

Appendices

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Directions for Using Whip Finisher

MATARELLI (FM) GREATLY IMPROVED STAINLESS STEEL WHIP FINISHER
 PATENT NUMBER RE 29,604

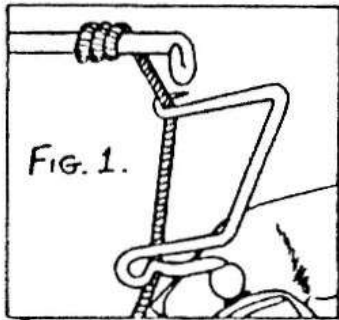


FIG. 1.
 PREVENT TOOL FROM TURNING IN HANDLE WITH FOREFINGER AND ENGAGE TOOL WITH THREAD BY "LAYING" TOOL "ON TOP" OF THREAD AS SHOWN.

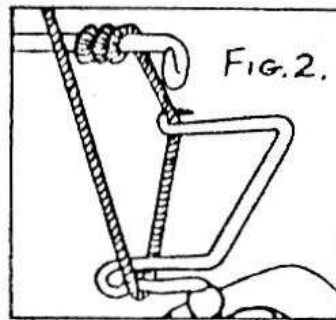


FIG. 2.
 BRING SUPPLY THREAD UP PAST HOOK CLOSE TO ORIGIN OF THREAD AT WRAP.

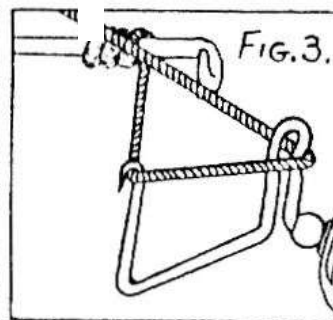


FIG. 3.
 WHILE MAINTAINING TENSION, ALLOW TOOL TO ROTATE NATURALLY IN ITS HANDLE SO TOOL AND THREAD APPEAR AS IN DIAGRAM.

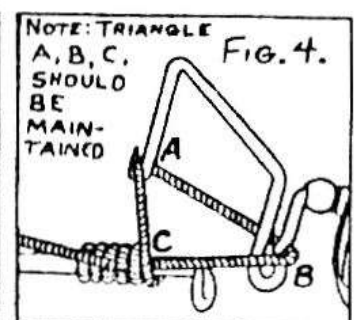


FIG. 4.
 NOTE: TRIANGLE A, B, C, SHOULD BE MAINTAINED
 ROTATE TOOL AROUND WRAP UNTIL DESIRED NUMBER OF TURNS ARE ACHIEVED. FEED MORE THREAD TO WRAP BY GENTLY PULLING TOOL AWAY FROM WRAP WITH A SLIGHT "ROCKING" MOTION.

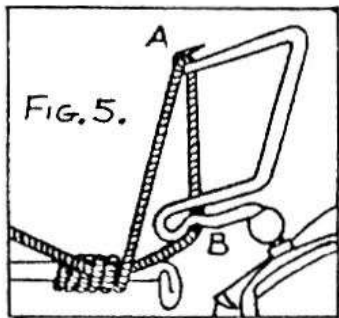


FIG. 5.
 DISENGAGE THREAD FROM BEND "B", BY MOVING IT TO A POSITION ABOVE THE WRAP AS SHOWN. BOTTOM LOOP OF THREAD AT "B" WILL SLIP OFF END OF TOOL LEAVING LOOP AT "A" STILL ENGAGED.

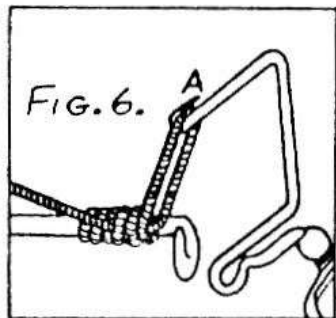


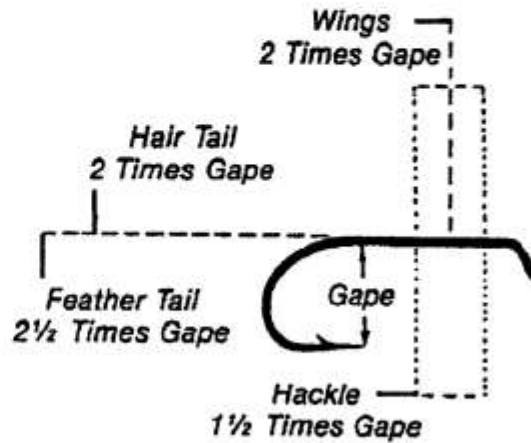
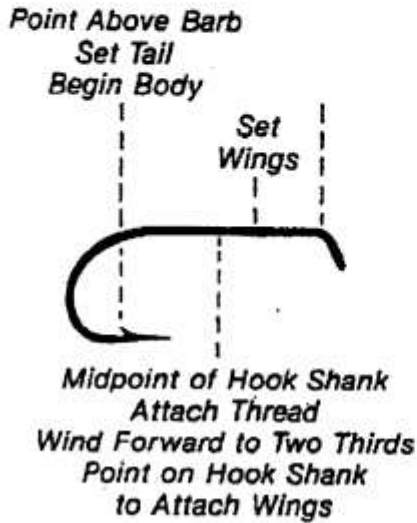
FIG. 6.
 WITH LOOP OF THREAD STILL ENGAGED AT "A" PULL SUPPLY THREAD SO LOOP REDUCES IN SIZE PULLING HOOK "A" TOWARD THE WRAP. FINALLY, DISENGAGE TOOL HOOK FROM THE WRAP AND PULL WRAP SNUG.

THE ULTIMATE WHIP FINISHING THROUGH A FINISHING TOOL. THIS GREATLY IMPROVED MATARELLI (FM) SS WHIP FINISHER IS STILL EITHER RIGHT OR LEFT HANDED. YOU NEED ONLY ONE SIZE FOR ANY SIZE FLY. AFTER A BIT OF PRACTICE YOU WILL FIND IT IS EASIER AND FASTER THAN WHIP FINISHING BY ANY OTHER METHOD. WITH A LITTLE EXPERIMENTING YOU SHOULD BE ABLE TO WHIP MOST ANYWHERE ON A FLY - BEHIND OR CROSS -

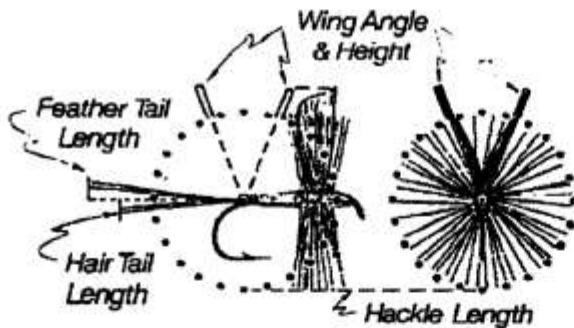
ING THROUGH A WING OR BEAD EYES EVEN AROUND A WING AS WELL AS FINISHING OFF A HEAD.



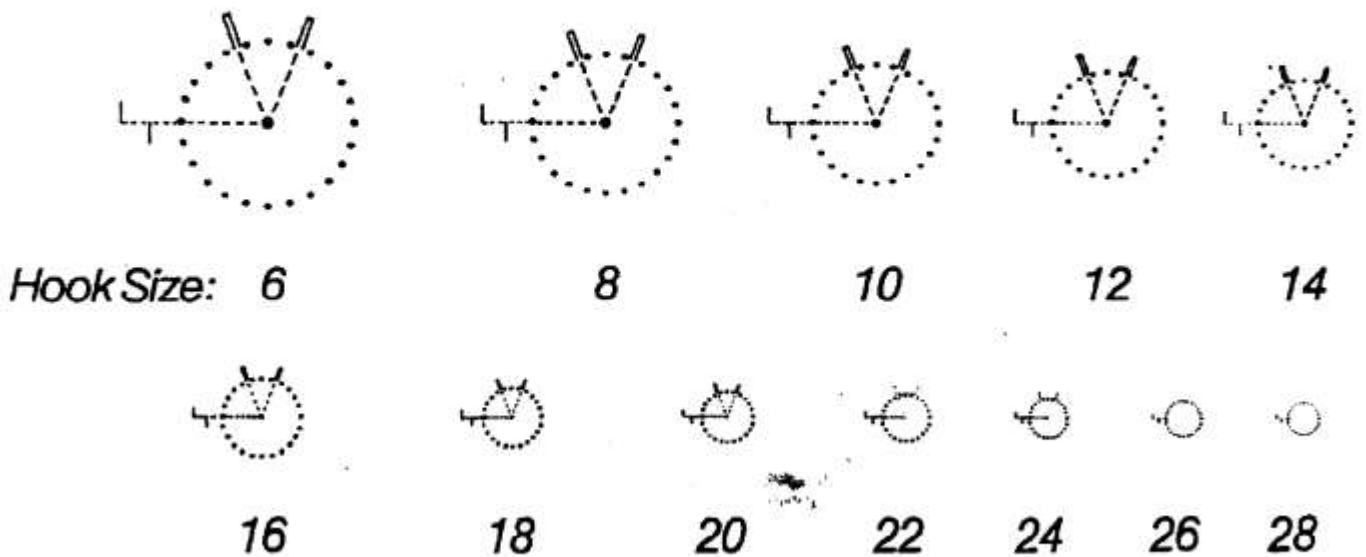
Basic Dry Fly Proportions



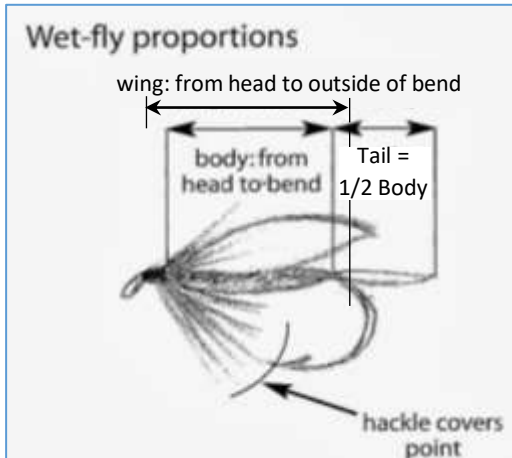
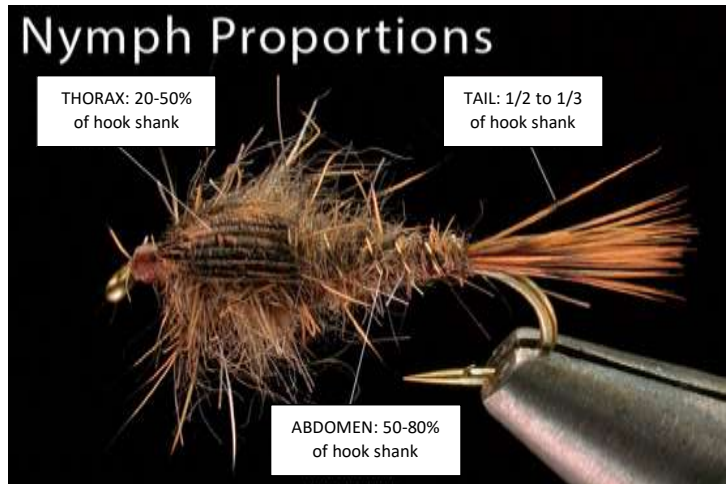
This chart uses the Mustad 94840 dryfly hook as a standard.



Proportion Check Chart



I've taught a lot of people to tie flies, and whether they are brand new tiers or even fairly experienced, one of the biggest troubles I see and hear about is fly proportions. It's not always easy to gauge exactly how long a tail should be or where exactly the wings should be placed on a dry fly, and sometimes it's tough to even have a really good idea of where the abdomen ends and where the thorax begins on a simple nymph. Even when you follow the best directions, you can still end up with a fly that seems strangely misshapen.



Parts and proportions

STREAMER FLY

Streamer fly parts

- Tail:
- Wing:
- Head:
- Rib:
- Body:
- Hackle:

Streamer fly proportions

- Tail: L = 1/4 to 1/2 x b
- Hackle: L = 1/2 x b
- Wing: L = 1 1/2 to 2 x b
- Head: L = 2 x c

Measurements

Approx. measurements for standard streamer flies.
 L = length, B = width

Luckily, there is a commonly accepted set of rules to follow for the length of things like wings, tails, and abdomens. Developing an "eyeball" measuring device to guide you can take years, but I am going to try here to give you the most commonly accepted guidelines, then some tips to make them easier to master, and finally some guidance on when to throw those guidelines out the window and break the rules a bit.

Fly Proportions, continued

Nowhere are proportions more important than on upright winged dry flies. Proper wing and tail lengths produce a fly that is accurately sized to the hook—a functional benefit because proportions affect the balance of the pattern, and determine how it sits on the water. Wings that are too long can cause a fly to spin during the cast, or even to fall over once on the water. Tails that are too long or too heavy can change the perceived size of the fly significantly. These seemingly small details have a very large impact on how well the fly performs.

Perhaps just as important is that proportions help us judge the beauty and attractiveness of a fly. Just as a person with a large nose or small beady eyes might be considered ugly, a fly with a tail that is too long, or wings that are too short, is equally undesirable.

Also, universally accepted norms for proportions help to produce consistent flies. The "best" commercial flies are ones that all look identical. Even if you are not a commercial tier, the goal is always to produce "consistent" flies so when you have a row of Hare's-ears, for instance, they all look the same. Without proportions, you are shooting at a moving target.

The Rules

Dry Flies: Dry-fly tails are tied in exactly at the bend of the hook and extend one shank length beyond the bend. The density of the tail fibers is dependent on the overall dressing of the fly . . . more heavily hackled patterns have a thicker bunch of fibers for the tail while more sparsely dressed flies will have a correspondingly sparse tail.

Upright dry-fly wings are one shank length long and should be mounted near the center of the hackle collar. Catskill-style dries tend to have the wings placed ever so slightly in front of the middle of the hackle collar while Western dries commonly feature wings placed more in the center of a thicker hackle collar. I attribute this to the notion that Western waters are more broken and faster moving than those in the East, and thereby require a fly with more hackle to float—although I am pretty sure there is also fast water in Pennsylvania.

Dry-fly bodies should occupy from 50 to 80 percent of the hook shank length, most typically ranging in the 60 to 75 percent area, leaving the remaining portion of the shank to be filled in with the hackle collar. As an example, an Adams could have a shank-length tail and wings, a dubbed body from the bend of the hook up to the 75 percent point on the shank, leaving the front quarter of the hook shank for the thorax/hackle collar. Placing the wings in the center of this front quarter of the shank would put them 12.5 percent of the shank length back from the eye and 87.5 percent of the way forward from the bend. If that sounds too technical, just think of the wings as being in the center of the hackle collar, and your eyeball and brain will take it from there. (Make sure you account for that .5 percent I mentioned earlier or no fish will ever eat your fly. Ever.)

Standard hackle on a dry fly should be one and a half to two hook gaps, although to my eye, hackle that is two hook gaps long looks gigantic. I nearly always shoot for a hackle length of one to one and a half gaps. Consideration must be also be taken about where, and over what, the hackle is to be wrapped. Hackle wrapped on a bare shank looks shorter than the same feather wrapped over a dubbed abdomen. I usually downsize my hackle feathers by at least one size when wrapping or palmering them over a dubbed body.

Downwings on dries (like an Elk-hair Caddis or Stimulator) should be no longer than one hook length long. A hook length is longer than a shank length and is measured from the front of the hook eye to the outside of the hook bend. A shank length is the distance from the back of the hook eye to the bend of the hook. Sometimes downwings are tied in directly behind the hook eye, or in the case of a Stimulator, much farther back on the shank. As a general rule, the farther back the wing is mounted, the shorter it ought to be, and rarely should it extend past the tail. (Same general proportions also apply to wet flies.)

Parachute hackle can be oversized by one hook size, although my personal preference is for parachute hackle that reaches from the wing post (at the 80 percent point) to the bend of the hook. René Harrop's beautiful and functional Biot Paraspinner in this issue [page 44] shows a great example of when and how to break those guidelines. While conventional wisdom is that the hackle on a parachute pattern imitates the legs of a mayfly, Harrop's fly instead uses the parachute hackle to imitate the long, spent wings of a mayfly spinner lying flush in the surface film, and therefore the hackle is purposely tied twice as long as normal to better match this identifiable trait.

Fly Proportions, continued

Nymphs

Nymph tails should be tied in precisely at the bend of the hook and are usually one half to two thirds of a shank length. If tied particularly sparse, nymph tails can range up to a whole shank length in some cases—such as the RS2—without changing the overall size and silhouette of the pattern. A thick tail bundle becomes an elongated extension of the abdomen, and can greatly alter the overall size and shape of the fly.

Nymph abdomens should take up 50 to 80 percent of the shank, leaving the remaining portion for the thorax. So if the abdomen is 60 percent of the shank, by default, the thorax occupies the remaining 40 percent. In my mind, anything that has an abdomen to thorax proportion of more than 80/20 becomes less of a thorax/abdomen and more of a body/head as is the case with midge or caddis larvae.

After a long diatribe like the one above, tiers usually say something like, "Okay, okay, we get it . . . but how do you do it every time?" Here are some hints. Measure the wing or tail clump against the shank length before you tie it in. Use the edge of your thumbnail to mark the measured length and hold the material firmly at this point while you attach it.

Once you have the material tied in, measure it again. Use an exactly equal hook (same size and model) held in a pair of hackle pliers to re-measure the mounted tail or wing, and if it doesn't match what it is supposed to be, untie it and do it again. Practicing poorly and settling for "almost right" will never train your eye to what "exactly right" looks like. Measure it twice. Hell, measure it three times. Get it right so you'll know what "right" looks like.

Now, give it a sanity check. The shank of a standard size 18 hook is pretty short, and a half of that is shorter yet, so when you're tying a Pheasant Tail or any other nymph, take a look and see if that half of a shank length tail that you so precisely measured and tied in actually turned out to be half a shank or just "shorter" than usual.

Here's a great tip to ease proportional headaches on dries or nymphs. Plan ahead where the abdomen is to end on the shank, then start the thread at that point and wrap a thread base back to the bend. I find it much easier to get a good idea of hook proportions using a bare shank, so I always start my thread where the body or thorax should end. This leaves a clear indicator of where my abdomen needs to stop, as well as keeps a single smooth layer of thread under the abdomen.

A clean, tight strand of dubbing with a square shoulder at the front end will also contribute to an accurate measurement. Bodies that just sort of fizzle out make it hard to gauge exactly where they stop. Sometimes, however, it's necessary to run the abdomen a bit farther forward than ultimately necessary to facilitate overlapping the wingcase and/or thorax onto its front edge, assuring that the two run together seamlessly.

There should be no gap between the abdomen and the thorax on a dry or nymph. Tying a feather slip wingcase onto the larger arbor diameter of the front end of the abdomen also helps keep the feather lying flat and prevents splitting. It's amazing how good technique begets good flies.

When trimming a wing to length, as in the case of an emerger pattern or parachute, accommodate the width of your scissor blade in your measurement. Your scissors cut at the center of their width, not the outside edge, and this small difference becomes important when you tie small flies. A poor cut can result in a wing that is forever slightly too long because your cut is farther forward than the outside of the blade. Just like with the table saw . . . cut on the outside of the line.

Hopefully these pointers shine some light on the dark side of fly proportions. As the old adage goes, "beauty is in the eye of the beholder" so if you're the only one who sees or uses your flies, feel free to make up your own proportions. If, however, you really want to master the art of fly tying, and make your flies look "just like the ones in the fly shop," then try applying these simple tips for consistent proportions. The trout might not appreciate it, but you will.

Charlie Craven co-owns Charlie's Fly Box in Arvada, Colorado, and is the author of Charlie's Fly Box (Stackpole Books, 2011). He is also the featured tier in two new Fly Fisherman DVDs: Warmwater Fly Tying and Saltwater Fly Tying. Both are available at the charliesflybox.com store.

Fly Proportions, continued



Tip 1 of 4

Use a bare hook to double-check your measurements. Remember that a shank length and a hook length are two different things. Photos: Charlie Craven



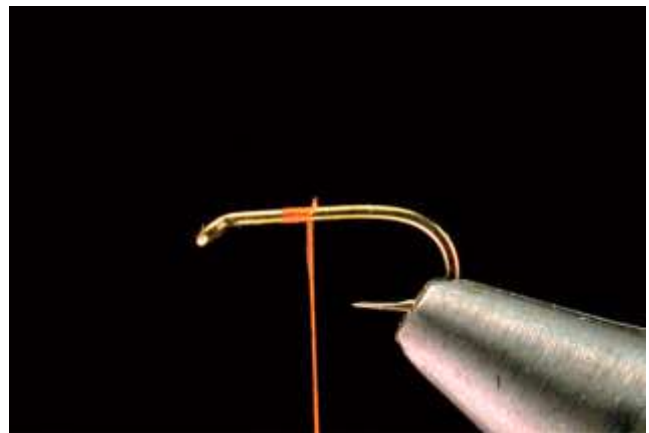
Tip 3 of 4

A tight, clean shoulder at the end of the abdomen helps you make an accurate estimate of the abdomen length.



Tip 2 of 4

Sometimes it's necessary to overrun the abdomen to tie in materials such as a wing case. Carefully wrap back to the correct starting position before dubbing the thorax.



Tip 4 of 4

Start your thread where you anticipate the abdomen will end, and the thorax will begin. Use this spot as a marker.

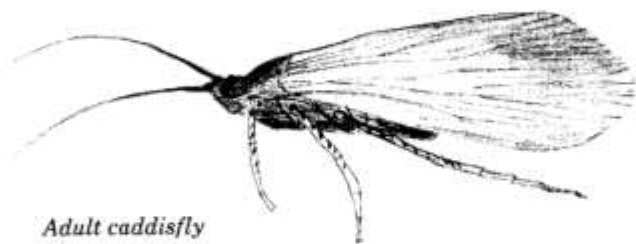
This section on fly proportions has been adopted from on-line sources which pertain generally to classic standard fly patterns. As the tier begins to become more skilled and attempts to tie flies which represent specific local insect forms collected from the field, the proportions and size of the artificial flies tied can be adjusted by the tier to more closely match the natural insects.

There is a wealth of information on the internet, including You Tube videos showing how to tie most common and popular flies - just go to "Google" for more information.

Pointers from Don Daughenbaugh

DRY CADDISFLIES

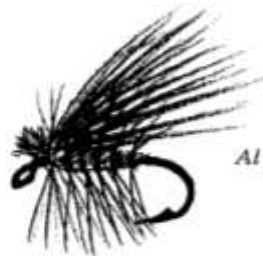
The main feature differentiating caddisfly from mayfly-like patterns is that, when viewed from above or below, the caddisfly silhouette suggests wings slanting back and outward from the shoulder in a triangular, pup-tent shape. This characteristic triangular silhouette is the reason for the caddisfly's scientific name, *Trichoptera*. The British commonly refer to caddisflies as *sedges*, and you'll occasionally see them called that in the American literature, too.



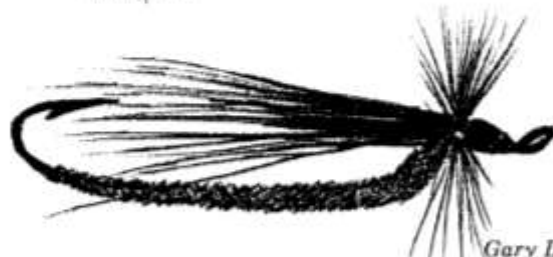
Adult caddisfly

Many different wing materials and ways of mounting them are used. *Hair-wing* patterns such as Al Troth's Elk Hair Caddis use a clump of animal-hair tips tied in at the shoulder and splaying out to the rear above the body to suggest wings. Gary LaFontaine's *Dancing Caddis* also is a hair-wing but is dressed on a Swedish Dry Fly Hook, which rides with its point up and the shank below. A more easily available Atlantic salmon dry-fly hook also can be used. *Tent-wing* or *quill-wing* caddis patterns use a section of turkey-quill feather folded over the top of the body. *Delta-wing* caddis use two hackle-feather tips tied at the shoulder and slanting rearward. Len Wright's *fluttering caddis* patterns employ a bunch of stiff hackle-feather fibers lying flat over the top of the body. Some other fluttering-caddis patterns slant the wings upward from the shoulder to imitate a female caddis hovering in flight at the water surface, laying her eggs.

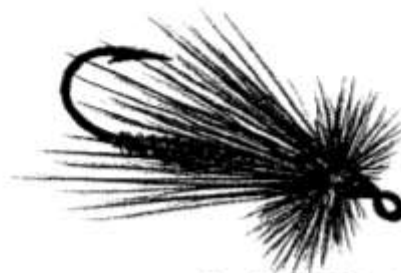
Perhaps the most unusual dry caddis pattern is the brainchild of Great Britain's John Goddard. Wanting a virtually unsinkable fly, and reasoning that fish only see the triangular silhouette from below, he devised a spun hollow-hair pattern trimmed into the characteristic triangular, pup-tent shape. With conventional feather hackle at the neck and two long antennae projecting forward (another prominent characteristic of many caddisfly species), it's hard to beat on big, rough water.



Al Troth's Elk Hair Caddis



Gary LaFontaine's
Dancing Caddis tied on a
Swedish dry-fly hook.

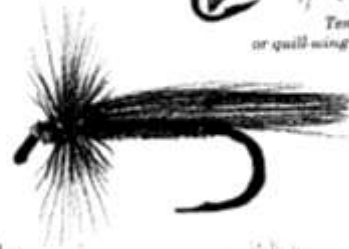


Dancing Caddis tied on a salmon dry-fly hook.

Goddard Caddis



Tent-wing
or quill-wing caddis



Len Wright's
Fluttering Caddis



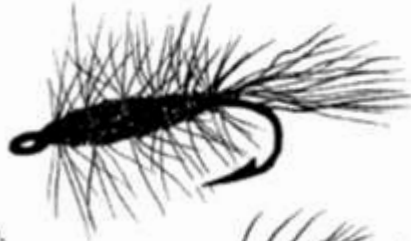
Delta-wing caddis

SPARSENESS & FULLNESS

Fly fishers have argued the merits of sparsely versus fully dressed flies for centuries, and likely will carry it on for as long as the last two anglers on the face of the planet still can stagger to the stream.

Sparsely dressed flies use scanty amounts of material to represent whatever the fly is supposed to be. A fully dressed version of the same fly would use much larger amounts of materials tied on more bulkily.

Sparsely dressed flies have both their strong points and their weak ones. Most aquatic fish foods such as insects and small minnows are petite, anorexically slender little creatures with few appendages, and many feel that sparseness is an important imitative quality of flies designed to suggest them. Too, sparsely dressed sinking flies knife through the water more easily than fully dressed ones, and that can be an advantage when trying to reach the bottom in swift, turbulent currents. Fully dressed flies, on the other hand, represent a more substantial meal, and fully dressed dry flies float more dependably, too.



These are both Woolly Buggers. One is sparsely dressed and the other is fully dressed.



A quality nymph with a neat, well-proportioned head.



A poorly tied nymph with untrimmed scraggly stuff protruding from the head.

UNWINGED WET FLIES

Many wet flies lack wings entirely. Perhaps the most widely known unwinged wet fly is the Woolly Worm, which is nothing more than a body with a long saddle feather palmered the full length of the hook shank. Tails are optional.

Soft-hackle flies date back at least to the 15th century, probably much earlier than that. Sylvester Nemes has revived their popularity in recent years with his books, *The Soft-Hackled Fly* and *Soft-Hackle Addict*.

Soft-hackles consist of nothing more than a body wound on the hook shank and feather hackle of partridge, quail, woodcock, grouse or starling sparsely wound at or behind the shoulder position. The fibers of these feathers get very limp when wet, and wave seductively in the current as anglers imagine insect legs and antennae might.

Among steelhead anglers, *Comets* and *Bosses* are popular unwinged wet flies. They have bodies, feather-hackle collars behind the head, and very long hair tails.

Shad Darts are even simpler patterns, having only an abdomen, thorax and marabou tail.



Woolly Worm

Soft Hackle



Wings—for your flies

There are many types of wings for you to choose in tying your flies. Each stage of aquatic life has different structures and with the material available it is many times just your preference. Some good durable wings are:

1. Divided wings- from the flank feather of waterfowl like: Male wood duck, Dyed mallard flank, teal, etc. all good and durable.
2. Divided wings from the primary feather of waterfowl and other desirable bird. This wing is not durable but is easy to tie and good. But that's why we tie our own flies.
3. Hackle tippets- saddle-this is a very good/durable wing/easy to tie .
4. Hair wings –selected from the portion of animals that can be used naturally-like elk dyed or natural. Immature calf is good, deer hair from young deer dyed or natural is excellent. – like deer mask. The secret is to select a fine textured hair. Tied post style- divided or spent- or down wings
5. Hackle fibers- from a good quality feather.
6. Synthetics- endless

I like to tie most of my wings (unless working with coarse hair like deer, elk-moose body for spinning) with thread 6/0 or smaller.

When positioning the material, it's

important when you tie your wing at a given point on the hook that it is attached and stays at the spot where you want it to stay.! When tying in –say divided wings, or primary feathers-I like to tie on the hook shank a few wraps of thread forming a bump and then set the thread just in front of that bump then throw in a half hitch in front (of bump)and that guide your thread for a perfect attachment to the hook- spot.

When tying –say tippets (primary feathers) on top of your hook, you can pinch to keep the feather where you want it, but I like to pinch the feather and slide the thread down on the opposite (away side) of the hook and pull UP against the bottom of the hook ^{which} will assure you that the material that is on top will not rotate to the other side. Remember to always pull against something solid and avoid wrapping or pulling against something like loose feather or material.

Remember ! fly tying is nothing but a bag of tricks- learn them and you can tie any recipe in the book.

HOOK ANATOMY (FROM MUSTAD)

NATURE HAS CREATED INNUMERABLE FISH SPECIES FOR US TO CHOOSE FROM WHEN DECIDING TO PUT FISH ON THE MENU. THROUGH THE AGES, FISHERMEN HAVE INVENTED AND TRIED OUT QUITE A NUMBER OF WAYS OF CATCHING FISH — LINE AND HOOKS BEING ONE METHOD THAT HAS SURVIVED THE CENTURIES.

In this context, it is quite fascinating to think about the fact that many present-day Mustad hook patterns are results of "trial and error" from the Stone Age up to the present. Why a particular hook has been designed with a particular gape, bend, shank, barb and eye, etc., is a result of experience laboriously gained from the collective efforts of hundreds of generations of fishermen. The History of the Fish Hook tells you quite a lot about the historical development of fish hooks; in this section we want to give you the basics of hook anatomy.

Getting to know hook terminology and what it stands for will make it easier for you when you need to find a particular hook for a particular purpose. Hook Sizes, Patterns and Parts illustrations below show the various parts of the hook with their proper names. The two most important dimensions of a hook is its gape, the distance between point and shank, and the depth of the throat. Generous dimensions ensure deeper penetration of the point and better holding power of the fish.

Hook Measurements: Unfortunately, there is no uniform system of hook measurements. Visual familiarity with the various hook patterns is the only workable gauge for the serious angler. Although attempts have been made to set a standard by measuring the hook in fractions of an inch, the system has never been successful because it merely represents the length of the shank. A hook is really two-dimensional since the gape can vary greatly from one pattern to the next. Gape: The distance between point and shank. Bite/throat: The distance from the apex of the bend to its intersection with the gape. Mustad measurements: Mustad Hooks range in size from 19/0 down to 32. Size 19/0 is the largest shark hook, size 32 is the smallest fly hook we make.

THE EYE OF A FISH HOOK IS THE RING, HOLE OR LOOP AT THE END OF THE SHANK THROUGH WHICH THE LINE OR LEADER IS SECURED. COMMON TYPES OF HOOK EYES:

Ringed Eye:



An eye in which the wire diameter is constant and forms a circle perpendicular to the plane of the hook itself. The ball eye may be closed or open. The closed kind is tempered and therefore stronger; the open eye is usually found on cheap hooks.

Brazed Eye:



The gap of the eye of this hook is brazed to the hook shank. It makes a very strong eye, and one which will not cut the leader or line. Big-game hooks are usually brazed to ensure maximum strength.

Tapered Eye:



On a 'tapered' ring, the thickness of the wire is reduced. It gradually tapers towards the end of the ring. This is done to reduce the weight of the hook and make it effective for dry-fly use.

Looped Eye:



The wire in the eye of the hoop runs back along the shank toward the rear of the hook. The end of this wire is usually tapered, although it can also be made untapered. Looped-eye hooks are traditionally used in making salmon wet flies.

Needle Eye:



So called because it is similar to the eye found on a needle. One advantage of the needle eye is that it may be easily strung through a natural bait without fouling. It is also strong.

Flattened Eye:



As an alternative to the eye, "Spade End" hooks are used. The end of the shank is flattened, and the fishing line is snelled/tied directly to the shank of the hook. The flattened area stops the knot from sliding off the hook. The flattened eye is used for medium-sized species in commercial fishing. Where natural bait, such as seaworm, is used, a hook may possess no eye at all, but simply a flattened end. Spade end hooks are extensively used by match anglers.

Hook Sizes:

Length - Rated in "x's" from standard length shank

x Long: Each x = 25% longer than standard

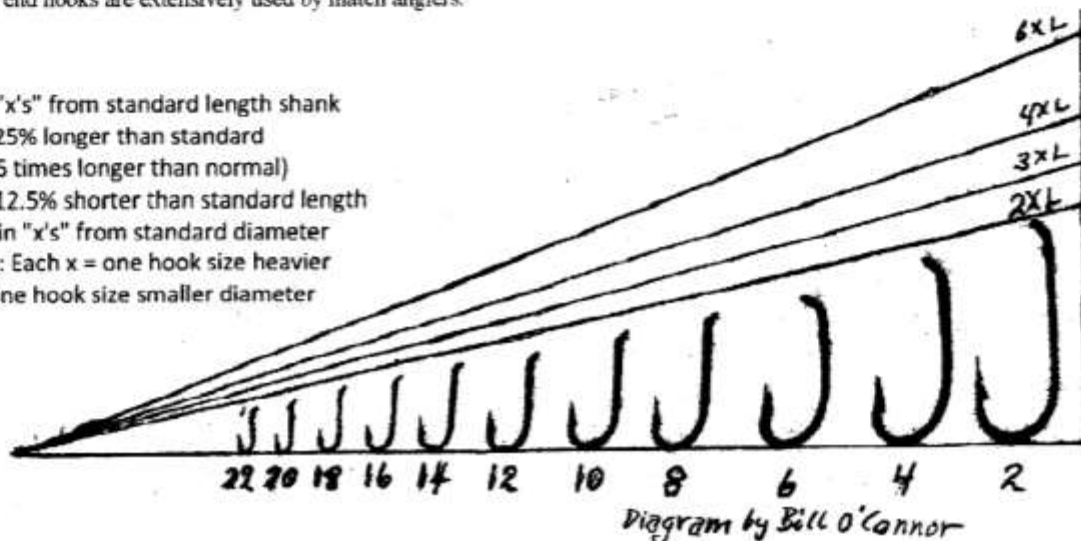
(eg. 2x Long is 1.5 times longer than normal)

x Short: Each x = 12.5% shorter than standard length

Diameter - Rated in "x's" from standard diameter

x Stout or Strong: Each x = one hook size heavier

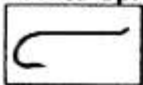
x Fine: Each x = one hook size smaller diameter



COMMON EYE POSITIONS:

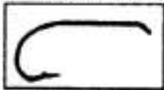
THE POSITION OF THE EYE IS AN IMPORTANT FACTOR WHEN IT COMES TO IMPROVING THE HOOKING POTENTIAL OF ARTIFICIAL LURES. "STRAIGHT" IS THE STANDARD EYE POSITION. HERE ARE THREE OTHER VARIANTS:

Turned Up:



the eye is turned up from the shank

Turned Down:



the eye is turned down from the shank

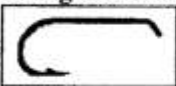
Parallel:



the eye is parallel to the hook bend

THE SHANK IS THE LEG OF A HOOK WHICH EXTENDS FROM THE BEND UP TO THE EYE. HOOK SHANKS ARE MANUFACTURED IN MANY DIFFERENT SHAPES. THE MOST COMMONLY USED ARE:

Straight Shank:



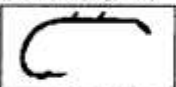
The hook shank is straight from eye to bend.

Curved Shank:



Shanks are often curved for specific reasons, e.g. to accommodate a special fly imitation. Various fly hooks require the shank to be shaped so as to imitate the body of a special insect.

Sliced Shank:

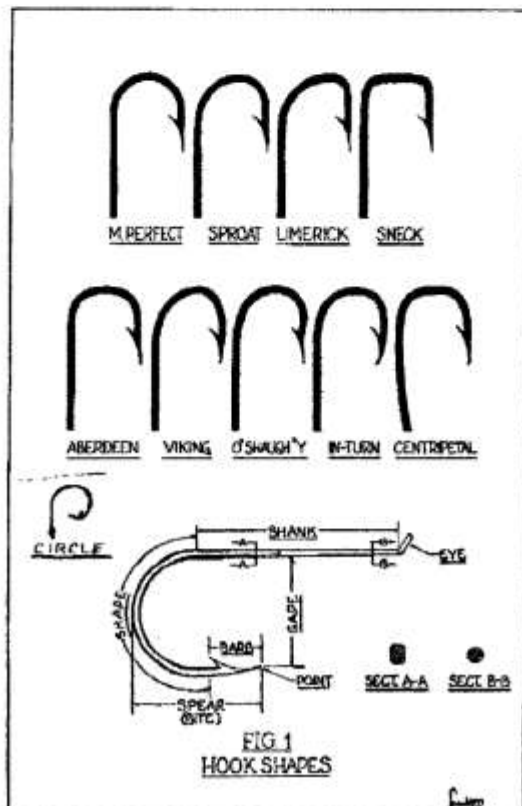


In order to anchor baits, such as worms and soft baits, a barb or barbs are cut into the shank.

SPECIALISED SHANK TYPES:

Jig, Keel, Offset, Kink, Bent back

BEND FORGED: IN ORDER TO INCREASE THE STRENGTH OF THE BEND (BY APPROX. 25%), THE WIRE OF THE BEND IS SLIGHTLY COMPRESSED SIDEWISSE.



Finishes

- Freshwater - High Carbon Steel:
- Bronzed (tinted lacquer)
- Gold
- Silver
- Black ("Caddis")
- Nickel

- Saltwater:
- Stainless steel
- Tinned

Notable Manufacturers:

- Mustad
- Tiemco (TMC)
- Daiichi
- Dai Riki

Understanding Thread Sizing, Construction, and Materials

Charlie Craven

(<http://www.flyfisherman.com/fly-tying/understanding-thread-sizing-construction-and-materials/>)

There is a lot of good information about fly tying out there. Between books, magazines, and the Internet, there is no shortage of adequate instruction and advice on almost all aspects of fly tying. Except for the apparent stepchild of fly tying: thread. Much of what's been written about this important tool is false or misleading.

Note that I used the word "tool" rather than material. In my mind, thread is a tool chosen to perform a specific task. I own no less than 1,000 spools of thread in a huge range of sizes, colors, and configurations, and while every one of them is good for something, none are good for everything. A large selection lets me choose the right tool for the job in every instance. You don't need 1,000 spools of thread, but hopefully I can help clear up the details of why threads are different, and what those differences mean to you.

Keeping it Together

Before I get started on thread differences, let's talk wax. Almost all tying thread comes from the factory waxed, and if you want unwaxed thread you'll have to use silk, GSP, Kevlar, or a specialty thread like unwaxed 3/0 Danville's Monocord. Waxed thread is not a substitute for dubbing wax, and is applied to the thread in the manufacturing process merely to keep the thread from fraying and unwinding wildly when it breaks.

Size is another major source of confusion for many consumers. Historically, fly-tying thread was sized using the archaic aught system that came originally from sizing silk surgical sutures, and is still used today for that purpose. Using a zero as a baseline and additional zeros to denote smaller sizes, the aught number described relative size based on a range of diameters and worked nicely in an age of organic materials where exactness was not always possible. Many tying threads are still measured this way today, as an example, 000000 or 6/0 (six aught) [generally used for smaller flies] being smaller than 000 or 3/0 (three aught) thread [used for larger flies such as muddler minnows].

The Danville Chenille Company used this system for tying thread for 50 years with no issues, but in the 1990s, UNI Products entered the tying market. While UNI also used the aught system to distinguish its larger and smaller threads, the company used a different baseline diameter, and that's where everything went to hell. Using the aught system, tiers assumed that the new 8/0 UNI-Thread was smaller than 6/0 Danville's. And 6/0 UNI-Thread seemed much stronger than 6/0 Danville's. Despite the numbers on the spool, those comparisons weren't fair because the two threads aren't the same size at all.

Wapsi Fly Company moved away from the confusing and archaic aught system when it introduced UTC Ultra Thread, and used the thread industry denier standard of measurement. Denier is the weight, in grams, of 9,000 meters of thread. It's a physical actual weight for a length of thread. It says nothing of the thread configuration, material, or strength. UTC Ultra Thread comes in 70, 140, 210, and 280 deniers, and simplified thread sizing to a significant degree. It's pretty simple math to figure out that 140-denier thread is twice as heavy as 70-denier thread, 210 is three times as heavy, and so on. Using the denier system retroactively tells us that 8/0 UNI-Thread is 72 denier, 6/0 Danville's Flymaster is exactly 70 denier, and surprisingly, 6/0 UNI-Thread is 135 denier—no wonder it seemed so much stronger; it's almost twice as heavy!

There is no constant baseline used by all manufacturers to clearly and accurately label their threads. As tiers, we should all know that 70-denier UTC Ultra Thread, 6/0 Danville's Flymaster, and 8/0 UNI-Thread are all about the same weight, but we should also know that these three threads are still very different because of both the materials used to make them, and the configuration (round or flat when viewed in cross section).

Most fly-tying threads are made of nylon or polyester. Polyester is slightly heavier than nylon and has a higher denier for a length of the same diameter. Polyester is also a bit stronger. There are also threads made of other materials like gel-spun polyethylene (GSP), Kevlar, silk, and monofilament, but those are for very specific uses—most general-purpose threads are nylon or polyester.

Danville's and UTC Ultra Thread are both made of nylon. Nylon has a fair amount of stretch, (25 to 30 percent), naturally lies flat, and has a silky smooth finish and a glossy sheen. Nylon threads allow dubbing to slide more than polyester threads and while still perfectly usable for dubbing, you should expect poorer adhesion to a slicker thread.

Both of these threads are flat and wrap on the hook like a ribbon. They are configured with multiple strands held together with a binder strand twisted around the center strands to hold the thread together. UTC Ultra Thread lies flatter on the hook because it is held together with a binder strand that twists around the main core at a rate of only one revolution per inch. This open twist allows the thread to spread out and lie flat on the hook shank. Danville's has a binder strand with more revolutions than UTC Ultra Thread so it doesn't lie quite as flat. Danville's and UTC Ultra Thread are both made of nylon. Nylon has a fair amount of stretch, (25 to 30 percent), naturally lies flat, and has a silky smooth finish and a glossy sheen. Nylon threads allow dubbing to slide more than polyester threads and while still perfectly usable for dubbing, you should expect poorer adhesion to a slicker thread.

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These flat threads are particularly useful for thread-body flies or flies requiring a smooth underbody, as they create silky, seamless tapers and bases. I like both of these threads for Black Beauties, Copper Johns, and Humpys. In the case of the Black Beauty and Copper John, this is because the smooth texture and low bulk allow me to build smooth bodies and underbodies without ridges. Conversely, my friend Jay Zimmerman prefers 8/0 UNI-Thread for the Black Beauty, as he believes the ridged thread body holds the wire rib in place more securely.

In the case of the Humpy, I find these threads to be perfect for building both the upright divided wings with flattened thread to keep them from flaring, and then building the thread hump to create a vibrantly colored, smooth underbody. I twist both of these threads into a cord (by spinning the bobbin) when I first attach the hair to a hook, as I find round thread grabs, cinches, and compresses hard hair better than flat thread.

I like larger thread—140-denier UTC Ultra Thread, 6/0 UNI-Thread, and good old 3/0 Danville's Monocord (rated at 140, 135, and 116 denier, respectively)—for streamers and saltwater flies. I find the slightly narrower nature of 3/0 Danville's to be particularly useful for streamers like the Baby Gongga and Dirty Hippy, but again, the colors here are somewhat limited and muddy.

UNI-Thread 6/0 is similar to Danville's 3/0 and I use it in many of the same instances. It is one of my favorite threads for flies like Crazy Charlies, as the round shape bites into the D-Rib overbody as well as the hard calftail wing for a more secure tie-down. Medium saltwater flies like my Ragin' Craven and Flip

Flop use 140-denier UTC Ultra Thread as there is space for extra bulk on larger patterns, and this flatter thread creates a smooth, clean profile around the weighted eyes.

I only use the largest sized UTC threads, 210 and 280 denier, on flies that require quick and heavy thread coverage like the Pigsticker, or for the hot head on Cliff Watts's Kilowatt. In these cases, thread that builds and covers quickly and smoothly is paramount, but otherwise these threads are, quite frankly, overkill.

Polyester UNI-Thread has less stretch (15 percent), is more roughly textured, and sits more rounded or corded on the hook. The rougher texture holds dubbing particularly well. Colors are typically a bit more muted and subtle in polyester than they are in nylon, with more of a matte and less shiny finish.

UNI-Thread can be flattened slightly by diligently unwinding it or wrapping the thread left-handed. Yes, you read that right. Most threads are twisted such that as a right-hand tier wraps them around the hook they contribute to the factory twist in the thread. Left-hand tiers enjoy an unintended advantage in that as we wrap these threads we unwind them . . . causing them to lie much flatter than when wound by our right-handed friends.

UNI-Thread is a bonded thread that is reinforced with multiple binder strands that twist around the core strands at a much higher rate to produce the rounded shape. Because of that shape, UNI-Thread tends to build bulk vertically on the hook shank rather than horizontally as nylon threads do. The round cross section coupled with less stretch and a more textured surface of this polyester thread allows for a bit more "bite" and "grab" to the thread in tying applications. Round thread bites into and flares hard hairs like deer, elk, and moose better than flattened thread does.

The rougher texture of polyester threads also holds dubbing better than the slicker nylon. Because of this and my inherent left-handedness, I like 8/0 UNI-Thread and use it on many of my trout patterns. Its ability to be flattened or twisted into a cord and the harder nature of polyester versus nylon make it a great choice for smaller flared hairwing flies like a Compara-dun or X-Caddis or anything made predominantly out of dubbing. My biggest gripe with UNI-Thread is the colors are not as vibrant as the nylon threads, but that's simply a matter of my preferences . . . the fish don't seem to care. I should mention here that 14/0 Gordon Griffith's Sheer (72 denier) thread is made of polyester as well, but is constructed more like 6/0 Danville's, striking a nice compromise between a hard, round polyester thread and a flatter nylon.

Veevus is a new brand that has recently come on the scene and become quite popular. It is the only modern era thread that is unwaxed. All of the Veevus middle-sized threads (8/0, 10 /0, 12/0 and 14/0) are built in a conventional fashion with a bit of twist but with the ability to be flattened beautifully by unwinding, while both their largest and smallest sizes (6/0 and 16/0) are built of just two intertwined strands in a counterclockwise twist. These threads also flatten or cord up nicely and in the case of the 16/0, create negligible bulk when tying. Both of these two sizes lend themselves wonderfully to split-thread dubbing, in case you're into that sort of thing. Oddly, a little bit of online research shows that Veevus 6/0, 8/0 and 10 /0 threads are all rated at 110 denier, and the 12/0 and 14/0 are rated at 70 denier with the 16/0 rated at a fine 50 denier. I cannot for the life of me figure out how they have managed to make distinctly different sized threads out of a material of the same denier, but they have. The 12/0 and 14/0 threads are clearly different sizes. They lie flat or cord up at the tier's whim, they have surprisingly good strength, and the colors are more than adequate for all the tying I do.

I just wish I could give you a straight answer as to how they make the stuff but, after an extensively long e-mail string with the head of the company, they either don't know, or don't want us to know! Their advice was not to concentrate so much on the technical aspects of the thread but to instead buy a few different sizes and see what works best for your own tying. This isn't bad advice, although I must say it wasn't very helpful in writing an article about these technical differences.

Specialty Threads

GSP (gel-spun polyethylene) threads are super slick, strong for their size, have very little stretch (3 percent), and lie flat on the hook. They are typically used for spinning deer hair or for synthetic materials that call for an abnormally strong yet small-diameter thread. GSP thread holds up well to toothy fish and creates durable flies. The slickness can be a liability in other applications however, particularly dubbing retention, and the dye used to color them is not as stable on GSP thread as it is on other materials, so I only use white.

Kevlar was sort of a precursor to GSP. It lies quite flat, is incredibly strong, and comes in just one size (200 denier). It is most often used in larger spun deer-hair patterns like bass bugs. Dye is not stable in this material either, and can run when you apply head cement, so I only use this thread in its natural color of pale yellow. There's nothing worse than tying a perfect white bass bug, and watching the thread leach dye into it when you add a final drop of head cement.

These two specialty threads are basically interchangeable. GSP thread is much slicker, and both can be hard to cut with your tying scissors. I've heard horror stories about the abrasiveness of both these threads eating bobbin tubes, but after almost 40 years of tying I've never seen it. GSP thread does come in a wider range of sizes, from 30 denier up to 200.

Monofilament threads are just what they sound like: fine, round, single-strand nylon monofilament—just like tippet material. Use mono threads when you want the thread to disappear under a coat of epoxy or head cement when you are tying Surf Candies or EP Minnows. The single-strand construction leads to excessive twisting in the tying process and they must be managed to control and unwind this twist while you use them. Mono threads are not particularly strong either.

Silk was the first thread used to tie flies and is still wonderful stuff. Two twisted strands are used to create this thread and silk can easily be untwisted to flatten or twisted as you see fit. It has fallen by the wayside for many reasons, mostly because it's not very strong and doesn't hold its true color when wet. It's still useful in historic applications and I use it for soft-hackled patterns as well as ribbing in some cases, but as a general tying thread it has been surpassed.

After all this guidance, it's still useful to buy several different kinds of threads and sizes and see what suits you and your tying best. While a more consistent and understandable and consistent sizing system would be a lovely advancement, it's not likely to happen.

If you're now a true "thread nerd" and want an even deeper understanding of thread sizing, materials, and breaking strength, check out Martin Joergensen's fantastic thread table on the Global Flyfisher website (globalflyfisher.com/tie-better/fly-tying-thread-table). I use this chart for a reference to the denier sizes and diameters of all thread brands and find it invaluable.

Charlie Craven co-owns Charlie's Fly Box in Arvada, Colorado, and is the featured tier in two Fly Fisherman DVDs: Warmwater Fly Tying and Saltwater Fly Tying. His latest book is Tying Nymphs: Essential Flies and Techniques for the Top Patterns, available from Stackpole Books/Headwater Books (2016).

A FLY ANGLER'S INTRODUCTION TO PICKING A PATTERN

by Carl Haensel

It's the morning of your first fishing trip on a new trout stream. You've just driven three hours, and you've pulled off at a good-looking spot next to a bridge. You begin rigging your gear and preparing to head down to the stream.

Each fly angler in this situation faces a challenge—which fly to use? Many anglers have a favorite fly pattern or two, a “go-to” fly. There are times, however, when one fly pattern may be better than another. Consider this series of factors that will lead you through the steps of picking the best fly for the situation.

Before you start picking your fly in the field, there are some basics that you will need to learn. Start by learning



photos by the author

about the prey that predatory fish eat: Insects, crustaceans and fish. If you want additional information on these organisms and their life cycles, check the information on mayflies, caddisflies, stoneflies, crayfish, baitfish and many others on the Commission's web site, www.fish.state.pa.us.

Step 1: Where will you fish?

If you are going to fish for brook trout in a mountain stream, your box should hold different flies than a box for brown trout in a limestone spring creek. As a general rule, trout that live in more productive water, like spring creeks, are more finicky about which flies they will take. There are many varieties of food available to the trout, and they often are selective about what they eat. In those types of streams anglers should fish flies that closely resemble natural foods found there. In less fertile water, such as most of Pennsylvania's “mountain” trout streams, there is not as much food for trout to eat. In these streams, trout are more likely to respond to a fly that doesn't closely match a prey item that is actually found there.

Fly Selection Rules

- Don't decide on a fly until you get to the stream. Wait to rig your rod until you sit down at the stream and make some observations.
- Use a net. Remember to examine insects and minnows carefully. Regardless of the types of insects or minnows you might find on a stream, a small seine or fine-mesh net is indispensable for examining them. There are even some nets on the market that slip over your landing net.
- Bring at least three flies of a pattern to the stream. One to use, one to use after that big fish breaks off the first one, and one to lend to your buddy. Leave a spare fly at home, too.
- Believe in your fly. If you don't, take a break and consider your selections. If you don't believe in the pattern that you're fishing, you're not as likely to catch as many fish.
- It's not all about the fly. Presentation of your fly accounts for a huge part of your success. If the first 10 patterns don't catch the fish, the next 10 won't catch it, either. Move along and try for another fish, or change your presentation completely.—CH.



If the water is a little bit cloudy, high or fast, try using a fly in a beadhead version to add a little flash to it. It won't look entirely natural, but the trout may just take notice.

Step 2: When are you going?

To select the right fly, there are seasons and cycles that you must consider. A smart first step is to find a local or regional hatch chart that will tell you which mayflies, caddisflies and stoneflies are hatching. There are insect hatches, especially mayflies, that occur only at a specific time of the year.

Step 3: What time of day will you fish?

The time of day and weather play an important role in your fly selection. What do you think the fish will be doing in the next few hours when you start fishing? Will the grasshoppers in the meadow be warm enough to be active in the afternoon? Will there be a mayfly hatch in the evening? If so, the mayfly nymphs that are about to hatch might be active. Consider that an evening rainstorm or other inclement weather that has caused stream levels to rise can stop or delay an insect hatch. Furthermore, extremely hot weather or low stream levels can cause insect and trout feeding activity to occur primarily in low light levels and even during the night.

Step 4: Stop and watch.

One of the most important things you can do at a trout stream is to stop, wait and watch. Look for information in the water, the air, and last night's spider webs. Insects, minnows and fish moving around will give you clues to which fly to pick. Plan to spend at least five or 10 minutes observing on every fishing trip, even on your favorite stream.

Step 5: Put the pieces together.

None of the elements on a trout stream works independently. You must consider all the variables. If there are mayflies in the air and the trout are making splashy rises, take a closer look. Try to see if the mayflies in the air are the same ones that the fish are eating on the water. Then search your fly box to find something that matches them. You're in luck if you've tied some flies for the hatch that you're now seeing firsthand. Don't plan to use dry flies if you don't see any rising fish. While not a "hard and fast" rule, this strategy will help make your angling more productive, especially on Pennsylvania's limestone trout streams.

Trout can consume more than 80 percent of their food from underwater sources. If no insects are hatching, turn over rocks in the stream and look at what's on the underside to figure out what lives there. If you're going to fish nymphs, you don't always need to know an organism's Latin name. Just flip over a rock. If you see little crawly dark-brown things that look to be about size 16, tie on a fly that looks like that, such as a size 16 Pheasant Tail Nymph. If

The Beginner's Fly Box

Unsure about which flies to bring out to the field with you? Here's a short list of flies that will provide you with something to use in many situations that you will encounter in Pennsylvania. These flies are generic patterns that don't mimic one specific insect or minnow perfectly, but they do an adequate job imitating several different ones.

Fly Pattern	Size
Blue-Wing Olive	14-16
Adams	12-16
Adams Parachute	12-16
Tan Elk Hair Caddis	12-16
Beadhead Pheasant Tail Nymph	4-18
Pheasant Tail Nymph	14-18
Beadhead Hare's Ear Nymph	12-16
Hare's Ear Nymph	12-16
Olive Woolly Bugger	8-10
Black Woolly Bugger	8-10

the water is a little bit cloudy, high or fast, try using a fly in a beadhead version to add a little flash to it. It won't look entirely natural, but the trout may just take notice.

If you're fishing for big trout, streamers can make the difference. Wild trout that exceed 16 inches in length eat a significantly larger percentage of minnows and other small fish. Feed them what they want—a streamer that looks like a minnow. Try using a small seine to take a closer look at the kinds of minnows in the stream. □



None of the elements on a trout stream works independently. You must consider all the variables.

Central PA Hatch Chart, PSU Fly fishing Club

Hatch	Size	Approximate Date	Time of Day	Flower Blooming
Little Blue Winged Olive Dun	16-18	March 15	10:00 AM – 4:00 PM	First Coltsfoot
Grannon Caddisfly	12-14	April 15	11:00 AM – 6:30 PM	Skunk Cabbage
Blue Quill	16-18	April 17	11:30 AM – 3:00 PM	Trout Lily
Quill Gordon	12-14	April 17	1:30 PM – 6:30 PM	Bloodroot
Hendrickson (F)	12	April 20	2:00 PM – 6:00 PM	Wild Ginger
Red Quill (M)	14	April 20	2:00 PM – 6:00 PM	Wild Ginger
March Brown	10-12	May 12	Sporadic Day	Redbud Tree
Gray Fox (Dun)	10-12	May 12	10:00 AM, Noon, Dusk	Dutchman's Breeches
Ginger Quill (SP)	10-12	May 12	10:00 AM, Noon, Dusk	Dutchman's Breeches
Sulphurs	14-16	May 20	7:00 PM, Dusk	Trillium
Light Cahill	12-14	May 20	8:00 PM	Iris, In Full Bloom
Green Drake	8-10	May 28	8:30 PM	Pink Lady's Slipper
Brown Drake	10-12	May 30	8:00 PM	Peonies, Open
Slate Drake	10-12	June 1	5:00 PM	Mountain Laurel
Blue Winged Olive Dun	14-16	June 10	9:00 AM, 8:30 PM	Chickory, In Bloom
Yellow Drake	10-12	June 30	8:00 PM	Goat's Beard
Trico	20-24	July 15	7:00 AM - Noon	Wild Rhododendron
White Fly	10-12	August 7	7:30 PM	Goldenrod
Slate Drake	12-14	September - October	11:00 AM – 4:00 PM	-----
Little Blue Winged Olive Dun	18-20	September - October	10:00 AM – 4:00 PM	-----

Midges	Emergence	Hook	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Midges	Emergence	Hook	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cream Midges Various	All Day	#22-28	[Bar spanning Jan to Dec]											
Olive Midges Various	All Day	#18-28	[Bar spanning Jan to Dec]											
Black Midges Various	All Day	#20-28	[Bar spanning Jan to Dec]											
Gray Midges Various	All Day	#18-28	[Bar spanning Jan to Dec]											
Red/Brown Midges Various	All Day	#22-28	[Bar spanning Jan to Dec]											
Cranefly Yellow/Orange, Tan/Gray	All Day	#16-18												

Other	Emergence	Hook	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other	Emergence	Hook	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ants Various	All Day	#16-22												
Flying Ant Various	All Day	#16-18												
Hoppers Various	All Day	#12-16												
Crickets Various	All Day	#12-14												
Beetles Various	All Day	#10-18												

From Penns Creek Angler - Bruce Fisher; Penns Creek Hatch Information- Please call the shop for current conditions and hatches. 570.922.1053; http://pennscreekeangler.com/hatch_chart.htm

The hatches vary from year to year and could be off schedule by as much as three weeks. Everything is based on water and air temperature coupled with water level. We have patterns at the shop that we'll be happy to share with you or you can purchase from our custom line of flies that are proven.

Flies

All Year: Midges -Tan and Cream #18-26
 Jan-Feb - Black Stoneflies #18
 Mid March - Brown Stoneflies #14
 Late March- Mid April - Blue Quill #18
 Early April - Mahogany Dun #18
 Early April - Black Quill #14
 Early April - Quill Gordon #14
 Mid April - Various Early Olives #16-22
 Mid April - American Grannom #12-14
 Mid- Late April - Hendrickson #12-14
 Early May - American March Brown #10
 Early May - Gray Fox or Ginger Quill - #12-14
 Early May Black Caddis #16
 Early May - Green Sedge #18
 Early May - #14 Yellow Dun
 Mid May - Light Cahill #14
 May-Oct - Crane Flies Orange, Yellow, Cream #14-18
 Mid May - Brown body Caddis #14-16
 Mid May - Sulphurs 16-18
 Late May - Tan Caddis #14
 Late May - Orange Cahill #12-14
 Late May - Green Drake
 Late May - Fish Fly #4-8

Late May - Perla Stoneflies #8-12
 Late May - Black Stoneflies #10-12
 June - Sulphurs, Cahill's,
 Tan Caddis #14-16
 Early June - Olives #12-14
 Mid June - Golden Drakes #10-12
 Mid June - Slate Drakes #10-12
 Mid June - Leaf Rollers #10-12
 July - Olives #14-22
 Mid July - Brown Drakes #6
 Late July- Mid August Trico's #20-22
 September - Ants and Winged Ants #16-18
 September - Hoppers #8-16
 September - Beetles #14-18
 Late Sept - Slate Drakes #14
 Late Sept - October - Slates, Cahills, Olives #18-22
 October Tan Caddis #16-18
 October - Dark Blue Sedge #16
 October Green Caddis #16-18
 Mid October - October Caddis #10
 October Streamers #6-12

Uncle Orley's HATCH CYCLE CHART



PINE CREEK

APRIL 20.....	Dark Blue Quill - #18	
APRIL 23.....	Hendrickson - #12 - #14	
MAY 3.....	Gray Caddis - #16	
MAY 7.....	Green Egg Sack Caddis - #16	
MAY 12.....	Gray Fox - #14	
MAY 20.....	March Brown - #12	
MAY 27.....	Pale Evening Dun - #14 - #16	
MAY 27.....	Blue Winged Olive - #18	
JUNE 1.....	Brown Drake - #10 - #12	
JUNE 1.....	Green Drake - #10 - #12	Slate Drake #12
JUNE 10.....	Light Cahill - #14	
JUNE 22.....	Yellow Drake - #10 - #12	

PENNS CREEK

APRIL 12.....	Little Black Stonefly - #16	
APRIL 17.....	Little Black Caddis - #16 - #18	
APRIL 20.....	Hendrickson - #14	Grannom #12-14
MAY 5.....	Light Stone Fly - #14	
MAY 18.....	March Brown - #12	
MAY 18.....	Great Red Spinner - #12	
MAY 25.....	Green Drake - #10 - #12	
MAY 26.....	Pale Evening Dun - #14 - #16	
JUNE 1.....	White May Fly - #12 - #14	
JUNE 20.....	Slate Drake - #12	
JUNE 25.....	White Gloved Howdy - #12	
JULY 3.....	Yellow Drake - #10 - #12	

MUNCY CREEK

APRIL 12-30.....	Blue Wing Olive - #20	
	Blue Quill - #18	
	Quill Gordon - #14	
MAY 1-30.....	Green Caddis - #14	
	Sulphurs - #10	
	Gray Fox/Ginger Quill - #12 - #14	
	Light Cahill - #14	
JUNE 1-15.....	Slate Drake - #12	
	Little Green Stonefly - #16	
	Hendrickson/Red Quill - #14	
JUNE 15-30.....	Light Cahill - #14	
	Yellow Drake - #12	

LOYALSOCK CREEK

APRIL 19.....	Quill Gordon - #14	
APRIL 26.....	Hendrickson - #14	
MAY 12.....	Caddis - #16	
MAY 13.....	Gray Fox - #14	
MAY 15.....	March Brown - #12	
JUNE 20.....	Yellow Drake - #12	Slate Drake #12
JULY 15.....	Trico - #24 - #26	

SLATE RUN

APRIL 10.....	Blue Quill - #18	
APRIL 20.....	Quill Gordon - #14	
APRIL 25.....	Hendrickson - #14	
MAY 7.....	Light Yellow Stone - #16	
MAY 15.....	Gray Fox - #14	
MAY 21.....	March Brown - #12	
MAY 29.....	Blue Wing Olive - #18	
JUNE 5.....	Green Drake - #10 - #12	
JUNE 5.....	Sulphur - #16	
JUNE 15.....	Slate Drake - #14	
JULY 30.....	Trico - #24	

FISHING CREEK (Lamar, Pa.)

MARCH-OCT. ...	Blue Quill - #18 - #20	
APRIL 25.....	Hendrickson - #14	Grannom #12-14
MAY 12.....	Gray Fox - #14	
MAY 15.....	March Brown - #12	
MAY 20.....	Sulphur - #16	
MAY 30.....	Green Drake - #12	
JUNE 10.....	Slate Run - #12	
JUNE 20.....	Light Cahill - #14	
JUNE 25.....	Yellow Drake - #12	
JULY.....	Trico - #22 - #24	
All Season.....	Caddis - sizes & colors vary	

KETTLE CREEK

APRIL 10.....	Little Blue Quill - #16 - #18	
APRIL 12.....	Black Caddis - #16	
APRIL 15.....	Gray Stone Fly - #14	
APRIL 20.....	Quill Gordon - #12 - #14	
APRIL 27.....	Hendrickson - #14	
MAY 12.....	Gray Caddis - #14 - #16	
MAY 15.....	March Brown - #12	
MAY 18.....	Gray Fox - #14	
MAY 27.....	Green Drake - #10 - #12	
JUNE 10.....	Light Cahill - #14	
JUNE 17.....	Slate Drake - #12	

LYCOMING CREEK

APRIL 12.....	Blue Quill - #18	
APRIL 17.....	Quill Gordon - #14	
APRIL 28.....	Hendrickson - #14	
MAY 13.....	Gray Fox - #14	
MAY 17.....	March Brown - #12	
MAY 27.....	Sulphur - #14 - #16	
JUNE 10.....	Light Cahill - #14	
JUNE 15.....	Slate Drake - #12 - #14	
All season.....	Caddis - assorted sizes and colors	

Note: Hatches can vary as much as 7-10 days depending on weather conditions and water temperatures.

My special thanks to the Susquehanna Chapter of Trout Unlimited for making this chart possible.

Good Fishing.

George Harvey: New Leader Formula

George Harvey August 28th, 2000

At my age, I have probably done more research on fly tying, fly fishing, and fly-fishing methods than most of the so-called experts in this field.

I taught the first (noncredit) fly-fishing and fly-tying course in the United States in 1934 and the first credited course in the U.S. in 1947 at Penn State University. I taught courses on the campus every year until I retired in 1972; while I worked at the university I also taught 72 classes in 68 different cities in Pennsylvania. Each class met for 5 evenings.

Since retirement I have taught classes every year around the U.S. and in Pennsylvania and will continue to teach as long as I am able!

I have written many articles and several books on techniques and flies I have originated. However, the most important article for all fly fishermen was the article I wrote on leader construction for Fly Fisherman in the mid-eighties. That article influenced thousands of fly fishermen and helped them catch more trout. However, since that time I have improved the leader design and casting methods to get a slack-leader cast. These are the most important parts of one's fly-fishing equipment and methods. I have shared and demonstrated this new leader to many men and women, and they catch more trout than most others.

The Leader

Over the years I have improved my leader design. Originally, my basic leader was made of stiff nylon. Now I make all of my leaders from the softest leader material I can purchase. My basic leader is smaller in size than all commercial leaders I have checked.

I tie my basic leaders in the following sizes .015", .013", .011", and .009". Each section is approximately 18" to 19" long. I attach this basic leader to my line using a nail knot and use it for all my leaders. To this basic leader, I add 3X, 4X, and 5X in lengths appropriate for the fly I am using to get a slack-leader cast.

The fly's air resistance determines the length of the terminal tippet. You cannot use one construction for all fly sizes because the less air resistance of the fly you are using, the longer the tippet must be.

The following is how I add to the basic leader. If I am going to 4X, I add 15" of 3X to the basic leader, then 36" of 4X.

When I go to 5X, I add 15" of 4X to the 3X, then 36" of 5X.

After I have the leader built, I tie on the fly and make a short cast. If the leader piles up, I cut off a short section and try again. When you have it right you will get a good slack-leader cast.

Leaders made from soft nylon provide a better drag-free float than one with a stiff nylon base. You can also use heavier terminal tippets, which allow you to put more pressure on the trout and land and release them quicker.

Those who must use 6X, 7X, and 8X tippets to get trout to take play the fish much too long, which results in the death of many trout. Personally, I now catch all trout on nothing smaller than 4X or 5X tippets. I only use 5X on the smallest flies because I cannot get 4X through the eye of the hook. When fishing the Green Drake and other large flies, I use 2X and 3X tippets.

I recently took three women, with whom I have worked for 2 1/2 years teaching them to tie flies, build leaders, and make a slack-leader cast, out fishing during the Green Drake hatch on private water. I had

them tie their leaders with 2X tippets. Can you believe it? They caught over 60 trout, and a third of them were over 20" long.

This leader design is the most important part of our fishing equipment. I use an 8 1/2-foot rod built for a 5-weight line when using this leader.

The Cast

Now it's time to teach you to cast, so you will get a good slack leader. I

generally do not make a cast over 35 feet unless circumstances call for a longer cast. However, I catch most of my trout at a distance of less than 40 feet.

With the shorter line, you can get a better slack leader. With the thumb on the top of the front end of the handle, I use very little arm action. The back cast is made with little arm action but a fast snap of the wrist, so that the line goes straight back and about 9 or 10 feet above the water. As the line straightens out before it starts to fall, make the forward cast with fast wrist action, so the line will straighten out 5 or 6 feet above the water. Follow the line down to the water with the rod tip. This will give you a good slack-leader cast. Raise the rod tip slowly as the line drifts back. If you raise it up too fast it will straighten out the leader.

As you make this cast, use the thumb as you would the sight on a gun. If you do this you can place the fly within a few inches of where you want it to land. If it's a windy day, it is harder to judge where the fly will land. Wind will also straighten out some of the slack in the leader. Under these situations it's best to only make the forward cast 3 or 4 feet above the water.

Be careful to avoid the leader piling up at the fly end. If it does, shorten the leader just a little. It should have ever-increasing "S" curves from the fly to the line.

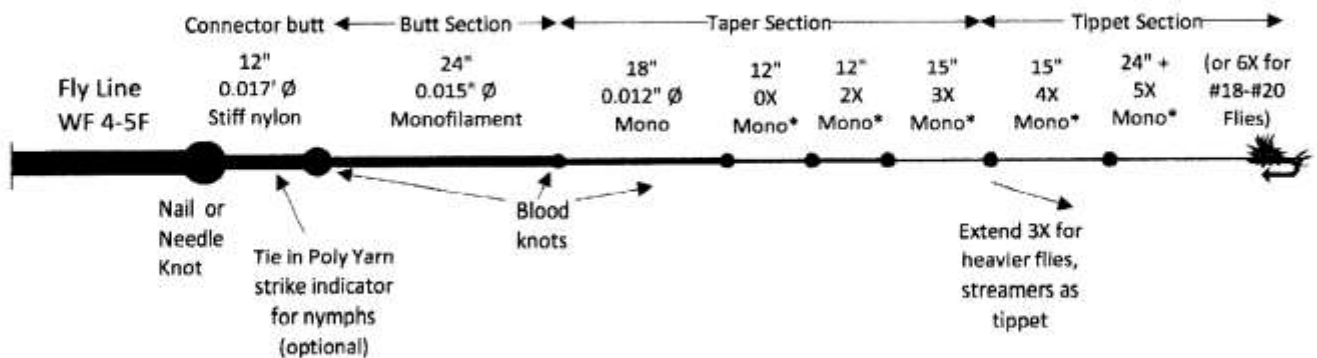
I have received many letters from around the United States about my old leader design. This new leader with the soft nylon will give you top performance. I recently received a letter from Bill Stieger from St. Paul, an outdoor writer and fly fisherman of note, saying, "Thanks again for all the trout your leader formula allowed me to catch. Best thing that ever happened to my fly fishing."

Good luck with this new leader formula!

George Harvey will celebrate his 90th birthday on November 19th, 2001. He hasn't missed an opening day since he was 6 years old. His latest book is called *Memory, Patterns, and Tactics*.

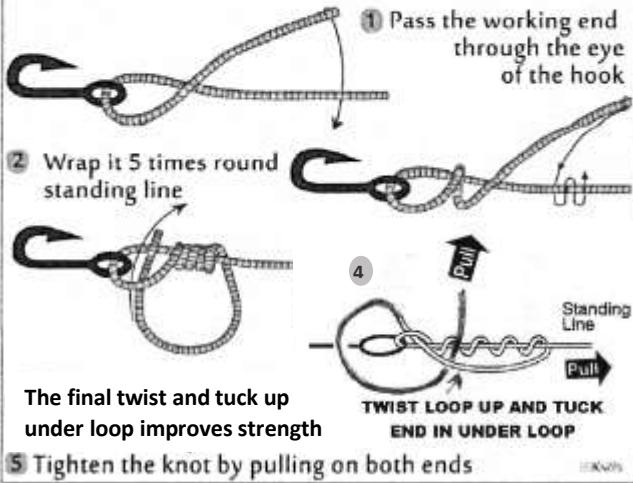
Read more: <http://www.flyfisherman.com/featured/harveys-new-leader-formula/#ixzz4dyWUD4S5>

Walt's All Purpose Trout Leader - For Small-medium trout streams (10 ft + leader)

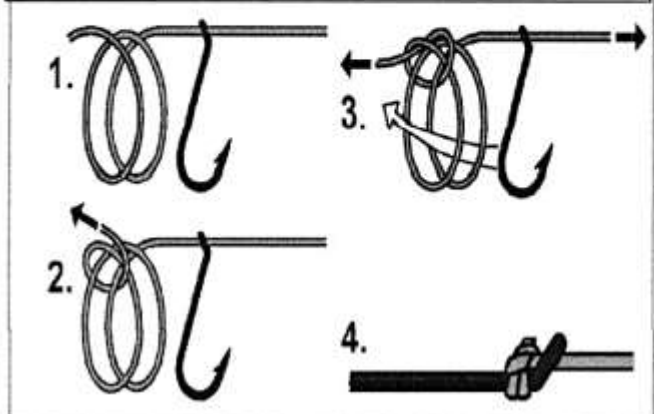


Knots Used in Fly Fishing

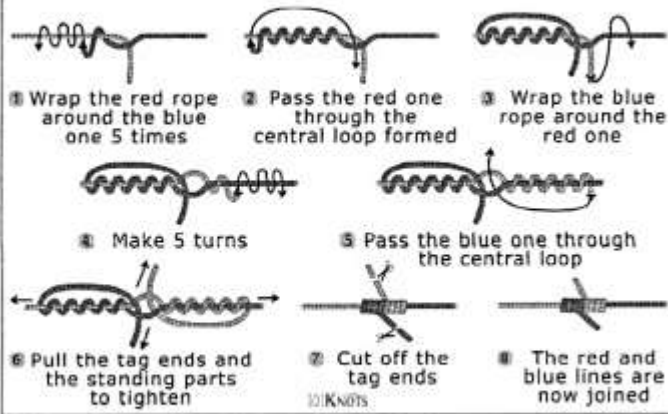
Improved Clinch Knot Instructions



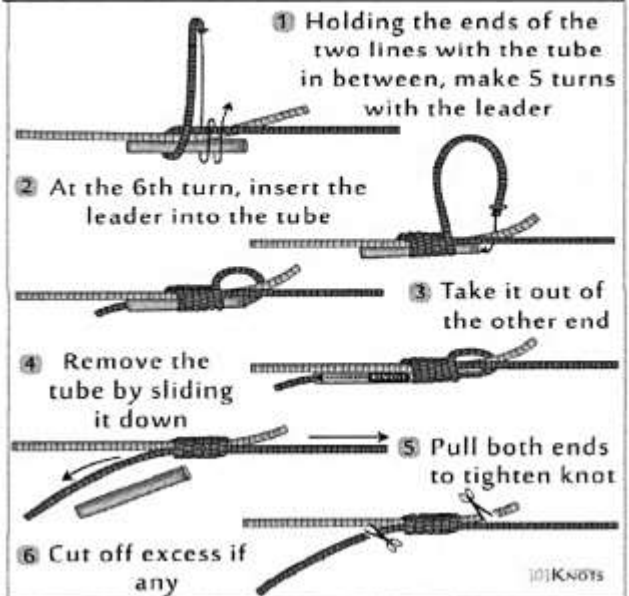
Double Turtle Knot- Used in Salmon Fishing



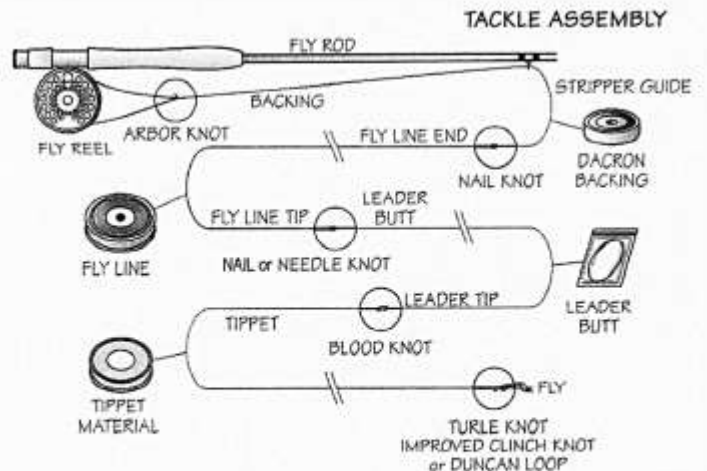
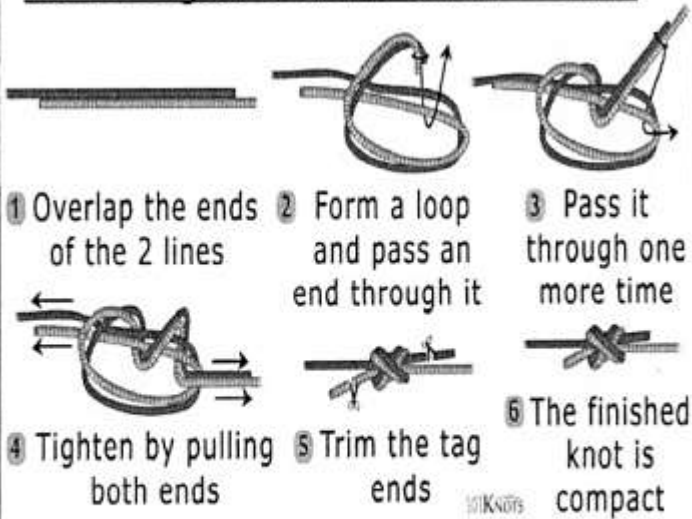
Blood Knot -Join 2 Leader/Tippet Sections



Nail Knot -Join Fly Line to Leader



Double Surgeon's -Join 2 Leader Sections



FLY TYING & FISHING BIBLIOGRAPHY AND WEBSITE RESOURCES FOR FINDING TROUT STREAM INFORMATION

Some Historically Important Fly Tying Books (American):

The Founding Flies, Mike Valla, Stackpole Books (2013)

A Book of Trout Flies, Preston J. Jennings, Crown Publishers (1935, reprint 1970)

The Compete Fly Tier, Reuben R. Cross, Freshet Press (1936, reprint 1971)

Trout, Ray Bergman, Alfred A. Knopf (1938, reprint 2nd Ed. 1962)

Practical Fly Fishing, Charles M. Wetzel, Christopher Publishing House (1945)

A Modern Dry Fly Code, Vincent C. Marinaro, Crown Publishers, Inc. (1950, reprint 1970)

Matching the Hatch, Ernest G. Schwiebert, Jr., The Macmillan Co. (1955)

Flies, J. Edson Leonard, A. S. Barnes and Co., (1960)

Selective Trout, Doug Swisher and Carl Richards, Crown Publishers (1971)

The Soft-Hackle Fly, Sylvester Nemes, The Chatham Press (1975)

Learning From the Water, Rene' Harrop, Stackpole Books (2010) [Western spring creek focus]

Pennsylvania Streams and Hatches:

Great Rivers-Great Hatches, Charles Meck and Greg Hoover, Stackpole Books (1992)

Trout Streams and Hatches of Pennsylvania, Charles R. Meck, Backcountry Guides, (1983, 1993, 1999)

Pocket Guide to Pennsylvania Hatches, Charles Meck and Paul Weamer, Headwaters Books (2009)

Common Nymphs of Eastern North America, Caleb J. Tzilkowski and Jay R. Staufer, Jr., The PSU Press (2011)

Flyfisher's Guide to Pennsylvania, Tom Gilmore, Wilderness Adventures Press (2016)

Keystone Fly Fishing, Ramsay, Heck, Lichvar, Kell, & Rothrock, Headwaters Books (2017)

Websites on PA Trout Streams:

PF&BC Unassessed Waters Program: Google: *PFBC Unassessed Waters*
www.fishandboat.com/Fish/Fisheries/UnassessedWatersInitiative

2016-2017 Strategic Plan for Management of Trout Fisheries in Pennsylvania
<http://www.fishandboat.com/Fish/Fisheries/TroutPlan/Documents/troutplan2016.pdf>

PFBC Trout Streams Interactive Maps: Google: *PFBC Trout Streams*
<http://pfbrc.maps.arcgis.com/apps/webappviewer/index.html?id=65a89f6592234019bdc5f095eaf5c6ac>
Maps layers include the various classifications of trout streams overlaid on topo maps with state land areas and parks.

PA DCNR Bureau of Forestry Public Use Maps: Google: PA DCNR Public use maps, then go to the specific State Forest District and click on the public use map button; also available are separate maps of marked hiking trails; The public use maps show State Forest and State Game Lands areas, roads, trails, streams, vistas, camping areas.

PA DCNR Bureau of Forestry Map Viewer: Google: *PA DCNR Maps*

<http://www.gis.dcnr.state.pa.us/maps/index.html?dmap>

Lycoming County Lycomap Parcel Viewer: Google: Lycoming County LycoMap Parcel Viewer

Click on the Map Gallery, then on to the Parcel Viewer- <http://lycomap.lyco.org/parcelviewer/>

This interactive map layers include current aerial photos, contours, flood areas and property owner parcel.

Fly Tying Resources on the Internet

There are a very large number of websites and YouTube videos available for learning how to tie all types of fishing flies. One can just Google “Fly Tying Instructions” and dozens of sites will pop up.

An excellent beginner fly tying on-line course from the Brodheads Chapter of Trout Unlimited is available on YouTube. Its 12 segments cover fly tying tools and the basic techniques for tying 11 standard useful fly patterns. It can be found at <https://www.scottcesariflytying.com/resources/beginner-fly-tying-class/>.

For more instructional information on many more fly patterns, useful tips and techniques, you can click on Orvis’s *Fly Fishing Learning Center* website at <https://howtoflyfish.orvis.com/> and choose *Fly Tying Videos* on the menu bar. You can choose various fly patterns to tie. (When on a given fly video, click on Vimeo to go to full screen). The site also has good instructions on equipment, casting and fishing techniques.

A favorite television series on PBS was “*Fly Tying: The Angler’s Art*” produced by KWSU. Links to some of the series episodes can be located by Googling or searching YouTube with the series name. The episode with Dave Whitlock tying warm water patterns can be found at <https://www.youtube.com/watch?v=i4xK6D4EffA>. Dave Whitlock also has a Master Series on advanced fly tying which can be found at <https://davewhitlock.com/fly-tying/> .

Additional names to Google and check out on YouTube and Vimeo would include Charlie Craven, frequent contributor to *Fly Fisherman* magazine, and local notable anglers and tiers George Daniel and our own Dave Rothrock who are producing excellent videos and articles on fly tying and innovative fly patterns and angling techniques.