in the kit. Move the elements around, add or take away pods until you are happy.

Figures 7,8 & 9 show three designs for the same river.



Figure 7. Design A



Figure 8. Design B



Figure 9. Design C

I have not included any fragile items in the kit like dried flowers or banksia flowers as used in figure 13. These items don't ship well and will be broken and shattered in transport. See the foraging guide if you wish to augment your design with other elements.

Once you have placed all of your design elements in the river, run a flat ruler over the top surface of the river and make sure that nothing is snagged by the ruler. If any of your elements are too high and get snagged, take them out and sand them again until the ruler clears all the elements in the river.

Now you can individually glue each of the elements in the river with 5-minute epoxy. You must do this otherwise they will float to the surface when you pour epoxy into the river.

You can use a pair of tweezers to move smaller items such as tiny gum nuts or flowers.

Let the glue cure for 10 minutes.

Filling the river with epoxy

The epoxy resin consists of two parts, the hardener (small bottle) and the resin (large bottles). This particular type of epoxy resin is mixed by weight in a 1:3 ratio. Here is an example. If 100g of epoxy resin is needed you will wear your gloves, place the empty cup on the digital scale and zero the scales. Pour 25g of the hardener (small bottle) in the cup, add 3x25g of resin over the top of the hardener. This will make up 100g. Mix thoroughly with a stirring stick. An easy way of calculating how much resin to add to make up the total weight is to multiply the weight of the hardener by 4. If you have poured 30g of epoxy in the cup, you will need to add enough resin until the total weight reaches 120g (30gx4). This is handy if you have added slightly too much hardener to the cup.

At this stage you can mix the epoxy resin to pour into the river. Add 25g of hardener to the cup, add resin until the scales reads 100g exactly. Now add 10g of Methylated Spirits to the cup so the total weight of the contents should be 110g. Stir this mixture gently until it turns clear. Methylated spirits

will thin the epoxy down and allow it to quickly flow into all the cavities in the timber as well as into the pods and nuts in the river.

OPTIONAL. At this stage, you can choose to add the blue dye or the pearl powder included in the kit to the epoxy mixture. You will only need a few drops of the dye to colour the epoxy. Note that the intensity of the dye in the plastic container can be misleading. This is because the river depth is 12mm deep, but depending on the mixing container you have chosen the liquid depth will likely be more than 12mm and look more intense. This can be tricky but the best way to proceed is to pour a small amount of epoxy in a to very small plastic container (plastic shot glasses are great for this) to the depth of around 10mm and check the colour intensity. I think that 5 to 10 drops of the dye will be enough but you can vary this amount. Pearl powder can also be added at this stage. Only add a tiny amount at a time and remember that the pearl powder in large concentrations will make the epoxy opaque. Stir the mixture thoroughly. Designs B & C in Figures 8 & 9 both use the blue dye and pearl in varying concentrations. Check the concentrations as in a small shot glass before you pour in to the river.

Gently pour the epoxy into the river only. DO NOT pour the epoxy over the main body. Do this slowly and try to get a thin stream of epoxy to fill each of the pods and nuts. Pay special attention to the Banksia pod. The native pods have large cavities inside them and it is important that you give the epoxy enough time to flow into all the cavities. Fill the river to about $\frac{3}{4}$ full. If you drop any epoxy on the presentation face, wipe off immediately with a clean cloth and Methylated Spirits. Allow 10 minutes for the epoxy to settle. You will notice that some bubbles will have appeared on the surface, do not use the torch to remove these bubbles at this stage.

After 10 minutes, once again start to gently pour the epoxy into the river. You need to almost fill the river but not so that it flows over the banks. I think 90% full is enough. The river should look something like the one in Figure 10.



Figure 10 The river almost full with epoxy.

The empty river bank in this kit will be completely filled with around 150g of the epoxy mixture. Depending on your design and how many elements you have used in your design, the volume will be reduced to about 100g. If your design is very densely packed it will need less epoxy, if it is very sparse, it will need more. 100g is a good start and you should have a little epoxy left over.

Dispose of the epoxy mixture and clean out the cup and wipe with Methylated spirits. The epoxy mixture can now cure for around 6 hours. After 3-4 hours you will notice that the mixture is very tacky and viscous like honey. You can use a blow torch to remove any air bubbles (a heat gun, or hair dryer will work too but ensure the air flow is not too strong so that it blows the epoxy out of the river). Make sure you don't burn the presentation face. Hold the torch (dryer) at least 100mm away from the surface. Now let the epoxy cure for at another hour.

At this stage, the epoxy should feel almost solid, take a match stick and press it into the epoxy, when the epoxy can be easily indented and does not stick to the match stick, you are ready for the next stage. The curing process is heat related. If you attempt the kit in the heat of the summer, it might cure in 2-3 hours. In winter it could take 8-10 hours. I am assuming a 25C temperature for a cure.

WARNING! Do not leave the curing epoxy in the sun or subject it to rapid temperature fluctuations. These can cause the epoxy to shrink and not cure correctly. Try and keep the temperature constant.

It is best to attempt the river fill stage in the morning so by the middle of the day you can pour the final coat. Remember that you need to keep an eye on the kit as the epoxy is curing. Only remove the air bubbles when the epoxy is almost the consistency of syrup. Most of the bubbles appear in the first 2-3 hours. Be vigilant but do not over torch the surface.

Top coat (flooding coat)

After you have determined that the epoxy has sufficiently cured, you can now prepare a flooding coat to completely cover the river and the presentation face of the board. This includes the handles too. Make sure the room is dust free and that no flying insects are buzzing around the room. They love landing on wet epoxy!



Figure 11. Prep for the flood coat

Spread a 500mmx500mm square of plastic drop sheet on a flat surface. Prop the board on the 4 plastic pedestals (or you can use any other items as pedestals so long as they are about 50mm tall and all the same height). The props should be placed 20mm from the edges of the board. Make sure the top of the board is completely level. I have used a spirit level for this. The board should now be around 50mm above the drop sheet and you should be able to reach under the board with a brush all the way around the perimeter of the board.



Figure 12. Propping and levelling the board

Mix 100g of the epoxy solution as before. Add 10g of Methylated spirits to take the total weight to 110g. Mix thoroughly until completely clear and free of streaks. Use a disposable brush and paint a thin coat of the epoxy mixture over the whole top of the board and the handles. Make sure you don't miss any spots. Now gently pour the remainder of the epoxy over the river and fill it to the top and then flood the rest of the board. Use the brush to gently cover the whole board. Do not try and push the epoxy over the edges. Let it flow and spread.

The theory here is that the epoxy will flow over the board, drip over the sides and on to the drop sheet. This will form a uniform high gloss finish once cured.

After a few minutes the epoxy should cover the entire board and drip over the edge. Use the brush and gently brush the drip marks onto the sides of the board. You will need to repeat this procedure a few times 30 minutes apart. You can also reach under the board with the brush to clean up the drips forming under the board.



Figure 13 sides and under the board brushed

Remove any foreign matter that settles on the surface with a pair of tweezers. Leave the board to cure for at least 24 hours. The result should be a glass like surface that is highly reflective.

You should have enough resin and hardener left over in the bottles to complete a second top coat. This is optional but it can achieve an even better finish. Allow the first coat to fully cure (at least 48 hours). Gently sand it with the 240grit sandpaper using the sanding block. This time mix 60g of epoxy (15g of hardener and 45g of resin) add 6g of Methylated Spirits and repeat the steps that you carried out to apply the first flooding coat.

Let this coat dry for least 24 hours. You may choose to sand the sides and the bottom of the piece with firstly 80 grit (to remove any drips) and then with 240 grit sandpaper. Once the sides and the bottom are smooth to touch then you can rub a little wood oil of your choice into the sanded areas (DO NOT apply oil to the presentation face) and let it dry. Note that the veneer at the bottom of the board is also 1mm thick - please take care not to sand through the top layer.

Now step back and admire your handiwork!

Other ideas

I have included the final pictures of the 3 pieces which I have created during the course of writing this document. I hope these inspire you to try different designs for the river and remember that I

have only provided gum nuts and pods with these kits, you can use other fillings of your choice.



Figure 14. Nuts & pods with clear Epoxy



Figure 15. Nuts & pods with intense blue dye & pearl



Figure 16. Shells with little blue dye and pearl