## Building a Thunderbird Feature Ring Jim Hokanson

Let's build a Thunderbird feature ring. Here's two examples of Thunderbird bowls:


In this article, I will describe how to construct the Thunderbird elements, and the feature ring shown in the picture. It will be up to you to design the remainder of the bowl.

Instead of cutting segments for the entire bowl, I usually build the feature ring first. This is the most complicated element of the bowl, and I want to know the exact dimensions of the completed feature ring. If it turned out to be a little bigger or smaller than planned, it is easy to adjust the dimensions of the other rings to match.

The first step in making a Thunderbird element is to decide on the type of woods to use. I recommend choosing wood elements that have good contrast. For example, walnut and maple, or yellowheart and purpleheart.

Now for the steps, using yellowheart ( YH ) and purpleheart ( PH ) as an example:

1. Cut 2 strips of $\mathrm{YH} 2-3 / 16^{\prime \prime}$ wide, and $48^{\prime \prime}$ long using stock that is $7 / 8^{\prime \prime}$ thick.
2. Cust a strip of PH $2-3 / 16^{\prime \prime}$ wide and $36^{\prime \prime}$ long again using $7 / 8^{\prime \prime}$ thick stock.
3. It is important that the PH and YH be the same thickness. If necessary, plane or sand the stock to ensure they are the same thickness.
4. Make PH triangles, by cutting the PH stock at 22.5 degrees, flipping the stock between cuts. The spacing between cuts is about 1.8." You will want to make some practice triangles to fine tune the spacing.

5. Make the YH background pieces by cutting the long stock into nominally 4 " long pieces. Then cut these in half at 22.5 degrees, see above.
6. Now assemble the triangle and background pieces in your gluing tray.


I found the best approach was to clamp one background piece, insert the triangle with the point towards the side of the gluing tray. Then clamp the second background piece so that the triangle doesn't quite hit the side of the tray. Then use a clamp to force the triangle piece to butt up against the gluing tray. This approach resulted in tight joints between the three pieces.
7. After cleaning up excess glue, you will end up with assemblies like this:

8. The next step is to cut the assemblies into thin strips, between 0.125 and $0.15^{\prime \prime}$ thick. You can use your table saw or an accu-slice jig. You should be able to get 10 or 11 strips out of the assembly with the accu-slice; not quite as many with a thin kerf table saw blade. Make the cuts starting with the wide edge of the triangle. I found it helpful to number the pieces as they are cut.

9. Now separate the strips in odd and even strips. To form the Thunderbird, flip the top and bottom strips, these will be the head and tail feathers. The odd set will form a large Thunderbird. The even set will form a slightly smaller bird. I found that I could discard strip \#2, because it made the top wing segment disproportionally wide.
10. To better frame the Thunderbirds, cut some pieces of YH that are as long as the triangle assemblies. Cut these into strips that are about $0.2^{\prime \prime}$ wide. Place one of these strips above and below the Thunderbirds.

11. Now glue the strips together. Clamp tightly in your gluing tray with several clamps.

12. Sand the thunderbirds to clean up the excess glue. Use a drum sander to ensure that they are dimensionally the same.
13. Finally decide how many thunderbirds will be in your feature ring. Compute the SEL and cut the Thunderbirds into wedgies.

As an example, here are the measurements I used in two of my thunderbird bowls.

| SB13 | SB27 |
| :--- | :--- |
| 12 TBird Segments | 8 TBird Segments |
| SEL (Tbird) 2.1" | SEL (TBird) 2.65" |
| Vertical Spacers 3 @ 1/8" | Spacer $1^{\prime \prime}\left(.1^{\prime \prime}+.8^{\prime \prime}(\right.$ dot $\left.)+.1^{\prime \prime}\right)$ |
| Diameter 9.5" | Diameter $9.3^{\prime \prime}$ |
|  | Dot is $1 / 2^{\prime \prime}$ walnut dowel |

