

Exotic inlays

CREATE EYE-CATCHING EMBELLISHMENTS WITH STONE, SHELL, AND HIGH-END PLASTICS

BY CRAIG THIBODEAU



I've used wood for marquetry and inlay for many years, but I began using more exotic materials after seeing the beautiful guitar inlays done by fellow Californian Larry Robinson. While his complex inlay work is the focal point of his guitars, I use it more sparingly, as highlights in my marquetry, accents on veneered pieces, and small inlays in solid wood. The good news is that the techniques are basically the same no matter what the background is.

The only new tools you'll need are a jeweler's saw and files, a scalpel, and a few tiny router bits. The best glue for

the job is cyanoacrylate (CA), which sticks to everything and hardens instantly with a quick shot of activator spray. I use it both to assemble multiple parts into a single inlay and then to glue the inlay in place. For very large inlays, I sometimes give myself a bit more working time by using 24-hour epoxy.

The inlays themselves can be as simple as precut mother-of-pearl dots, which only require a shallow hole drilled with a Forstner bit, or as complex as the multi-part dragonfly on this page. But none are particularly difficult, and all make a strong impact.

A new world of brilliant materials

I was surprised to discover a wide array of inlay materials that contrast beautifully with wood yet can be cut with simple tools. Mother-of-pearl and abalone shell are both readily available in thin pieces, while reconstituted stone and Acrylester (a form of colored plastic used for pen turning) have a wider variety of color and figure. By the way, I often combine these materials with thick wood veneers. The dragonfly has a body made of wenge to tie it visually to the cabinet's wenge frame.

All of these materials are sold in small quantities either by weight or by size and most always in specific thicknesses, which allows you to assemble multiple pieces and cut the inlay recess to a consistent depth. Natural materials usually



Bring furniture to life. A dragonfly, with a wenge body and abalone wings, hovers above the floral marquetry on Thibodeau's Lily Cabinet.

New world of materials

Rescuepearl.com is Thibodeau's favorite source for all of the following materials, except for plastic pen-turning blanks, which are available at Rockler.com and Woodcraft.com.

MOTHER-OF-PEARL

0.040 in.–0.125 in. thick
\$15–\$50/oz.



ABALONE

0.060 in. thick
\$50/oz.



RECONSTITUTED STONE

0.065 in. thick
\$10–\$20/oz.



Start with a drawing



Not an artist? Find a book. Use tracing paper to copy a drawing you like, and then modify it (above). When you are happy with it, make photocopies. Use spray adhesive to stick a copy on each piece of inlay material (right). The dragonfly has multiple parts, combining wood veneer (wenge) and abalone, and each is cut separately.



only come in small pieces, but Abalam, a lamination of shell material, is available in 5½ in. by 9½ in. sheets for larger inlays. It also comes in a wider variety of colors and patterns.

Start with a good drawing

Don't rush the design stage. There is a fine line between an elegant detail and one that seems somehow off-kilter. Line drawings of butterflies, dragonflies, and other insect and animal shapes can be found in books and on Web sites. I recommend that you change some of the details to make it your own.

The inlay will be much easier to cut if the drawing is made with a very fine-tipped pen. Another way to achieve a fine line is to draw the image larger than the final inlay and reduce it on

ABALAM LAMINATED SHELL

0.030 in.–0.250 in. thick by
5½ in. by 9½ in.
\$100–\$500/sheet

ACRYLESTER

¾ in. sq. by 5 in. long
\$5–\$10/each



Saw out the parts



Simple sawing setup.

Thibodeau uses a bird's-mouth jig (V-plate) to support the fragile material, and cuts it with a jeweler's saw. Most exotic materials are toxic as dust, so he attaches a vacuum hose to the jig (left). Use jeweler's files and a sanding block to smooth the saw cuts and refine the shapes (above).



Assemble the parts before inlaying them

Super glue makes it easy. Tape down some plastic first, and get the pieces just where you want them before dripping CA glue into the joints (above). Spray on activator to set the glue instantly. Do the same on the other side of the inlay. Rub the back side of inlay on a sanding block to flatten any beads of glue (below).



Online Extra

To learn Thibodeau's simple method for inlaying mother-of-pearl dots, watch an audio slide show at FineWoodworking.com/extras.

Scribe carefully

Scalpel, please. After wiping on a seal coat of shellac to keep the grain free of chalk and sanding dust, use a couple of dots of CA glue to attach the inlay temporarily. Thibodeau uses a scalpel for scribing, making the first pass a light one to be sure it hugs the inlay tightly.



The chalk trick. Pop off the inlay and rub chalk into the lines to make them more visible. Wipe off the excess dust.

Rout, fit, and glue



Set the depth. Lay a piece of the inlay material across the router base, and set the bit's depth just shy of the inlay's thickness.



Rout right to the line. Using a head-mounted magnifier and plenty of light, Thibodeau works right up to the line with a $\frac{1}{16}$ -in. bit, stopping just as the chalk disappears.



Fine-tune the fit. The scalpel and a tiny gouge come in handy for cleaning up the recess and adjusting the fit. If you have to force the inlay when gluing it in, you risk breaking it.



Glue and clamp. Use a small stick to spread a thin layer of CA glue in the cavity, including the edges, and use a wood block with a layer of plastic under it to push the inlay home. Leave it clamped overnight.

a copier. Make several copies of the final drawing for future use and in case you need to recut a piece.

Tips for cutting inlays

I cut all of the materials with an \$18 jeweler's saw and a bird's-mouth, which is a simple shopmade sawing platform that supports brittle materials. I also use a 1.5x–2.5x magnifier headset with attached lights to see precisely what I am doing.

Reconstituted stone, like all stone, tends to be even more brittle than the other materials, so I apply a layer of blue painter's tape to the top of these inlay pieces before cutting them. That way if they break, the tape keeps the pieces in order until you can repair them with CA glue.

Acrylester comes in a square bar (made for pen turning), so it first has to be cut into slices on the bandsaw or by hand with a hacksaw. Try to maintain a uniform thickness, and sand the slice flat afterward using 100-grit paper and a hard block.

Attach the drawing to the inlay blank with spray glue and press it firmly in place. Many of the materials have varying shimmer based on how they are placed. Pay attention to that

How to level it safely

Try a float. With its smooth, milled teeth, this tool can file a hard inlay flush without touching the soft surrounding wood. Thibodeau wraps the tip with tape and flexes the back of the tool upward to focus the cutting action on the inlay (above). A sanding block finishes the job (below). Again, Thibodeau vacuums away the unhealthy dust.



Engrave fine details. This insect looks better with tiny legs and antennae. Thibodeau uses a white pen for layout on dark woods, and an engraver's chisel (onglette graver) to incise a very fine line, which darkens when finish is applied.

when you orient the drawing. Use a 000 blade in the saw. Point the teeth toward the handle so the saw will cut on the pull, and tighten the blade until it makes a ping sound when plucked.

Place the piece to be cut onto the V-block so that the blade is near the back of the V, and begin cutting. Try to split the drawn line while cutting, and proceed slowly or you'll break the blade. Try to keep the sawblade vertical and in roughly the same position as you cut, moving the workpiece not the saw.

All the materials will probably require some minor filing after cutting, to clean saw marks, blend curves, or just smooth the edges. Sanding blocks and small jeweler's files work well. Just be sure to file the edges 90° to the face.

Careful scribing yields a precise recess

I use a couple of dots of CA glue to hold the piece in place, and trace around the inlay with a fine-tip scalpel (much sharper than an X-Acto knife). I use a small router fitted with a 1/16-in.-dia. spiral-cut bit to remove most of the waste. If you have one, switch to a 1/32-in. bit to get into corners. Begin routing in the center of the inlay and work slowly toward the edges. Vacuum the waste as you go to keep the inlay lines visible. Carefully rout right to the line but not past it. Take your time. There is no fix for routing past the line.

Test-fit the inlay, and trim away wood that interferes with the fit. Don't press the inlay into place yet or it might not come out for gluing; just adjust the fit until the bottom edge of the inlay enters easily. Apply a thin but even layer of glue. Then press the inlay as far as you can into the cavity by hand, and wipe away the excess glue. (If you are using CA glue, don't use the activator for this step.) Now use a clamp and a wood block to

press the inlay all the way into the cavity, making sure it seats fully. Clamp firmly but not so hard as to crack the materials. Even though CA glue is supposed to cure faster than epoxy, both should be left overnight to dry.

You can level the inlay by sanding only, wrapping P100-grit paper around a hard block to keep it flat, but I like to start with a special file with curved, milled teeth, called a float or an auto-body file. After the inlay feels level with the surrounding wood, I switch to the sanding block, using P220- and P320-grit paper. The inlay materials are usually harder than the wood, so be careful to sand only the inlay and not the background, so you don't create a depression.

When the inlay is flush and finish-sanded, check the glueline for holes or bubbles. Mix up some epoxy and use a toothpick or other small pointed stick to fill any tiny gaps. Resand it to the final grit as before.

Once you know the basic materials and techniques for inlaying exotic materials, there is a new world of images and effects at your disposal. □

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Tools of the trade

stewmac.com

Magnifying headset, jeweler's sawblades and files, CA glue, inlay router bits, collet adapter, onglette graver

mcmaster.com

Float file ("Smooth-Finish Milled-Tooth Hand File")

tedpella.com

Scalpel and blades (No. 11 dissection scalpel for No. 3 handle)

