Executing Feather Inlays

by Russ Gooding
photos by Erica P. Gooding

Feather inlays are my favorite artistic addition to fine fishing rods. When I first started building rods I filled the area on the blank just ahead of the hook tender with various data: the owner's name, the rod length and line weight, etc. None of it was impressive. Half of the problem was my griffonage. Some days I can hardly read my own writing and most days anyone looking over my shoulder when I write will ask if I've developed my own mutant shorthand. Nope, just sloppy penmanship: griffonage. No matter how I took my time nor what methods I used, the data on the blank was always distracting. For a time I skipped the rod data altogether and left the area in front of the hook tender bare. This wasn't satisfying either. The rod looked naked.

Several years after I started building rods I was visiting friends in Livingston, Montana. They introduced me to a fellow fly fisherman, Michael Simon, who makes his living painting exquisite fish and Oriental rugs, not necessarily both at once. In 1996 it was Michael who created the pencil sketch of Carrie Steven's Golden Witch streamer as the logo for my rod company. During my week in Montana, Michael introduced me to a buddy of his, Michel Fontan, a fly fishing guide and renowned tier of traditional Atlantic Salmon flies. Michel showed me a rod that he had inlaid with a passel of feathers taken from his tying kit. The inlay was well executed and it impressed me as exactly the sort of art, organic and apropos, needed to cover my rod's nakedness - a papal fig leaf, if you will. Michel was very generous in explaining how he inlaid the feathers and I was soon itching to get home and try the procedure myself.

The Experiments
The first feather I inlaid was a Jungle Cock nail. I wrapped the hook tender then slid down the rod an inch or so and duplicated the wrap sans tender. Using Michel's
method I soaked the feather in color preserver and laid it on the bare blank between the boundary wraps. The feather dried and held its place. After varnishing though, I was disappointed to see an uneven gleam around the perimeter of the feather. The color preserver which leaked beyond the edge of the feather added unwanted, shiny halo to the matte finish of the blank. That's when the experimentation began in earnest.

Glues proved too messy. They gunked up the feathers and, unless I laid the feather perfectly into its designated location, marred the blank. Next I tried to inlay the feather after it had been moistened with distilled water. The feather dried and held its position, but only until I tried to apply the first coat of varnish. Then the feather shifted position and fell away from the blank. Trust me, centering a dampened feather on a rotating, half varnished blank before the two become tacky is well nigh impossible. I let the mess dry, then stripped that section of the blank clean to try again.

I found that if I used water to lay on the feather and allowed it to dry to the blank, I could very gently apply small drops of color preserver to the feather. If I was exceedingly careful and patient beyond my limits, I could apply just enough preserver to have the feather adhere to the blank without having any leak beyond the edges and mar the blank. That worked until I decided that two feathers might look nicer than one. It was difficult to use water alone to position several feathers on the blank and I quickly learned that it was impossible to prevent color preserver from bleeding onto the blank in the areas where the feathers overlapped. So I let the preserver bleed a bit and tried to clean it up with various solvents - alcohol and acetone, but failed. The solvents would lift the dried preserver, but at whatever point I stopped removing the preserver, usually at the feather's edge, there was a white line. The line was caused by slight bleeding of the solvent beyond the point where I stopped rubbing at the color preserver stains. The solvent always continued to work its magic just a little further and raise the edge of the film of color preserver.

My next try was to duplicate the color of the blank in thread and so create a matching background wrap centered between the two boundary wraps as described above. I then laid on the feathers with color preserver, allowed them to dry, and then preserved the entire inlay and wrap. Again, there was the problem of an outline around the perimeter of the inlay. This time the outline was of a subtle, but noticeable, shift in the shade of the background thread due to the separate applications of color preserver. This was maddening.
Finally, about six months after I started experimenting, I developed a method of inlaying feathers that leaves no trace of how they were applied to the background wraps, protects the feathers from fading, gets them smoothed out and free of air pockets, and seemingly magnifies the brilliant colors of natural feathers. These feather inlays have become the signature on my custom graphite rods. Time and time again they have prompted one response from many of the people who take the time to study them.

**Inlay Options**

Feather inlays are one of the few venues in which natural feathers from both wild and domestic birds are showcased *qua* art. There is a distinction here between a simple feather or two and the complex of feathers, expertly manipulated and supplemented by furs and silks, that we know as flies. The simple inlay, by its reliance on one of the more famous of fly tying feathers, may call to mind that parallel art of the rod builder, but it is not a particular fly we envision. Instead we hear the hunter who wished to unite his spring and fall passions. School colors and team colors are another popular request and one that often finds me resorting to dyed feathers, though it is possible to work up a combination of natural feathers and vibrant thread colors that suits the taste of a customer. This latter option, I feel, always looks nicer than inlaying a gaudily dyed feather. Finally, I've used simple inlays to highlight a different focal point. Specifically, I have found that anglers appreciate the effect of

![Image of a Jungle Cock nail with "ghosted" background wrap.](image)

Even expert fly tiers who are familiar with Jungle Cock nails and Golden Pheasant tippets ask me, "How on earth did you paint those feathers?" The natural feathers, glory be to evolution, look so stunning that people are more apt to believe me capable of painting enhanced, photo-realistic feathers, than they are to think, hey, this guy varnished some feathers onto the rod.

Two tiny Jungle Cock nails laid beneath their woven initials with the white quills meeting beneath the center of the weave and the yellow "eyes" curving upwards to cradle the weave.

Next are the complex inlays. Though there are obviously no firm lines, I tend to think of inlays with five or more feathers as complex. Unless you are careful in your planning, a complex inlay quickly becomes a jumbled hash of...
feathers that is decidedly unpleasant to look at. I follow one of three basic themes when creating a complex inlay and they help me to keep things in order. Each inlay becomes either a single fly replicated in feathers, a "symmetric fly", or a bird's eye view of a whimsical insect. Single flies, simulacra in feather of actual fly patterns, are usually a lopsided affair and they can look misplaced on the curvature of the blank. Expertly done, they can be attractive, especially on the larger diameter blanks. Feather-only replicas can look quite nice. Whimsical insects are just that, buggy looking critters with antennas, pincers, swollen abdomens, a six-pack of legs, and only a passing resemblance to anything that crawls outside of our nightmares. These are ideal for kids' rods or for anyone with a sense of humor.

Executing The Inlay
This section contains the heart of my article, my secret for the sharing. Though the technique is not

of heavy single- and double-handed salmon rods. Symmetric flies have perfect lateral symmetry and, while not a proper attempt at duplicating most flies, do look perfectly at home on the curved surface of the blank. A notable exception that bridges the gap between symmetric flies and bird's eye view of whimsical insects is simulacra of various nymph and crawfish patterns viewed from above. These flies have lateral symmetry and difficult, it did take quite some time for me to ferret out how to properly execute feather inlays. I hope that you will use this information to create a few inlays of your own.

First choose a thread type and color for your background wraps. I recommend using silk as it is far more resplendent than nylon and, like the feathers, calls to mind the hallowed traditions of angling. Fine diameter silks, such as choose a neutral color, typically a shade of gray. This is the route I follow more often than not if I am unable to match the blank color exactly. Gray backgrounds are dapper. They neither add nor subtract from the beauty of the inlaid feathers. Three, choose a background color that reacts with the feathers to be inlaid. By "react" I mean a color that complements or contrasts with the inlay, one that pairs with the color of a feather to

Here two Jungle Cock nails are used to bracket a stripping guide. Inlays can be made on the blank or on the wraps.
Problem Solving

Does the one feather that you absolutely must inlay have a sweeping curve in its quill? Turn on your stove and lay on the teapot. When you've a good head of steam built up, unleash it on the feather, which by the way, you're holding with a pair of tweezers to prevent steaming your hand. After thirty seconds of so, press the steam dampened feather onto a hard, flat surface such as a kitchen counter top, being sure to lay it so that the softened quill is flat and straight. Allow the feather to cool down for a few minutes. As it cools the quill will set in the position you've laid out for it.

If you come across a stubborn feather that insists on its quill remaining "off the deck," then you need to give it a good lashing to quell its resistance. Here's how. Hold the blank parallel to the floor with the mutinous inlay skyward. Assuming that you've already secured the feather with half-strength color preserver which has been allowed to dry for an hour, take a drop of full strength preserver and dab it on the quill, being sure that plenty of preserver flows into the gap. Take a piece of thread - silk works nicely - about 6'-8" long and drape its center over the butt of the quill as close as possible to the cut end. Pull the two dangling thread ends downward until the quill's butt is pinned to the blank. Now twist the thread ends between your thumb and forefinger until the twist reaches the underside of the blank. With a short section of 1/8" masking tape, lightly bind the twisted section of thread against the blank. Do not use much pressure on the tape or you risk damaging the light coat of preserver that you've already applied. Allow the bound quill to dry for an hour. Gently remove the tape and, with even more care, untwist the thread and pull it away from the inlay. If this fails to secure the mutinous quill, it's time to tear down the inlay and try a new feather. More than likely though you have tamed the beast. You'll note that on both sides of the quill there are two thin white lines where color preserver had dried on the lashing thread. Fret not! Just re-coat the entire inlay with full strength color preserver and the little lines will fade to naught by the time the preserver is dry.

Completed background wrap sealed with color preserver.

The base feather (Cree hackle tip) inlaid.

Flanking Jungle Cock nails inlaid, then the final nail laid over the butts of the previous three feathers.

The inlay with the first coat of color preserver applied.
Color Preserver

There are several types of color preserver [CP] on the market, but I can only recommend one category for inlays: the acrylics. These are the milky white preservers. The brand that I use is Clemen’s “Brilliance,” but any similar preserver will suffice. My problem with non-acrylics is not in their effectiveness as color preservers, but in their tendency to produce bubbles. Little bubbles in the preserver, just as in the finish, will be visible in the end product. Especially when working with feather inlays, little bubbles around the edges of feathers tend to go unnoticed until it is too late.

I have had great success by observing a few cautions. First, do not freeze the acrylics and then attempt to use them after they thaw. The product’s usefulness has been destroyed. Second, do not shake the acrylics to re-suspend the solutes, instead stir the contents of the bottle gently with a non-porous stick. I use the shaft of a plastic finishing brush. No matter how you stir, let the bottle stand for several minutes to allow any bubbles that did form to rise to the surface and pop. Next wet your brush in distilled water to clear the bristles of air. Withdraw the brush and shake it once, vigorously, to expel the bulk of the water. Now the brush is ready to dip into the color preserver.

If this is your first coat, you must use a 50% solution of CP (add one part distilled water to one part full strength CP and mix thoroughly). There are several reasons for this. First, only a thinned coat will fully penetrate the thread. A full strength first coat, especially when working with silks, leaves an uneven sheen that cannot be eliminated. Second, the thin coat allows the air that was trapped in the thread to vacate the premises without leaving an inordinate amount of bubbles in the drying CP. When you are inlaying feathers over a base wrap that has been preserved with two coats of CP (50% & 100%), a thinned coat allows you more time to maneuver the feathers into place. Furthermore, if you use a thinned CP, you will be able to see the details of your work through the CP while it is still wet. This allows you to accurately manipulate each individual barb on the feathers and prevents the frustration of returning to study a fully preserved inlay only to locate one distinct black barb that is crossing over the sleek yellow portion of a Jungle Cock nail. Only after you are confident of your inlay’s placement should you apply a second coat of full-strength preserver.

Care Of Feathers

If you end up buying feathers for your inlays, you’ll quickly realize how expensive high quality, “Grade #1” feathers are. You’ll also realize that it would take years of part-time rod building to go through a single Jungle Cock neck. If you take a few precautions, then your feathers will be waiting - in excellent condition - each time you return to your rod wrapping jig.

When you first get new feathers, whether from a fly shop, a pet bird, or a road-kill, you must sterilize them. I’m not worried about your health. If you do not take steps to kill every living thing that inhabits the skin and feathers of most birds, you’ll soon end up with a pile of mite-bitten feather dust nestled in a gossamer web of silk and sub-minature feces. The nightmare has happened to me.

I was fairly thorough with my acquisitions excepting a little envelope of feathers that a friend passed on from her family bird. It never occurred to me that a pet would harbor such a foul contingent of pestiferous bugs. A few weeks later I went to build my friend’s rod and discovered the above mentioned mess. Now I kill everything. Here’s how. Nuke the bastards! Put all newly gotten feathers in the microwave and zap them on high for two minutes. You’ve heard what microwaves do to small poodles, now imagine a few thousand mites bursting amidst your prized feathers. (Oh, if you’re using road-kills or hunting trophies, I hope you had the foresight to skin out the bird before you nuked the feathers.) Regardless, it’s time for a bath. Fill the sink with tepid water, add a strong squirt of Ivory dish soap, and proceed to bathe the skin. This bath removes the charred mite frag-
ments, any blood that might have been on the feathers from the skinning process, and any oils that could wreak havoc with the color preserver or varnish. After you’ve soaked up the bird, rinse it again and again until there is no trace of suds. Pat the skin dry between thick terrycloth bath towels (your mate’s will do just fine), then dry the skin overnight in a warm room. In the morning, assuming the bird is wholly dry, apply borax to the meat side of the skin to absorb any oils that might leach from the skin. Lay the bird on a sheet of cardboard and slide it into a zipper locking plastic bag. The cardboard will prevent the skin from bending to and fro and later this saves you having to steam out the wrinkles in your feathers. The bag prevents any new mites from taking up residence. Now take these squeaky clean feathers and tuck them into a dark drawer. The darkness prevents the feathers from fading. Fill a small box with mothballs and tuck that into the dark drawer. The moth balls will keep mites from wanting to even move into the neighborhood, let alone into your freshly polished skin.

_A word of caution._ Do not blast your good “necks” for two minutes running or they will curl up (I tend to learn the hard way). Instead, blast them on high for several 30 second intervals, cooling in between blasts. Timing varies from oven to oven. Please test the length and strength of your blast on your least valuable neck before proceeding to the balance of your collection.

Conjure up team colors, or one that allows the feathers to “ghost.” This last, “ghosting,” occurs when some of the border colors on a multihued feather exactly match the color of the background wrap. The parts of the feather that match the background seem to disappear leaving a disjointed, but recognizable, apparition of a feather. It’s a nifty effect, even if it’s not so spooky as the name I’ve given to the effect suggests. As with any artificial system of categorization, there is overlap. Match the blank color on a G.Loomis GL3 and inlay a single Jungle Cock tail; you’ve just meshed categories one and three because Jungle Cock nails “ghost” when laid over black thread.

After you have completed the background wrap and any accompanying boundary/trim wraps, it is time to preserve the entire complex of wraps. As with any wraps that you color preserve, the first coat must be a 50% solution of preserver and the second should be full strength. Allow each coat sufficient time to dry. Meanwhile, you’ve got the perfect opportunity to envision your inlay, choose the feathers, trim them to size, and do a dry mock-up of the inlay.

If you’re a fly fisherman, you’ve probably got a nice kit of tying feathers. If you’re not a fly angler, either take a trip to a fly fishing friend’s house or head to a fly shop. Choose your feathers. My favorite four are Jungle Cock nails, Golden Pheasant tippets, Lady Amherst Pheasant crests, and Cree hackle tips. In addition there are many, many more feathers to choose from, both natural and dyed, so you’ll easily find a few to suit your taste. The best feathers for inlaying are the relatively soft quilled feathers from the head, neck, and back of birds. Iridescents, unfortunately, lose a large measure of their luster under varnish and the dark blue and green iridescents turn nearly black. Other than that, most colors and feather types are beautiful under varnish.

Feathers selected, take a pair of dividers and determine the length of your background wrap. Squeeze the dividers a smidgen to allow for a thin border of background color on either end of the inlay. Lay the points of the divider on a scrap of paper, preferably one that approximates the color of the background wrap, and mark out your boundaries with a pencil. Pluck a few feathers from the skin of a dead bird. Take each of the feathers you plan to inlay and strip away the fuzz and/or barbs below the section that you will use. Trim the quill with a razor or sharp scissors. On most quills I trim the butt flush with the lowest remaining barbs, but I often leave the brilliant white quill of a jungle Cock nail intact and use it as part of my...
design. If you are creating a laterally symmetrical design, take extreme care to match your mirror image feathers in color, shape, and size and, if possible, pluck them from opposite sides of the skin or neck so that you can utilize their natural curvature to complement your design. Fly tiers will already understand the value of selecting equal and opposite feathers from a neck. If you don't tie, then experiment by creating one mock inlay with feathers all taken from one side of a neck and a second mock inlay with feathers taken from both sides of the neck. You'll probably choose the latter for your rod.

Study your mock-up closely. If you are satisfied with everything, proceed. If not, now is the last feasible time to change your mind and make alterations. Pretty soon things will be stuck in place. What did the tailor say? "Measure twice, cut once." It's the same sort of thing. Memorize the placement of each feather in the overall pattern. This is especially easy if you are only inlaying one feather. Working just like a fly tier, from the inside out, start to apply your feathers to the inlay underwrap.

Alignment is the key to a good looking inlay, just as with weaves and cross-wraps. You will want your inlay centered within the confines of the underwrap and centered relative to the rod's axis. The easiest way to achieve this is to use a long, tapered feather, such as a Lady Amherst Pheasant crest, as the base for your inlay. Dunk the feather in 50% color preserver and lay it on the underwrap. Sight down the rod and using tweezers or another implement of choice, nudge the feather into alignment. Be careful, but not obsessive. Feathers are natural and thus are not given to perfect alignment, symmetry, color, or anything else that speaks of being synthetic. Once this feather has dried, you can build your inlay around it and know that the entire complex of feathers will be centered on the rod.

If you value your sanity, do not try to apply more than two feathers at once. When making a symmetrical pattern, I try to lay in each matched pair of feathers in one sitting. Take care to maintain the mirror image. Large feathers on the centerline of the inlay are laid in one at a time. Apply a feather or two, then let the inlay dry. If you rush and attempt to lay in all the feathers at once, you will have a slippery, sticky, off-centered mess in a heartbeat. Be patient and you will succeed. Once all the feathers are laid on, put on a single coat of full strength color preserver. Watch the inlay until this final coat of preserver dries clear, popping bubbles if they form with the tip of an Exacto blade.

There, you've done it. Allow the preserver to dry for a full 24 hours. Now apply your favorite finish. It will take several coats before the finish levels out. Remember that multiple thin coats look better than one or two heavy coats.

When you begin, it is a fair thing to copy some known inlay patterns. But when you go to sell your rods, innovate. I regard the trade marking of feather inlays as following in the path of the fly tiers. To copy a recognized pattern for your own use or as a gift to a friend is no offense. To copy a trade marked pattern without permission and offer it for sale is an offense. Please, in commercial regards, respect the domain of your fellow rod makers. Be creative and you will step on no one's toes. Steal intellectual or artistic property and you will not only foment bad blood, you will shut off the flow of knowledge that is so necessary to continuance of this handi-craft art. Now I urge you to go forth and inlay.