

REACHING BEYOND THE LIMITS

The Power of Positive Pole Pruning

By Guy Meilleur

In tree climbing competitions, a pole saw hangs, and waits for contestants to hit the bell. In the real world, the climber either carries the tool around the tree or calls for it and sends it back down, either of which means extra work. Pole tools have a bad reputation for other reasons. Problems include blades getting stuck in the cut and bending, nicking ropes and gashing skin, being too short or too long, and being either inaccessible or in the way. Also, if beginning climbers rely too much on pole tools, it can hold back their development.

So, why should pole tools be used? Good tie-in points and technique may get the climber into position for the right handsaw cut, but often their target remains out of reach. Even from an aerial lift, extra reach is often needed to reduce risk, provide clearance, maintain tree health, influence flowering and fruiting, and improve views and aesthetics. Animal habitat between climber and cut, a lot of tender growth, cracks or hollows—these are other reasons that pole tools are almost as old as arboriculture itself.

Before fiberglass, most arborist poles were made of wood. Basswood (*Tilia* spp.) is valued for its strength, lightness, and flexibility, but long poles and even sectional poles can be cumbersome for climbers because they are a fixed length. With the development of telescoping pole tools, arborists can now cut where they could not cut before.



An assortment of telescoping tools was assessed. Many more models are on the market.

This article will explore the use of telescoping pole tools. More than a dozen different tool combinations from seven different manufacturers were evaluated, and their strengths and limitations were assessed. The tools were tested by dozens of arborists at tree climbing competitions, at volunteer work days, and on the job.

We apologize to makers of other telescoping pole tools that we may have missed, and we invite them to provide information about their products. They will be shown

during the Detective Dendro workshop at ISA's annual conference on July 27 and the presentation on pole tools July 29. Information will be included on the conference proceedings CD as well.

LONGER MODELS

Any pole tool can be used from the ground, but some models have limited use aloft due to weight and bulk. Most arborists can use the longer tools, made by Silky, ARS, and Barnel, to make cuts overhead. However, making horizontal cuts at the full extended length can be a strain. Even if the climber is well secured with accessory lanyards or

climbing lines, it takes a lot of strength to control the flexing pole and aim the blade when the pole is fully extended to the side. Extra control and pulling power can be gained by pressing the handle firmly to the upper body while bending at the hips and knees to make the stroke. The oval shape of these aluminum poles limits flexing under pressure. Length is also useful when using the pole

Table 1. Chart of models researched for this article (not a comprehensive list).

Company	Model	Potential length (feet)	Comments	Company	Model	Potential length (feet)	Comments
<i>Pole Saws</i>				<i>Pole Saws (continued)</i>			
ARS	SC-EXP55	20.6	Adjusts at any length (extends to 18.5 feet)	Silky	Hayate 420	20	Better on the ground
Barnel	Z555P2	21.2	Adjusts every 12 inches	Wolf-Garten	Vario ZM-V4	13.08	Aluminum; locks in every 12 inches
Silky	Hayauch	20.4	Adjusts every 55 inches	<i>Pole Pruners</i>			
Florian	Maxi	13.7	Small hook under blade	Barnel	B555	14.2	Blade retracts clear of opening
Florian	Mini	13.7	Spin and click cam	Fiskars	Pruning Stik	14	Head rotates to cutting angle
Jameson	Double-lock	14	Cam backed up with threaded sleeve	Florian	Maxi-Pruner	12.1	Ratchet saves joint fatigue
Marvin	Fiberglass	14	Pole pick head for utility	Florian	Mini-Pruner	12.1	18-foot model also available
Silky	Longboy 390	12	Folds for compactness	Marvin	Assorted	12.1	8 different heads
Silky	Hayauch 390	16	Accessory hook available	Wolf-Garten	Vario ZM-4	14	4 pulleys add efficiency; head rotates
Silky	Hayate 390	12	Stout construction				
Silky	Zubat 1500	13	Head attaches to carabiner				



The horizontal reach to clear the pine from the baldcypress is easy when the tool is light and sharp. The crown develops more fully when interfering branches are reduced.



Restoring this topped pecan requires many subordination cuts. With multiple tie-ins and telescoping tools, climber Chip Hildreth creates a more stable structure with small cuts, not taking off more than is necessary.

to advance the climbing line. Silky sells an accessory hook that makes hanging and retrieval easier.

The three long poles profiled here have different telescoping mechanisms. With the Silky, the first step is pulling up on a clamp, and the next is depressing a button. When collapsing the poles, the smaller section is fed into the larger section as the button is held down, which can pinch skin or glove. Once the buttons click into the desired location, the clamp is pushed down again. With the ARS, a lever is pulled up to release. Under hard use, and due in part to operator failure, the buttons have stuck inside and the plastic clamps and levers have broken. The manufacturers were quick to respond to problems, and replacements were made readily available. Barnel's metal lever is not pulled up but pushed down, so it is less exposed to damage. Its backup locking mechanism is a knob that is spun tight. The buttons on Silky's Hayauchi are 55 inches apart, one hole on each end of each section. They are 12 inches apart on the Barnel, which has the last hole marked, to avoid having the section mistakenly pulled apart. The ARS can be locked in at any length.

Lighter grips slipped too much, so now all the models in the 20-foot range have heavy grips on the bottom section. Arborists noted that the extra weight is well worth it for a stable grip, and the weight can even provide a counterbalance when the



Telescoping pruners enable clean cuts and leave small wounds. By removing less of the crown, more of the tree's health and benefits are retained.

arborist is reaching to the side. The cutting blades are similar, with small cutting blades at the base and in a hook on the tip. Silky's Hayauchi was tested the most so far, and its blade has never kinked, even when it got stuck. The Silky scabbards are loosely secured by pressing a hole around a bolt, while Barnel's is secured by a sliding pin. Weaver makes a custom scabbard for the ARS out of rubberized belting.

SHORTER POLE SAWS

The tools under 20 feet may not reach as far, but they do have advantages over the longer models. Fiberglass models by Florian, Corona, and other manufacturers have a "spin-and-click" locking mechanism with an interior cam. Cams allow the pole's extension to be adjusted at any length. The cams in any model can wear and slip if the pole is used for heavy pulling or pushing. Marvin's and Jameson's cams are backed up by threaded sleeves on the outside. This feature may

apply more pressure, but even it can slip under too much tension. Silky's smaller poles, the Zubat and Longboy, are aluminum and use the same button-and-clamp as their longer models. Some arborists liked the folding Longboy for its compact ease of handling. Like the larger Barnel model, the Wolf-Garten pole telescopes in one step by depressing a lever, and its holes are 12 inches apart. It also has the last hole on the interior section labeled so that the attentive arborist will not pull them all the way out. The bottom section of its aluminum pole has a thin, rubberized coating to help the grip. Florian's large pole, unlike the smaller size, flexes very little, and its cam holds up to moderate tension.

Jameson designed a separate head for use on the ground to move overhead wires; the head can also be used on its 7- to 14-foot pole



The scabbard stays on the saddle and can be quickly accessed and stored. It is also less likely to snag. In this way, the blade does no damage outside the scope of work.

to advance and retrieve ropes with no fear of nicking them. Scabbards made by Jameson and Weaver have riveted rings on them, so they can be attached on a dog leash or directly to the saddle. In this way, the tool is always within reach, and the blade is covered when not in use. When used for this purpose, the rivets in both soon failed, and the rings were reinstalled with bolts. These scabbards can be used on any saw. Except for the folding Longboy, the Silky scabbards cannot be attached to the belt or lanyard without some kind of modification. The smaller blades will fit into a regular scabbard. The Zubat's streamlined head has nothing to hang with, but it has a hole that fits a carabiner.

TECHNIQUE

With good positioning and technique, even climbers who lack brawn can make proper cuts with a pole saw. Clean wounds are the goal, without splitting the wood or tearing the bark, but compared to branch failure, small wounds or stubs on the outer crown are not major damage to the tree. Telescoping pole saws are used for positioning and retrieving extra climbing lines for redirecting, and hand lines so branches can be tied off and lowered safely. If a major rip of the branch collar seems possible, it is best to secure it with a hand line. The hand line runs through a fork that guides the cut branch to the desired landing zone. Using a fork directly above the cut branch and tying near its center of gravity, or using two lines, allows the limb to be held still and securely while the cut is finished cleanly.

If reducing load is the goal, pole saws can be used to break off all the dead branches within their extended reach. The weight of dead branches may be minimal, but with precipitation and wind, the load they exert can increase in a hurry. The hardest part about pruning with a pole saw is being able to undercut, to avoid ripping the branch collar. The standard, three-step pruning method results in a stub falling freely if it cannot be held by hand or rope. That does not work well over targets such as houses. It also does not work well when the stub is heavy enough to rip, or gets pulled the wrong way, or the climber guesses wrong about load or grain pattern. A second undercut into the sapwood can allow a clean break, making a four-step branch removal. This extra step can help meet the ANSI pruning goal: "The final cut shall result in a flat surface with adjacent bark firmly attached."

Because many reduction cuts are beyond our reach, and roping stubs so small and far out on the limb is difficult, we often must make do with a two- or four-step pruning method. This calls for precise and deep undercutting, sometimes with a second undercut meeting the first to form a notch to direct the falling debris. If the branch's center of gravity is off to one side, undercutting more to that side will give more control. Problems like pinched blades and



Ground workers can make good cuts more than 25 feet above the ground. With the right training and tools, both quality and productivity increase.

rips can be avoided by first taking the weight off the end of the branch. Making the stub cut from the outside in can also prevent rips. Pole tools can also be used to pull branches closer and hold them still so that the cut can be made with a hand saw, a second pole saw, or a pole pruner.

POLE PRUNERS

Cuts of less than 2 inches can be made with a pruner head. There are many homeowner-grade models that have a saw and pruner on the same head, but these are not known for their durability. With Wolf-Garten's "Interlocken" style, the heads are readily removed by squeezing two buttons. Each head has a sleeve attached that slips over and protects these release buttons. Marvin's selection of eight pruner heads provides many choices. As with most bypass pruner heads, these blades protrude into the jaw opening. This limits the tool's size capacity, and causes extra wounds if blade contacts bark when it is not set in the cut.

The blade in the Barnel head retracts clear of the jaw, so it avoids nicking while remaining open to its full 5 centimeters (2 inches). Barnel also makes a ratcheting pruner head, and Florian has two sizes. These ratchets deliver a mechanical

advantage that makes cutting easier, but tissue against the anvil is compressed as the blade closes in. This compression is undesirable, but the advantages of ratcheting anvil pruners may outweigh that drawback. Collateral damage can also occur with bypass blades, especially if the climber's angle or the tool's alignment is less than optimal. As with any tool, the sharper the blade, the cleaner the cut.

Fiskars features a cutting head that rotates on a 240-degree arc, which allows the user to set the proper cutting angle. It uses a ropeless technology, with an internal belt mechanism and chain combination. Other models use from one to four pulleys, which add mechanical advantage. Most pruner heads are operated by pulling on a rope, which can get in the way—and hurts when it cuts into the hand. Wolf-Garten's rope has a handle that works like some ascenders do: It releases for readjustment when it is pushed, then holds firm under tension.

Too often, tree owners choose between topping and removal, because they don't know what a well-trained, well-equipped climber can do. The destructiveness of topping can be demonstrated to tree owners by sharing literature and showing them hollowed-out sections of branches that have been topped. With the right tools, codominant branches can be subordinated and dead and sprawling tips reduced.

Once tree owners see a responsible plan for pruning according to ANSI standards, they are more likely to respond by agreeing to fund every hour needed to complete the work, instead of seeking the low bid on a fixed price. With telescoping pole tools, arborists are equipped to make the cuts that can extend a tree's useful life. For further information about these tools, please check the manufacturers' websites, contact them directly, or visit them at trade shows. Most of the tools described in this article will be available for inspection on the trade show floor at ISA's annual conference next month.

Please contact the author with information on models that were not featured in this article, and your experience with any of these tools, so that the follow-up article can be more comprehensive. The more we learn about tools and techniques, the farther we can extend arboriculture's reach.

References

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