Managing vegetation in silvopastures

By Brett Chedzoy

I recently logged two days of driving time across a broad swath of cattle country in traveling to a family reunion in Kansas. Temperatures hovered around 100 throughout the first week of July, from New York to Kansas and back.

The trip gave me a renewed appreciation for the role of shade in grazing systems, as well as the opportunities for creating it! On this trip it seemed that for every pasture with cattle, there were adjacent areas with trees that with a little work could also be used for grazing and shelter.

In previous articles we've covered the benefits of silvopasturing and how to develop wooded areas into silvopastures. Now it's time to discuss how to keep our newly established silvopastures looking like silvopastures rather than losing them to noxious brush and weeds.

Tough-to-manage pasture

In my opinion, this is the most challenging part of silvopasture management, and it's what separates those who are committed and serious about silvopasturing from those who are not.

Reducing tree density and removing brushy understories will increase sunlight at ground level, triggering growth response from a broad range of plants. Not all of these plants are desirable from a grazing viewpoint, and some may be downright problematic because they overrun the site or may present other hazards such as thorns and toxicity.

Common in the Northeast are freshly opened-up woods that soon develop nearly impenetrable thickets of brambles, brush, vines and weeds instead of the edible grasses and forbs that we would prefer to see.

Trees, stumps, stems and other objects limit the ability to spray, mow or even reseed to control vegetation. Livestock impact is one of the few tools at our disposal to effectively eliminate or limit the spread of the unwanted plants.

Those of you who practice some version of "very high density grazing" understand the skill and effort required to effectively control weeds like goldenrod and multiflora rose through grazing alone. Add even tougher woody plants to the mix, and throw in a lot of barriers such as trees that hamper efforts to effectively mob cattle, and you have the increased challenges of a silvopasture.

Let's take a look at three livestock-based approaches to managing silvopasture understories, and then talk about a Plan B if those aren't enough:

Grazing density

During the summer rotation, we try to maintain a grazing density of at least 100,000 lbs. per acre on the open pastures with our cow-calf herd to balance the considerations of time vs. trampling. That seems to be about the right minimum density threshold for our pastures that have good sod and not a lot of weeds.

For our summer silvopastures we attempt to maintain at least twice that density — 200,000 lbs./acre or more. This requires at least three moves per day and some creative portable fencing maneuvers around trees and slash (tree tops).

After several seasons of trying to pound all of our silvopastures with this higher density during the summer rotation, I'm becoming increasingly convinced that we'd need to double that density yet again to around 400,000 lbs./acre to really tackle the tough-to-control stuff. On this farm, that list includes plants like European buckthorn, Asian honeysuckle, privet, barberry and my least favorite, multiflora rose.

At some point it becomes more practical to turn to other tools to deal with these tough woodies. Of course, not letting them become well-established in the first place would be the ideal approach, but we have to manage what we inherit.

Bale grazing

As I've become less optimistic about higher density grazing being the cure-all approach for brushy silvopastures, my enthusiasm has increased for this wintertime alternative to achieving greater animal impact.

In a typical year we'll feed hay from mid-December until mid-April. Every winter is different, but we assume that we'll have reasonable ground conditions for bale grazing in our silvopastures for at least half of this four month period.

At five to six bales per day, this is several hundred spots per winter where we can make quick progress in knocking back the bad stuff. Joe Orefice, who co-authored the May article in *Graze* on forage establishment in silvopastures, calls these “bale bombs”.

Doing the math, each bale with about 20 hungry cows standing around it for several hours creates approximately 1.5 million lbs. of sustained density. This is no match for even the toughest woodies, assuming the plants are not too large and rigid to significantly impede the animals.

Winter is a great time to coax shaggy cattle into spots they would normally avoid in the summer. The devoured bales provide the additional benefits of fertilizing and inoculating the areas with new forages that will further help suppress the woodies.

But controlling problem plants with bale bombs is not a once-and-done effort. Repeated, targeted bale grazing over the course of years — coupled with intensive grazing during the growing season — will likely be needed to turn the tide against the woody invaders.

We’ve learned that we need to have a good road network to increase tractor accessibility for bale layout, and to set out as much of the hay as possible in late October or early November after we’ve grazed off the last of the stockpile in the silvopastures, which we try to do before leaves fall in mid-October.

Ground conditions usually take a turn for the worse here by mid-November and things may not freeze up until January to resume bale layout.

Another important consideration when bale grazing in silvopastures is to move them somewhere else when the soil is thawed and soggy. The vast majority of trees’ fine feeder roots are within the upper few inches of the soil surface. Punching up these feeder roots from muddy bale grazing will gradually take a toll on tree health and exacerbate the spread of invasive brush and weeds.

Multi-species grazing

I still feel that cattle provide some of the greatest advantages for managing silvopasture vegetation because it’s relatively easy to create higher densities with a single electrified strand. That said, we have successfully used sheep, pigs and goats for silvopasture maintenance, and I have seen them used with great success on other farms.

An early 2000s research project at Cornell University’s Arnot Forest, “Goats in the Woods” (funded by a USDA NE-SARE grant), showed that when managed properly, goats can be an effective and cost-effective option to manage forest understory vegetation.

By “managed properly” I mean that they were mob-grazed using electronet, and supplemented in a way that encouraged them to defoliate and debark the targeted plants. In contrast, turning some small animals into a silvopasture at low densities and expecting them to have any appreciable impact on the nuisance plants would be unrealistic.

Contingency plans

Even skillful and combined implementation of the above options may not be enough to keep the bad plants in check. If herbicides are an option on your farm, selective spot spraying can weaken or kill thorny compact shrubs that may otherwise persist (and reseed) for years.

Many of the so-called “invasive shrubs” have waxy cuticles on their leaves that make them resistant to herbicide applications, so it is important to use the right products, application rates and timing. Applying herbicide to a freshly cut stump or cuts in the plant stem (injection) can be more precise and effective, if allowed by the product’s label.

Mowing can enhance the impacts of intensive grazing. Past articles discussed the use of heavy-duty mowers designed for forestry applications that can be rented or contracted in many areas.

On our farm, we’ve used skid-steers with Loftness and Timber Ax chipping knife mower heads, FECONS that have a wide stump grinder-type head, and Hydro Axes that utilize a flail-type mower head. There are many other machines, each with their subtle differences and advantages. The average cost to use these machines on our farm was about $250/acre, so we use them selectively.

Controlled burning is occasionally used in other silvopasturing regions of the country, but has been difficult to implement in the Northeast due to permitting requirements, lack of experience and narrow windows of opportunity with the right weather conditions. Nonetheless burning merits greater consideration and experimentation.

Then again, silvopasture understories dominated by dense shrubs with bare ground underneath are unlikely to have enough fuel material for an effective burn.

An organic alternative is to use a portable flame weeder to heat girdle shrubs, but results will vary by species and season. More information on this method can be found by searching for “flame weeding” at youtube.com/forestconnect.

Regardless of the methods used, the results will largely depend on paying attention to the details and not cutting corners.