

How to build a custom wood fly fishing landing net

These pages have information about how to make a wood landing net for use in fly fishing. You probably won't save any money by doing this yourself, unless you have access to the equipment needed to mill the wood. There are several fine makers of wooden landing nets for trout, salmon, and steelhead fishing that you can locate using the ["List of Custom Wood Fly Fishing Landing Net Builders and Makers"](#), and they are very reasonably priced. If however, you are determined to make your own custom wood landing net then, this information may help. The process is not difficult or complicated, and your success will be a lot like the "How do you get to Carnegie Hall?practice, practice, practice."

If you have limited access to the resources and facilities necessary to mill wood, bend, and glue the landing net, and lack the materials, you might consider ordering a blank unfinished landing net frame from me, in order to shape and finish it yourself, or for the more adventurous, order the cut, but unbent wood strips for the frame, and also [handle pieces](#), netting, and lacing to build one yourself.

1. CHOOSING A DESIGN

First, decide how you are going to use the net, and how large a fish you are likely to catch. Fly fishing landing net frame openings for smaller species such as backcountry trout and pan fish can be about 8" - 10" (20cm-25cm) wide and 12" - 14" (30cm-35cm) long. Lake trout, small and large mouth bass would need a 10" - 12" (25cm-30cm) wide and 14" - 16" (35cm-40cm) long overall. Salmon and steelhead nets could be from 18" to 24" (45cm-60cm) in diameter. Handle length needs to be at least 8" - 12" (20cm-30cm) to give adequate grip. "Guide nets" and fishing from a float tube, a canoe, or a small boat would usually require a longer handle, say 20" - 40" (50cm-100cm) in length, and an even longer one if deepwater fishing for salmon, or lake trout, or from a powerboat with higher sides and cockpit coamings. Short, compact nets are usually recommended for back country fishing to avoid getting caught in the brush. I prefer a slightly longer handle than normal, about 10" - 14" (25cm-35cm) long, to make it easier to reach and land a fish when stream fishing.

The classic teardrop shape and its variations, is the easiest to make, but other shapes like circles and ovals are popular, and just about any shape you can imagine, can be made using a form or jig, to bend and glue the wood. One person has even done one in the shape of the state of Texas. Sharp corners are much more difficult to do, and require very thin laminations to achieve a tight turn. I've used up to nine laminations, but typically 3 to 5 plies are used by most makers. Some woods such as Ash, Mahogany and Walnut can be bent using a single piece to make the net frame. There does not seem to be a significant advantage in strength using either one single strip, or many laminations, as long the wood is sound and the glue joints are well made. Multiple laminations take longer to do, but allow for more design options, such as using contrasting woods, and

different thicknesses for the laminations. I have even used laminations that taper in thickness, with usually the middle section (that will be near the top of the net frame) thinner than the ends, and sometimes one end thinner than the other, depending on the effect I want. A typical net frame would be made of Ash which bends and glues well, is light weight and is commonly used as a center ply, and would be about 1/4"-3/8" (6mm-8mm) thick, with another lamination on each side of Walnut, Mahogany, or other hardwood that is about 1/8"-1/4" (3mm-6mm) thick.

Handles can be as wide and as thick as desired, to comfortably fit the hand. They could be as narrow 1 1/4" x 1 1/4" (30mmx30mm), or up to about 1 3/4" (40mm) thick by 2 1/2" (60mm) wide (at the waist) and long enough to reach the fish you are trying to land. If you are a former NFL lineman, you may need something a little wider and longer. Handles can also be inlaid with [abalone](#), [paua](#), [mother of pearl](#), jade, ivory, [scrimshaw](#), etc... Exotic woods, and burls are frequently used for the handles, and because only a small amount of wood is needed, cost for premium material is very small when compared to the labor put in. Many woodworking catalogs and internet wood suppliers offer small sections of premium wood suitable for knife handles, pens, and other hobby type projects that can be incorporated into the handle. Local furniture makers and cabinet makers usually have short sections of really nice woods perfectly suited for landing net handles. Laser engraving for monogramming and logos can be done now days by many trophy shops and local engraving businesses, which can be found in the phonebook or on-line. Gunstock checkering and coach whipping are other handle treatments that add beauty and function because of their non-slip qualities. You will see many examples in the ["Fly Fishing Landing Nets"](#) pages that have handles constructed of several smaller pieces of different woods glued together in decorative patterns and designs, and other handles made from a single piece of wood. A couple of my nets have been made without separate wood pieces for the handles, with the frame coming together to form the handle, although this requires either many laminations, or a very thick single section to get adequate thickness at the handle.

2. SELECTING WOOD FOR THE NET

I usually start with a piece of lumber at least 60" (150cm) long in order to build a landing net frame that will be approximately 20"-24" (50cm-60cm) long overall and with a net opening about 8"-10" (20cm-25cm) wide and 12" - 16" (30cm-40cm) long. Most hardwood lumber that's available from local US dealers is sold in thicknesses of approximately 1", 2", 3", and so on, and is referred to as 4/4 (four quarter), 6/4 (six quarter), 8/4, etc..., which tells you how thick it is in 1/4" (6mm) increments. The wood strips for the net frame can be made from 4/4 (1")(25mm) or possibly 5/4 (1.25")(32mm) thick lumber to build a net frame up to about a 18"-24" (45cm-60cm) overall diameter. Frequently, however, unless you get "rough cut" stock, most 4/4 hardwood lumber has already been planed smooth on both sides (S2S - surfaced 2 sides) and is therefore only about 13/16" (20mm) thick, but it will still be usable. Although the wood ultimately gets bent to a curved shape, you want to start with as straight a piece as possible, so that the thin strips can be easily cut and machined. Normally you want as straight and clear a grain pattern as possible, with the lines of the grain having no "run out", which means the grain is parallel to the edges and sides of the board, with no knots, voids, or other defects which will cause the strip to break at those points when bent into

curves. Highly figured woods and exotics can be bent, but will frequently warp and twist as they dry, and are very susceptible to breaking, especially in tight curves because the grain is not straight.

Ash, and Hickory are good woods for landing nets because they are light weight, bend easily, and are readily available. Walnut and Mahogany are also light weight and usually bend OK, and when combined with Ash or Hickory can make for an attractive, strong, light weight net. Ebony, Rosewood, Purpleheart, Oak, and many exotic woods are quite dense and make for a somewhat heavier frame, but it's not too noticeable in the smaller landing net sizes.

I have found little difference between using kiln dried or air dried lumber when working with wood less than an inch (25mm) thick. Almost all wood at local lumber dealers will be kiln dried instead of air dried, which means the wood was stored in an enclosure, where the temperature & humidity were controlled in order to have the moisture content in the wood reduced from it's initial "green" or highly saturated state, to about 12—15% so the wood is stable and ready to cut and mill. Kiln drying helps to prevent lumber from developing cracks in the board surfaces and internally, usually eliminates "rot" and fungus stains, and reduces the tendency of some lumber to twist and distort, as the cells lose their moisture and shrink. Air dried lumber takes longer to stabilize, which is supposed to be better for steam bending because of the higher moisture content, and may be true for species like Oak which is commonly used in 1" - 4" (2.5cm-10cm) thicknesses for ribs in wooden boat building, but again, I've noticed little difference when using thin strips (less than 1" (25mm) thick). "Green" lumber is freshly cut and milled wood, which still contains most of it's moisture content. Green lumber is limber and very pliable, but tends to twist and deform if the shape is not physically clamped in a form or jig until dry. Air dried and green lumber can be obtained directly from a mill, and there are also some online sources.

If you plan on using highly figured or "curly" woods like Tiger Maple, Bubinga, or Claro (California Black Walnut), that are difficult to bend without breaking because of the irregular grain direction, you should mill extra strips in case you experience cracking or breakage (you will). Sometimes hardwood dealers will cut longer boards to length, and may even rip a thinner piece from a wider board, so you don't have to buy a large piece of expensive lumber. If you lack a band saw or table saw, the dealer may also offer milling services or can recommend a local furniture or cabinet maker to cut the thin strips needed for bending and gluing. Commercial veneers are usually too thin to be practical to use because of the many layers it would require to get a thick enough section. They could be applied as a decorative outer lamination over a frame using more durable and easier to bend woods, like Ash or Mahogany. Exotic woods like Snakewood, and burl woods don't bend very well and are seldom available in long enough lengths, so they are usually only used for the handles.

I have had good success in bending with exotic woods like Gaboon and Macassar Ebony, Jatoba, Purpleheart, Yellowheart, Bloodwood, Tulipwood, Paduak, Wenge, Zebrawood, Lacewood, and Teak; and moderate success with 5A Curly Maple, Bubinga, Osage Orange, Rosewood, and African Ribbon Mahogany. Many exotics are also very dense and heavy, making them hard to mill, and some are difficult to get in adequate lengths. Most domestic woods will bend easily, with Ash, Walnut, Poplar, Maple, Hickory, and Oak probably the most popular, and readily available at reasonable cost.

Ordinary building lumber like Douglas Fir, Hemlock Fir, and Western Red Cedar can make an acceptable net, especially in the larger sizes (salmon, steelhead) if you have long enough clear vertical grain pieces, plus they're very light weight. Quarter sawn woods tends to break less when bending, but flat sawn pieces may look better because of the grain pattern or figure. Since most lumber sold is flat sawn (or plain sawn), when you cut a narrow strip from the edge of a board you get a quarter sawn section. If you want the figure or grain to show from the flat sawn face, you will have to cut a ¾" – 1" (20mm-25mm) wide section from the board, turn that piece 90 degrees and cut the thinner sections for the laminations from it.

Wood for the handle can be the same species of wood, or a different contrasting piece, perhaps a small section of burl, or several small pieces glued together. A local woodworker or furniture maker is very likely to have some scraps and ends of exotic woods, that would be suitable for making a handle. Small blanks of prime burl wood for making knife handles are also available from many woodworking suppliers. Some exotic wood species can be very irritating (cocobolo, acacia, etc...) to people who may be sensitive to allergies. when sanding and carving; and resins in the wood can cause rashes among some people from just handling it. Many woods are difficult to carve because they are very dense, or have high silica content, or they may tend to fracture, and are better shaped with files, rasps and abrasives, or high speed grinders like a Dremel tool, or die grinder. Surface texture varies with different wood species, as some are very coarse grained, and have large pores, whereas others are finer grained and will polish to a high gloss using 600—1000 grit sandpaper, and need little or no filling to achieve a smooth finish, and work well for hand rubbed oil type finishes.

3. MILLING WOOD

The average net frame is about 1/2"-3/4" (12mm-20mm) thick, so most laminations will be 1/8"-1/4" (2mm-6mm) thick, depending on the number used, typically 3 or 5 layers. Cutting thin strips for the net frame can be done with a band saw, or table saw.

A band saw has a very thin blade and will waste less wood than a typical 1/8" (3mm) thick table saw blade, meaning you can get more strips out of a given piece of lumber. This only makes a difference if you are making many strips for multiple nets, or have a very thin piece to start with. A band saw could also produce a rougher surface making it more difficult to glue properly, and the strip may vary in thickness. This can be fixed by using a hand plane or a portable electric thickness planer like a 12" (30cm) Delta, Makita, DeWalt, etc... to smooth the surface of the strips, but that means cutting them slightly thicker than needed, which tends to negate the advantage of the thinner blades. That said however, with practice it is possible to cut extremely thin strips less than 1/16" (1.5mm) thick, in woods like Ash, Mahogany, Walnut and Teak, and I have even used a second hand Sears band saw with a new 1/2" (12mm) blade to make very thin strips, that did not require planing or thicknessing. A light sanding will sometimes suffice, but the goal is to have as smooth a surface as possible. Clean and freshly cut, planed, or sanded surfaces work best for gluing.

A table saw will do an adequate job if you use the right blade. Thin kerf blades are available that waste less wood than the typical 1/8" (3mm) saw blade, and require less horsepower to cut. Although this is a ripping style of cut and would call for using a 20 tooth rip blade, it does not leave as clean a cut as a blade with more teeth and a different

tooth grind, even going slowly. For just a few strips, use a good 40-60 tooth “combo” blade, or a high tooth count crosscut blade to get a smooth finish, but they will cut more slowly, and sometimes they can leave burn marks if you’re too slow. If you’re stuck with just one blade, you can of course, plane the cut surface afterwards, if needed, as when cutting the laminations on a bandsaw.

An electric thickness planer can be used to dimension many of the strips to the desired thickness. There are two main problems with using a large or a portable electric thickness planer to make very thin strips for a laminated frame. The principle difficulty is getting strips less than 1/8” (3mm) thick, which is the limit for most machines. You can make an auxiliary platen using 1/2” - 3/4” (12mm-20mm) thick plywood, MDF, or Melamine (which works well because of the slick surface). A section about 12” to 24” (30cm-60cm) long and wide enough to fit the planer bed will usually be adequate, but you can get by with a narrow strip if you can keep the lamination centered on it. A 1”x1” (25mm x 25mm) cleat or blocks of wood fastened to the bottom will hold it in place, and make for easy installation and removal. The other problem with thickness planers is they will frequently destroy the wood when trying to go very thin, particularly when using figured and curly woods, or strips that have knots and “run out” where the grain is not straight and parallel to the sides and edges. Hand planing may work in those situations, or using abrasives and blocks of wood. You can use double sided carpet tape to fasten thin strips to a thicker piece of wood as a possible solution when trying to cut or plane very thin strips. You have to be extra careful taking the strips off, because the tape is really strong (use short sections sparingly), and you may well break the thin lamination prying it loose.

Drum sanders like the Delta or Performax models work very well on difficult woods to make them thin and/or smooth after sawing, but they are slow, and have the problem of leaving abrasive burns on some woods if you are not careful. Use clean belts and take light passes. You will also have to compensate for the dimensioning limitations of these machines when doing thin strips, by using auxiliary platens, or support strips for the laminations, like with the thickness planer.

Before you cut each strip, its best to clean and smooth the edge of the lumber each time on the jointer, or with a hand plane, in order to have a good reference edge and not have to resurface both sides of the strip. In some situations, if you plan correctly, you can still use a strip with one rough face if it’s outside surface of the net frame, but it means spending more time smoothing it after the frame is glued and being shaped.

If you want to make a landing net frame with a single piece of wood 1/2”-3/4” (12mm-20mm) thick it will be easier to cut and plane, but be more difficult to bend. I’ve used sections up to 1” (25mm) thick, and have also tapered thick sections, so the middle is thinner and easier to form around the tighter curves of the form. Tapering can be done with a hand plane or an electric thickness planer. Make a line on the side of the strip with a pencil or scribe so that you can accurately gauge how much wood to remove. A simple planing jig can be made with a long straight piece of wood (common 2x4’s work fine) with thin blocks of wood of various thicknesses attached to form a slight arc when the bending strip is temporarily fastened to it. I’ve used mine with an electric thickness planer, but it’s really pretty easy to use a hand plane, and it only takes a few minutes, because the strip is not wide, and just a few passes with the hand plane will remove enough to get a substantial taper. Make a few short passes in the middle, and gradually

increase the length of each pass toward each end to get a nice fair taper. I have also tapered the ends and left the middle thicker, to achieve a different effect.

Some woods when freshly cut from a thicker section will immediately warp and twist, but they will still be usable if care is taken when steaming and bending them around the form, and even slight twist and warp can be overcome when gluing the landing net frame with moderate clamping pressure. It's much easier if all the laminations are all the same width, so the edges are flush when set in the gluing form. If you are using different woods to make the frame it may be difficult find lumber the same thickness, so some additional thickness planing may be required before cutting the thin strips, to make them all the same width after they're cut..

4. BENDING WOOD FOR THE NET FRAME

Wood bends because the cell walls that make up the structure of the wood can be crushed or deformed when they contain moisture, or they are plasticized by heat, and sufficient force is applied to one side of a piece of lumber causing it to deflect in opposite direction. The cell walls don't really stretch an appreciable amount in proportion to their compression; therefore, lumber will often fracture and split on the outside face when it is bent, a problem which sometimes can be reduced by using a flexible strap, say made of spring steel, that is kept under tension in contact with the outer surface of the wood so that the outer face stays in compression. This technique is frequently used by boat builders when steam bending the thick Oak frames for wooden planked vessels. "Green" wood or freshly milled wood from a live tree, that has not had a chance to cure or dry, can also be very flexible, but will probably twist and distort while drying, unless kept in a form (sometimes for several months). The best wood for bending is obtained by riving or splitting the lumber from the log, instead of sawing it, so that the grain is parallel to sides and edges of the boards, however you would probably need to do this yourself, because it's seldom commercially available. Although clear vertical grain lumber is usually desired, it is possible to bend wood with irregular grain patterns and occasionally small, tight knots. Most dry woods will bend pretty easily by hand, if cut thin enough (1/32"-1/16") (1mm-2mm), and will form gentle curves. Thicker sections can be also be bent by applying gradual force (gravity, bungee cord, tourniquet) over a period of time, like hanging a weight on the ends of a piece of wood for several days/weeks/months, depending on the section thickness, amount of weight, and the amount of bend needed. A 1/4" (6mm-7mm) piece of Ash supported in the middle, with 1-5 lb. (.5kg-2kg) weights taped on the ends would form a typical teardrop shape, in a week or so. The limitation to these methods is that they are slow, need constant adjustment, lack precision, and you can only do the simplest of curves. Soaking thin sheets of veneer in water is sometimes done, and model makers will soak small thin pieces of balsa wood for some projects, but you would probably get poor results from just soaking the wood on anything thicker than 1/8" (3mm) thick without heat.

The addition of heat can accelerate the bending process by plasticizing the hemicellulose after the wood has dried. Leaving the aforementioned piece of 1/4" (6mm-7mm) Ash in the hot sun (yes! "solar bending") would take only a day or two to bend into a u-shape suitable to make a frame with (although you would need more plies for the landing net frame). Using more heat offers the ability to make tighter bends and more complex shapes, but higher temperatures can be hazardous. Reasonable precautions need

to be taken, like wearing gloves, arm, face, and eye protection, adequate ventilation, and so on; but using higher temperatures does allow the possibility to bend more difficult woods, and make bends with tighter and more complex turns. Heat can be applied using a hair dryer or heat gun for very small sections at a time, and bent with hand pressure, usually with mixed results depending on wood species. Luthiers (guitar and fiddle makers) will often use dry heat to shape the instrument sides by carefully rubbing and forming the sections of a thin piece of wood over a heated metal pipe, and applying hand pressure at the ends until the wood deforms, taking care to not scorch their hands, or the wood by constantly moving it and sometimes “spritzing” it with a fine spray of water. Coopers (barrel makers) also use dry heat by burning wood shavings inside the partially formed barrels, and when the heat from the fire softens the wood enough, they can hammer and force the steel bands into the proper position to bring the barrel staves together at the ends (this may also have the advantage of leaving the barrel insides coated with charcoal, which improves the taste of liquids stored inside, like water and whisky). Boiling water will also soften wood, but is impractical to do long lengths or larger sections and can be dangerous to handle. I have seen boiling water poured on to wood wrapped with rags to get small sections soft enough to deform. I have used hot tap water in a sink, to soften and bend some thin wood sheets that are 1/32” - 1/16” (1mm-2mm) thick with some success.

I primarily use steam to heat the thicker wood strips for bending. The advantage to using steam is because it’s the easiest, most practical method to heat the entire piece of wood all at the same time, so that a larger area or long length of wood can be softened enough to bend around a form. The moisture in the steam has little effect on softening the wood other than to act as a medium to transfer heat to the wood. Only the outer few layers of cells would possibly re-absorb any water in such a short time, so only very thin veneer like sections realize any benefit from trying to increase the moisture content of the wood. I have tried pre-soaking the strips but it seems to offer little advantage when wood is that thin, and it’s being steamed. Steam will also darken many woods, and will raise the grain, requiring more smoothing before gluing and finishing.

Using steam typically requires fabricating some type of enclosure, or “steam box” to contain and direct the steam around the piece to be bent. Pressure is not necessary, and can be extremely dangerous! A steam box can be as simple as a 2”-4” (50mm-200mm) section of ABS plastic pipe (PVC tends to soften and deform), with a towel draped over each end, and a length of automobile heater hose attached to a thrift store teapot, and with a camping stove to supply heat to boil the water. My current steam box is a 120” (300cm) long by 10” (25cm) square box made of Poplar, fastened with coated self tapping screws about every 4” (10cm), and has hinged door flaps on each end, with a removable divider to shorten the box when needed, and is epoxy coated (not necessary, but I had lots of older epoxy I needed to use up). I ha removable Poplar racks also with epoxy to make them more durable. There are two inlets for steam in the bottom of the steambox, and it has a stainless steel kitchen thermometer in one end to monitor the temperature. Steam is supplied by a new (not used) 2.5 gallon (10L) metal gas can, over a propane “lobster pot” or “crab cooker” style burner (available from many marine and outdoor retailers), and uses 1” (25mm) marine exhaust hose, and bronze fittings to connect to the box. This holds a little over 2 gallons (8 liters) of water inside, and will produce steam in less than 10 minutes, and run for about 45-60 minutes before needing to refill the water. This

steam box has the ability to be divided into shorter lengths and re-route the steam from the dual inlets, to a single side, for a little more efficiency, when doing shorter sections of wood, and is set up with a slight angle so the hot water which has condensed from the steam can drain out and not puddle inside the box. It's ok to have steam escaping from the box to help insure good flow through of the hot steam.

The wood should be supported in the steam box so the heat can penetrate all sides as thoroughly as possible. Metal supports or racks can stain some woods, steel will rust of course, but you may be able to adapt some re-cycled stainless steel or plastic coated restaurant equipment, or fabricate something suitable. Many woods will leave a stain also when coming into contact with other woods. I use Poplar, which seems pretty neutral, is cheap, strong and readily available, or Alder and Maple should be OK. Dowels inserted through holes in the sides of the steam box are a very simple solution for supporting wood to be steamed.

A general rule of thumb for heating wood with steam is that it takes about one hour per inch of thickness to heat the wood enough to get sufficient bending. Thin strips may take less time, and you can over steam wood. You can use several short sections of the same thickness about a foot long or so, as test pieces. You will be able to tell when they are ready by simply hand bending them around the sharpest corner. Before putting the strips in the steam box I also mark the center of the strip to help locate it at the apex of the form, and have equal lengths on both sides of the frame form and handle. Once the wood is hot enough, and removed from the heat source, it needs to be formed very quickly before it cools, which is only seconds with thin material. See "Steam Bending Pics". Having another person available makes forming and clamping the quickly cooling wood much easier. Although the wood will cool in less than an hour and can be removed from the form, there will inevitably be some "spring back" or tendency for the wood to try and return to it's original shape. This isn't too much of a problem with thin material, but unless I am in a rush and plan to glue and re-clamp the wood around a form right away, I'll leave them on the form at least overnight, and frequently longer to maintain their shape until they are ready to use (I have a lot of extra jigs). Thick sections will typically have as much as 25%-30% spring back, so you may have to make two forms; one for "over bending" and one for gluing when working with thicker sections of wood. Aligning the dry bent wood to the gluing form becomes even more complicated if you have shapes with sharp corners and reverse curves. I will bend all the laminations for a single net around the same form, in the same order that I plan to glue them. If the laminations are thin enough (less than 3/16" (3mm)), I can steam and bend them all together at the same time, but for thicker material (1/4" - 1/2" thick (6mm-13mm)) it's easier to steam them all together, and bend them one at a time in sequence, on the form. The most reliable technique seems to be to first bend the entire strip into a large loop by bringing the ends together, and then use spring clamps to attach the loop of wood to the landing net form, starting at the top of the frame and working quickly toward the handle (which should be temporarily clamped to the form), with clamps spaced just before and after each bend. To help prevent some of the highly figured woods like Curly Maple, or Bubinga from breaking, I will sometimes use another piece of thin wood on the outside when I make the bends, This extra step will act somewhat like how a "compression strap" is used with thicker wood to help prevent the outer surface of the wood from cracking or tearing apart; this strip can later be used as one of the inner laminations which are usually

Ash, or some other straight grained wood which bends easily. This also helps when steam bending thick one piece frames. The compression strap can be also be made from fiberglass or metal (old 12"-14" bandsaw blades wrapped in tape work great). Steaming wood may also darken the color of wood, and the bent laminations that are not used right away seem to become less flexible and more brittle after drying for several weeks and months, so they need to be stored in a jig or form, to hold their shape until needed for gluing.

More information on steam bending and steam box construction can also be found at this [Lee Valley Tools website](#), the [Tai Kobo Workshop](#) site for general wood bending information, [Foner Books](#), the [WCHA FAQ's](#), [Woodweb forums 1](#), [Woodweb forums 2](#), [LMI](#) for musical instruments, and other [online sources](#). Printed information is available from Fine Woodworking's publication "On Bending Wood" which is available from the Taunton Press, and the "Wood Bending Handbook" from Woodcraft. A [PDF file](#) from the [Forest Products Laboratory 1999 Wood handbook](#) chapter 19, gives detailed information on wood bending in general.

Although it's beyond the capabilities and needs of most do it yourselfers, it is also possible to make some extremely complex bends in wood using anhydrous ammonia, (not the common household cleaning products), but it is extremely dangerous, and requires specialized equipment. It also darkens many woods. You can get more information about this process from "Understanding Wood" by R. Bruce Hoadley at your library, or from most online bookstores, etc... Also from Fine Woodworking, issue number 30 dated 1981 Sept/Oct., article by Bill Keenan. Experiments with ammonia bending have been conducted at the University of Wisconsin in plasticizing (making pliable) wood, via immersion in gaseous anhydrous ammonia... the theory being that the ammonia is used as a solvent, and diffuses into the cell wall structure and disassembles the existing microscopic cell components producing a more pliable wood...as the solvent diffuses out of the wood the wood cell components bond in new positions and retain that shape. Steam does the same job but ammonia plasticizes more completely and quicker. The key is the word anhydrous (anhydrous means without water), so the ammonia being referred to is chemically pure ammonia... NH₃ in gaseous form (and it boils at -28 degrees Fahrenheit). Keenan notes that household ammonia is a dilute solution of ammonia gas in water and will not bend wood. Keenan and the U of Wisconsin procedure is done in a treatment chamber (autoclave) for introducing ammonia gas into woods...at 130 psi into a stainless steel container welded to withstand 800 psi of pressure. A combination of gaseous ammonia and steam is fed into a cylindrical container that the wood to be bent is placed in, exposing the wood for about 45 min. and it comes out like limp spaghetti. Working time to bend and shape plasticized wood is now about 15 minutes.

5. BUILDING A FORM

A form makes building a net frame much easier and more precise. I have seen pictures of simple forms that are metal pots, or metal and plastic pipe, being used to make full or partial circles. You should make a full size pattern of the desired frame and handle shape by drawing half the outline on a folded piece of paper or cardboard, so when it's cut and unfolded it will be symmetrical, or use two halves for the form, fastened together, so that when cutting and shaping them you will get identical mirror

images. Try to minimize any sharp curves, or re-curves, and have fair, smooth lines. Only the frame needs to have a form up to the point where it contacts the handle, and the transition from frame to handle needs to also be a smooth and fair line, so be sure when cutting the profile on the actual handle, it matches the lines on the original template.

I use either 3/4" (20mm) plywood, 3/4" (20mm) particle board, or 3/4" (20mm) MDF (medium density fiberboard), to make the forms. Thinner sheets can be stacked, or solid wood can be used also. Thicker form material is also usable, but I find that having the laminations protrude slightly above the top of the form allows me to push the laminations down when steam bending and gluing, so that all the edges are aligned and flush (assuming all your laminations are the same width). A band saw or saber saw, files, rasps, and sandpaper can be used to shape the form's contours. Make sure the edges are flat and square at 90 degrees to the base surface, to prevent the laminations from twisting, or sliding out of position when they are glued and clamping pressure is applied.

A section of 1/2" - 3/4" (10mm-20mm) plywood, particle board or MDF (medium density fiberboard) can be used for the base of the form, and can be coated with 2" (50mm) clear packing tape, or waxed, to prevent the glue from sticking to it. "Melamine", which is particle board coated with a high pressure laminate, and commonly available at hardware stores, works well also for form use and has a non-stick surface (except for the edges). I use lots of medium size 3" (75mm) spring clamps when steaming and bending to temporarily hold the wood to the form, and then C-clamps for gluing; so I make the form shapes with a parallel cut about an 1"-1 1/4" (25mm-30mm) inside the outer cut, and then use lots of screw fasten the form to the base. Space screws about 2"-3" (50mm-75mm) apart. Alternately, you could just drill a series of large 1" -2" (25mm-50mm) diameter holes on the inside of the form that parallel the outside shape, for the clamps to attach to, instead of the thinner parallel shaped form. I prefer using lots of clamps and thin "cauls" to better distribute the pressure on the outside of the frame and allow more flexibility for different shapes and forms. I like having more clamping positions available than the fully cut out form offers. The base should also be cut to follow the frame outline with a 1 1/2" - 2" (30mm-50mm) wide lip for the laminations to rest on. Cutting away the rest of the base allows easier application of the C-clamps.

Forms that try to use a matching male and female pieces made from the outer cut off part of the form material to act as a caul, need to be cut exactly so that the gap between the inner and outer part is equal to the width of the frame being glued, in order to distribute even pressure on the laminations. Inevitably there are always slight gaps where the outer pieces don't make perfect contact, and thin wedges inserted between the frame and the outer caul may apply enough local pressure to put the laminations into contact with each other. I don't recommend this approach though, because I find that it doesn't really save time, material, or the need for many clamps to make it work. I like using pre-bent and shaped cauls made of 3/16"-1/4" (4mm-6mm) thick Ash because they are flexible, durable and distribute pressure well with the use of C-clamps.

The form should be screwed or clamped to a stable base when bending, and possibly while gluing. I use some recycled aluminum and plastic pedestals meant for boat seats, because I can adjust the height, making it easier to work on, and they can be locked in position or swivel, which makes it very handy for gluing.

6. GLUING THE NET FRAME

There are several types of glues that will provide satisfactory results, in fact many glues now commonly available will make joints stronger than the wood itself. Waterproof carpenter's glue, or yellow glue (Polyvinyl acetates ((PVA)) or aliphatic resins) like Titebond II Extend, and Titebond III, have reasonable working time, and work well for most domestic, and many exotic woods. Woods with high resin content like Teak, Cocobolo, and Lignum Vitae are problematic and need an epoxy (West System, System Three), or Resorcinol (Weldwood) type glue, and generally need to have extra surface preparation, with either a solvent wipe, or using a primer, to get proper adhesion. Cyanoacrylate (Crazy Glue) works pretty well with a few wood species, but has limited working time and is too expensive for anything other than repair, or small assemblies. One part Polyurethane glues (Gorilla Glue, Franklin) will also work, are water resistant, easy to remove dried glue (except on your fingers—wear gloves) but may suffer from “creep”, or the tendency for the glued pieces to move when under constant pressure, and/or when subjected to heat, like being left in an automobile on a hot summer day (which will soften glues like carpenters glue also). Plastic Resin (urea formaldehyde) and Recorcinal glue are two part glues, which are powders that need to be mixed with either water, or an activator or catalyst. They are waterproof, offer strong adhesion, work with oily woods, have low creep, and moderate working times. Hide glue, white glue (Elmer's), silicone based glues (Goop), and contact adhesive should not be used due to their limited water resistance and/or lower bonding ability. Some people do have allergic reactions to some types of adhesives like epoxy, Recorcinal, and cyanoacrylate, so that's another reason to stay with aliphatic resin, plus it's water cleanup instead of solvent. Don't use old glue, or when the temperature is too hot or too low.

You need to work quickly and have an adhesive with adequate working time (10-15 minutes) to allow assembly of the landing net frame before the glue sets, and when doing frames with more than 5 laminations you may have to do them in stages, or have assistance with spreading the glue and clamping. All mating surfaces need to be clean, and best results are with freshly milled or planed surfaces. A thin layer of glue should be spread on all mating surfaces. Titebond II & III, and similar glues have very good initial tack strength, so care needs to be taken that the laminations are accurately placed when put together, or the laminated strips may end up being staggered with the edges mis-aligned. A few firm taps with a hammer and block of wood will help align the laminations while the initial spring clamps hold them in place. Slight irregularities and any excess glue squeeze out will be removed when shaping and sanding the frame. I use lots of spring clamps to temporarily hold the glued strips in place until the C-clamps can be applied. Start the clamping at the top of the net frame and work toward the handle, alternating the clamps on each side.

The handle will normally be glued at the same time as the frame, and needs to be precisely aligned and clamped in place to prevent it from shifting position before the frame laminations are applied. I typically use anywhere from 30-40 C-clamps for an average size landing net frame and handle glue up with about a 2” (50mm) spacing. 3” & 4” (75mm-100mm) C-clamps work well for clamping the frame, and I have a several 6” (150mm), 8” (200mm) & 10” (250mm), clamps that are used for clamping the frame laminations to the handle (the larger clamps are not needed for more pressure, but rather because the longer handles allow for easier application when using clamps in close proximity, by alternating smaller and larger clamps next to each other, and alternating the

handles on each side—see pictures above). When clamping the net handle and frame laminations together, you may also need to use cauls that are shaped to fit the curves in the handle edges, in order to get even pressure distribution from the clamps, and give the clamps a “square” or perpendicular surface to clamp against, or they will just slide out of position when set against a curved surface; these can be short pieces used in addition to the thinner caul on the outside of the frame laminations. If you save the waste pieces from making the handle they should fit well.

You may be able to borrow the larger clamps, and make home made clamps with carriage bolts and blocks of wood, as they only need to be 1” - 1 1/4” (25mm– 30mm) deep to fit the form. Fewer clamps may be used with thicker 1/2” - 3/4” (12mm-20mm) thick cauls, or thick blocks of wood used to evenly distribute the clamping pressure and prevent imprinting of the clamp on the outer surface of the landing net frame laminations. I use a caul made of one piece of 5/16” - 3/8” (8mm-10mm) thick Ash, that’s been previously steamed and bent around the same form that I’m using, just like the thinner laminations used for the gluing, along with many clamps (because I have the luxury of a couple hundred clamps available, and dozens of forms). Having lots of clamps allows me to get lots of flexibility when gluing many different shapes and construction methods for the net frames. I use inexpensive 2” (75mm) clear polyethylene plastic packaging tape on the caul and form, to prevent the glue from sticking, or waxing the surfaces with paste wax will help also.

Having another person assist makes it much easier, and it only then requires just a few minutes to complete the process. It is also possible to apply too much pressure with the clamps and squeeze the glue out of the joints, causing the frame to delaminate later. Too much clamping pressure can also cause the laminations to creep or slide out of alignment if the sides of the form are not perpendicular to the pressure from the clamps. Firm hand pressure is all that’s needed. Don’t try use the clamps with heavy pressure to force the laminations together, or close gaps in tight curves. The pre-bent strips do not have to exactly match the form’s outline, but should be close because moderate pressure should be all that’s needed to bring all the surfaces into contact. Doing a trial run to check the time to assemble, and to make sure you have sufficient clamps available will go a long way to ensure success.

7. SHAPING AND DETAILING

Hand tools, such as rasps and course files, and abrasives are all that’s needed to shape the frame and handle, but if you have access to power tools such as a drum or wide belt sander, oscillating spindle sander, stationary or portable belt sander, you’ll find the process goes much faster. The first step after removing the glued net frame from the form, or mold, is to remove the excess glue by scraping with an old retired chisel, plane blade, hacksaw blade, or whatever piece of old steel you have with a filed edge; and then surface both sides of the net to make them parallel, and the edges flush. This is where a wide belt or [drum sander](#) comes in handy, but a hand held belt sander, rasps and files, or 60 grit sandpaper and block of wood will work if you have the energy and patience.

It is possible to use a portable thickness planer like a 12” (30cm) Delta, DeWalt, or Makita to dimension the frame, but the glue could play havoc with the planer blades and leave little hollows that might be irritating to someone with newly sharpened blades, and is particular about the finish produced on their fine cabinetry projects. If you have

another set of used blades or only do rough framing work with the planer then it will work very quickly to level the frame and handle blank. Curly and figured woods will tend to fracture at the edges of the frame if you're not careful, and may cause unacceptable "tear out" (big chunks or divots in the wood surface) on the handle woods if you use burls and exotics. Feeding the top of the frame end in first, and the handle end last, with light cuts, and several passes, alternating the sides being cut seems to work best. Putting the handle end in first will sometimes cause the other end, or top of the net frame, to tear or fracture or "snipe" as it's the last part through the blades and is not by pressed down by the infeed rollers. If you do use the handle first method, you can hold the handle end down firmly against the platen or (bottom plate) as it comes out of the planer and usually avoid the problem, except in difficult woods. If it happens, don't despair because you will probably want to taper the net frame anyway, so that it is not as thick at the frame end, and thicker at the handle end. You won't always be guaranteed a perfectly "true" net either, because the pressure of the infeed and out feed rollers, overwhelm any stiffness in the frame, and although the frame and handle will be all the same thickness, there may be some slight twist to the frame, which is usually correctable by hand shaping, and again, by tapering the frame to be symmetrical. That is one advantage of the handle end in first method, or hand shaping..

After the net frame and handle have been leveled and trued, you should next mark the locations for drilling holes around the frame in order to lace the netting on. It's easier to mark and drill the holes at this stage because the frame edges and sides are parallel making it easier to center the holes. I use an awl to make a small pilot hole to guide the drill bit after they are marked off in pencil. Traditionally, commercial made landing nets have used a groove to inset the lacing material below the frame's outer surface to prevent it from abrasion. I think this feature's just a hold over from bygone days when cotton was the primary lacing material. The nylon and other synthetic fiber cord materials that are now available will probably outlast most normal use and wear, even if left proud of the frame surface, so I only occasionally use a recessed groove. If you do want to have a groove, it should be made first, and then the holes drilled. The groove in the frame can be cut with a small triangular file, or a short section of hacksaw blade set in wood. For multiple nets a [jig](#) can be set up to use a Dremel tool with the high speed cutter accessories #198, or #199 (1/16" (1.5mm) wide), or a router table can be adapted to use a small fly cutter. The groove should be just wide enough to fit the lacing material. A flexible steel ruler or pre-marked plastic strip is used to locate the hole spacing. You can use just about any hole spacing and pattern (about an inch more or less seems typical), but be careful not to make the hole too large and compromise the strength and integrity of the landing net frame. I use 1/16" (1.5mm), and 3/32" (2.5mm) holes most of the time, and larger 1/8" (3mm), 5/32" (4mm), or occasionally 3/16" (5mm) holes, and sometimes a groove. Brad point drill bits work best because the center spur will stay in the pilot hole better than normal twist drills, and usually produce less tear out on the inside of the frame. A block of wood held or clamped to the inside of the frame where the drill comes through will reduce the chance of tear out also, especially on brittle woods. I also have a vertical jig for drilling holes that allows me to use a stand up floor model drill press, after rotating the drill press table out of the way, but a simple [drilling & grooving jig](#) can be made with a Dremel tool or electric drill. Careful free hand use of a mechanical or electric hand drill and regular twist drills can be used, but you need to make sure the drill bit is at a 90

degree angle to the outside surface of the net frame. I almost always use a [countersink](#) to bevel the edges of the holes after they are drilled, so they won't chafe through the lacing, or have the lacing wear through the finish at the sharp edges of the holes. Sandpaper shaped into a cone, or a standard countersink spun between the fingers will do the job nicely. Be sure to plan the number of holes so that the lacing pattern will begin and end symmetrically or evenly. A 3/4"-1" (20mm-25mm) spacing is typical, but I have used as little as 3/8" (10mm), and also variable spacing, and with holes offset from the centerline of the frame to get different lacing designs. If you plan to use an after market replacement netting, purchase it first so you can match the number of holes to the netting. Lacing the netting can also be done without using holes in the frame, by wrapping the lacing around it, with a variety of knotting, and coach whipping schemes. This style requires more care to get even spacing of the netting around the frame, and tight work to anchor the ends of the lacing and keep it from shifting.

The next step would be to taper the frame (if desired) so that the frame is thinner than the handle end, which, reduces the weight, improves the balance, and is aesthetically pleasing (this is where power tools are handy). The frame section can be left rectangular, or if you're feeling energetic, can be shaped into an elliptical or round cross section. Take your time and check the work frequently to get a symmetrical shape. You can also add decorative elements with carving, or inlay to the frame part, working around the lacing holes. .

Shaping the landing net handle will depend on the user's hand size and desired handle length. Rounded edges and a flaring handle butt, improve the grip, along with comfort and control. Asymmetrical and ergonomic shapes can also be achieved if you have the patience. Any wood inlays are normally done before the handle is shaped, and while the sides are still flat, square and easy to work with. Abalone, scrimshaw, metal or plastic inlays are usually done last after the handle is shaped and finished.

Look at some of the samples in this website to get some ideas for various handle shapes and sizes. Handle widths from 1 1/4" - 1 3/4" (30mm-40mm) will fit most hands comfortably. I use hand tools, like the Nicholson #49 or #50 pattern makers rasps, or power equipment like an oscillating spindle sander, and/or belt sander for much of the initial roughing out for the handle and the frame, but a common 4 in 1 rasp, and a sheet of coarse sandpaper like 36 grit and 60 grit, will accomplish the same thing, just more slowly. Smoothing is usually done with second cut files, and 80, 120 and 220 grit sandpaper. A 1/4"-1/2" hole in the butt of the handle for a lanyard, can also be drilled at this time, although some fishermen prefer to use a screw eye in the end of the handle to attach quick release devices for convenience.

I have a specific [shop made bench](#) that works well for holding most of the landing net frames, while shaping and sanding. It's made from mostly recycled material. It's worth doing something similar if you plan to make more than one or two landing nets.

8. MAKING THE NETTING & NET MATERIAL

Netting for the fly fishing landing nets is available from many fishing net manufacturers as after market replacement nets, or they can be made at home using traditional knotted line netting or sewing pre-made netting or mesh material. Netting for landing nets was traditionally a knotted cotton construction and is still available from some sources, and usually found on imported wooden nets. It's main advantage other

than low cost is that it will rot away and will not continue to catch fish should the landing net be lost in the water, which also means it's not very durable and must be stored dry to prevent mold and rot. Most knotted netting is commonly available in nylon, polyester, polyethylene, and polypropylene fibers which are much more durable. The main disadvantage of knotted style nets are the knots, and large openings that can entangle and damage the fins and surfaces of fish that are meant to be released. Nylon mesh and rubber coated nets have become popular for catch and release use in the past few years. Rubber (urethane) coated large mesh net bags have become popular lately, because they are supposed to be less likely to harm the fish and very resistant to having hooks snag in the net; they are quite stiff and slightly heavier than other types of netting.

Different styles of replacement net bags may be available from some of the makers in the ["List of Custom Wood Fly Fishing Landing Net Builders and Makers"](#) page, and replacement rubber nets are available from Promar and from Cabela's, or on-line direct from [Charkbait](#); also a [Stowmaster](#) or [Frabill](#) dealer and several other on line sources can supply these. [Jann's Netcraft](#) offers inexpensive replacement bags, but I've never used them, and don't know what they're like

I primarily use a white 1/4" (6mm) mesh nylon material that I can hand dye to achieve a wide range of colors and effects. A good source that I use for mesh netting and replacement knotted netting is [Ed Cumings Scientific](#), and there are several other landing net manufacturers and commercial fishing net sources that can be found on line for replacement net bags, or bulk netting. There are many sizes of replacement net bags offered and it should not be too difficult to find a ready made net to fit your frame. Using a sewn mesh bag allows me to size nets to a customer's preference, whether a shallow catch and release style is desired, medium depth, or deep net is wanted. I have used an old \$20.00 Singer sewing machine (like Grandma's) that does only straight stitching for some of the nets and it does OK, but a zig-zag sewing machine is much easier to use, and makes for a very secure seam. Use a high quality polyester thread for sewing because it's more durable than the nylon threads, and is readily available in many colors. I use trash bag twist ties to temporarily secure the netting to the frame through the lacing holes, when measuring to determine the exact net diameter, and then to hold the finished sewn net bag to the frame in order to lace it on. You can space these by skipping some holes without doing every one. I usually fold the mesh material in half at the front, and sew the resulting back and bottom seams. I typically cut the bottom as a curve, with shallow arcs for cradle style catch and release nets, and the deeper net bags are usually more circular. The edge that will be laced to the frame is folded over about 1/4" (6mm-7mm) and sewn (basted) with a straight stitch set for the least number of stitches your machine will do (if adjustable), and then folded again and re-sewn with the straight stitch to hold the folds in place. You can elect to re sew this seam with a zigzag stitch, but the straight stitch used for basting is usually sufficient to hold the folds in position until it is laced to the frame; then the lacing will adequately secure it in place until (if ever) it needs replacement. Take the mesh, which should be measured to the correct length of the frame you are using, and fold it in half and tack just the ends of the edge to be laced together. Lay the folded mesh on a flat surface like a table top, so you can cut both halves at the same time, and trim to the desired shape. Big sweeping curves are easier to sew than small radius corners. Baste the two halves together with a straight stitch, using at least two passes over the entire seam; then Trim off the excess mesh material on the side that is away from the inside of

the net, very closely (to about 1/8" (3mm), so that it won't bunch up when you change to using a zig-zag stitch. Set the zigzag stitch to the widest setting and fewest number of stitches per inch. Now the zig-zag stitching should be done with the net mesh material spread apart, so you will end up with a flat seam. I make at least 6 passes and reverse stitch at each end of the seam to help lock the thread. Increasing the number of stitches per inch after each pass will make for a smooth, attractive, and secure seam.

Dye the mesh material before you sew it. Dyeing nylon or cotton is fairly simple, but other fibers like polyester and polypropylene are difficult. Rit dye works pretty well, for many fabrics, because it contains several types of dyes for different fibers, and is readily available at the supermarket or fabric store in a wide range of colors, but it's more costly because you pay for dye that you may not use. "Acid" (vinegar) type dyes work best for nylon and the type of mesh material that I use, and they are available in a wide range of colors. [Dharma Trading](#) is a good source for the Jacquard acid dyes with which, I have had very good results. The 2 oz. size dye container will dye several net bags. Some colors do more fabric, others exhaust their dye sooner. You typically need very hot water (not boiling), and although you can use the washing machine method, the stove top procedure is more practical for very small batches of material. I use a stainless steel pot and tongs, or utensils (not aluminum) that will never be used for food, to dye in, and please be very careful handling this stuff because the dye powder will get everywhere.....really!....., and of course "may cause irritation, allergic reactions, brain damage, birth defects, hallucinations", and all the other stuff they put on those labels (but mostly your fingers will be green, blue, or red for a long time if you are not careful). A small amount of white vinegar (1/4 cup per gallon of dye) will help to fix the color when using acid dyes, and I would recommend getting a small amount of the recommended special fabric detergent used to pre-wash, and post-wash the dyed material to get the best results and remove the excess dye. Very hot water and 30 - 60 minutes soaking is sometimes required to get deep rich colors. I normally will dye the 1/16" - 1/8" (1.5mm-3mm) braided nylon cord to be used for lacing on the landing net at the same time I do the netting, in order to get the closest color match.if you want matching colors.

If you wish to make a knotted netting, "The Morrow Guide to Knots" has excellent illustrations, also "The Ashley's Book of Knots", and "The Marlinespike Sailor" are sources that can be found at the library, bookstores, and several on-line sources. More information on Knotting can also be found through links at the "[International Guild of Knot Tyers](#)" website. They are also a good starting point for learning about making plaited, braided, or knotted sennits, and decorative knots for creating fiber and leather lanyards, and they offer "The Handbook of Knots" by Des Pawson, another great book on knotting with good illustrations. Other online source for knotted netting instruction is "[Basic Net Making](#)" and "[Learn to Net](#)". Personally, after having done one of these type of nets, I think I would find an old fisherman, or someone that likes to macramé, to make knotted netting, if someone asked for this style net bag, because of the increased amount of time it takes to construct a knotted net. When doing traditional knotted netting you may want to reduce the size of the diamonds as you near the bottom portion of the net with progressively smaller gauges, and it can then be closed by lacing the bottom diamonds together, similar to how a mesh net bag is sewn together.

You can use a variety of lacing schemes to attach the netting, using holes in the frame, or without holes and by wrapping the frame. Lacing material can be recycled fly

line, fishing line, cotton, nylon, or polyester cord, even leather. Leather will tend to stretch when wet, and if the frame is wrapped wet and left to dry, it will make for a tight lacing, and can then be treated with a number of after market leather waterproofing products like silicone, and neat's-foot or mink oil, to prevent it from loosening when in use. Nylon sash cord used for Venetian blinds is readily available, is typically 1/16" (1.5mm), and is a good size for lacing. Braided cord is easier to handle than 3-strand or layed line, and cotton and nylon cord can easily be dyed to get a desired color. Craft stores and marine chandleries are good sources for lacing and lanyard materials.

9. FINISHING

Rough finishing can be done with 80 and 120 grit abrasive paper, working down to 220 grit, and also for the first couple of sealer coats, and then 320 and 400 grit for final finishing. Aluminum Oxide sandpaper lasts longest is your best value.

Finishes are usually, oil, shellac, varnish or lacquer. These are all reasonably water resistant or waterproof, and will offer various levels of protection to the wood to prevent weathering. They are primarily intended as sacrificial coatings, to reduce wear to the wood itself and may eventually need repair or replacement. They also bring out the color and grain of wood. Many people prefer an oiled look with the grain pattern of the wood readily apparent. Any finish is better than none.

Oils are easy, but need to be redone from time to time. The amount needed is so small, and you may already have something on hand. Tung oil based oils, are usually a version of tung oil varnishes with additives to make it dry. It's a tough durable finish that can be wiped on. Linseed oil works, but darkens over time and needs to be reapplied often (museums have quit using it). Mineral oil which is used for cutting boards and salad bowls, Watco oils, Danish oils, "natural" nut and bean oils, and gunstock finishes are probably all suitable depending on the amount of maintenance you're willing to invest, and the type of look you want. Surface preparation needs to be very good, and any blemishes will show with an oil finish, so they need to be well scraped or sanded smooth (220 grit or finer). Although oils may get absorbed by surface fibers and pores, they do not go very deep into the wood and saturate the cells, as some products may claim. Oil has the advantage of only needing a couple old clean rags to apply the finish, but take care to properly store and dispose of oil soaked rags.

Beeswax and Carnauba wax are also excellent finishes used by many traditional and contemporary furniture makers as the only surface treatment needed. Again, another finish that needs to be re-applied occasionally

Lacquer can be easily sprayed on from an aerosol can available at hardware and paint stores, dries fast, and is usually water clear and without the yellow cast, or darker tints that many oils and varnishes have. Several coats can be quickly applied in less than an hour. It's reasonably durable and easily repaired, easy to remove and redo. You might be able to get a local furniture refinishing shop to spray it for you at a reasonable cost.

I favor marine varnishes, (Epifanes, International) whether they are a polyurethane based, or tung oil based, "long oil" type varnish because while they are not as hard a surface as a "short oil" furniture varnish, they are much more flexible, tougher, and easier to apply. Marine varnishes also tend to have an amber cast or color to them because of the high UV filter content, which is not usually noticeable except on very light colored woods. I have used \$25.00 Badger hair brushes and spray equipment, but get the best

results with a good quality disposable 1” (25mm) foam brush (not the cheap plastic handle ones). Varnish is also very easy to repair and touch up, or remove and redo if necessary. It is also available in aerosol cans.

Shellac is easy to apply, dries fast, is tough, and is available in several shades from light to dark. You can order it premixed instead of using the flakes and denatured alcohol. Shellac finishes are water resistant but can be softened by alcohol, so don't spill your beer or margarita on it.

I use at least 4 coats of varnish and usually 6-8 are needed to get a smooth glossy finish. The first couple of coats are usually thinned to seal the pores and get completely into the lacing holes (and lacing groove if used) to seal the exposed end grain of the wood and help waterproof the net. Most of these first coats get sanded away as the surface gets smoothed and leveled, and the pores in the wood start to fill. The succeeding coats can be applied thicker and lightly sanded (320 and 400 grit) to remove dust, runs, and the inevitable insect or two that always seems to be there. Be careful when sanding edges not to go through the finish, and chamfering or rounding all sharp edges helps prevent the finish from wearing through with use. The lacing holes may need to be cleaned before you start lacing the netting to the frame, with a paperclip, toothpick, or awl, if the finish clogs the holes.

“Hand rubbing” usually refers to hours of fine finish sanding, and/or polishing, with pumice and rottenstone and numerous other rubbing and polishing compounds from 3M, Meguire's and several hundred other commercial and retail automobile finishing and refinishing products, but it's probably worth the time and effort to bring out the grain, figure and color, of many exotic woods and burl woods, as most any gunstock maker will tell you. On the other hand, you can always use the “just dip it in somethin', and let's go fishin' ” approach.

I don't use any stains, but that doesn't mean you can't.

On a final note, unless you're in the Army, there is no “one correct way” to make a landing net. Use your imagination and inventiveness to create your own design or style. Break the rules. If you are going to go through the effort, don't try to make a cheap version of something you can buy at the store for \$15.00. Please [contact](#) me if you get stuck or need more information.

If you are considering making nets for sale, you might first want to look at the [“List of custom wood fly fishing landing net makers and builders”](#) to see other nets for sale on the internet.

THE END