

## What we learned about managing invasive Amur honeysuckle at Nachusa Grasslands

By Bill Kleiman

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Below was posted in the Grassland Restoration Network blog that I write for. Following this blog is easy and free and you will get email alerts when I post occasional articles:

<https://grasslandrestorationnetwork.org/>

I also keep the Illinois Prescribed Fire Council Facebook page:

<https://www.facebook.com/IllinoisPrescribedFireCouncil/>

In *Plants of the Chicago Region*, Swink and Wilhelm describe invasive honeysuckle just right: “It would be difficult to exaggerate the weedy potential of this shrub.” Invasive honeysuckle does very well in savannas, edges of woods, and open fields. It is a fine competitor that deserves our respect and attention. If only our species could take over the planet so well. Oh wait.

*Lonicera maackii*, Amur honeysuckle or bush honeysuckle is an invasive shrub from the Euro-Asian continent. It is in the family Caprifoliaceae, or honeysuckle family. This is the shrub with opposite leaves, white or pinkish paired flowers, red fruits in the fall. These shrubs leaf out early in the spring and hang on long into Fall. You have seen it.



Below is one big honeysuckle out my windshield before being mowed down.



Below, on a woodland slope at Nachusa Grasslands, is a big patch of honeysuckle. The shrubs took hold in this woods in the previous decades as the grazed woods were let go fallow and a gravel pit was dug at the very top of this hill. This slope has been burned nearly annually and yet our fires won't run through

the thickets enough to top kill the shrubs.



Fire top kills honeysuckle, but does not kill the root. We have burned our Bennett woods unit annually for about a dozen years. The fires top kills most of the honeysuckle, with some plants not affected because they were next to big logs or other fire breaks. Below is a typical photo of the Bennett woods after a fire. Here the photo is April 1, 2010. The ground layer shows black, the shrubs might be top

killed or not, we can't tell yet. Look at how many waist high shrubs are there!



Photo below is from the same area but a few weeks later, May 3, 2010. The lovely wild geraniums are in bloom! Look at the all the honeysuckle stems with no leaves on them. The fire top killed them. Does fire control honeysuckle? Sort of.



If you were to kneel down by those honeysuckle plants you would see something like the following photo. Here the top killed honeysuckle stems have no leaves, but the plant is sending up several new stems. This is an April 18 image.



Below is a May 7, 2016 photo showing robust growth of honeysuckle, even though the stems of the previous year are leafless and lifeless. Fire does not kill the roots.



Shrubs evolved to take fire and grazing. I have walked our Bennett Woods unit carefully every year for nine fire years. By mid-May, I can't find one invasive honeysuckle that has not re-sprouted. Not one!

What would a lifeless honeysuckle look like? The photo below shows a plant that died from a herbicide application. Dead stems, no re-sprouts.



Fire does not kill honeysuckle. Fire does set it back, top killing stems, and making the plant re-sprout. It takes two to three years for the shrub to become big enough to produce a flower and a fruit full of seeds. So annual or bi-annual fire offers an opportunity to keep the stature of the plant low which allows other plants like sedges, grasses and forbs to get a leg up. And the shrubs are not producing fruits and seeds for a few years. Also, the shrubs are a smaller target to apply herbicide to.

## **Basal Bark Herbicide Application**

Basal bark works. Applying brush herbicide with a mineral oil carrier allows the herbicide to be sprayed on the bark. The mix absorbs into the basal cells of the bark where all the action occurs in a tree or shrub. Hence the term, basal bark herbicide application.

Below is the expensive Birchmeier backpack sprayer. Many people use these because their seals hold up better with the mineral oil carrier. [Elsewhere](#) I have written about these packs. There may be other packs that do as well. Let us know if you have a pack you have time tested.



Below are some of our paint roller applicators sticking out of the buckets. In the bucket is an inch of basal bark mineral oil herbicide mix. You have a 5 inch long paint roller on a handle cut to about 30 Inches. There is a screen to roll back and forth on to get rid of the excess solution. Make sure roller has stopped dripping! Then take roller to your honeysuckle and roll the solution on the stems. This works.





The advantage of basal bark herbicide application:

- It is several times faster than cutting and treating the shrub.
- It is quiet and safer than running a saw.
- It works as well as cut stem treatments.

I sometime hear colleagues say basal bark on invasive honeysuckle “sort of” works. I find basal bark with Garlon4 kills nearly all of the time.

Note in the photo below the blue tree marking paint I applied to the stem. In the fall, October 10, 2015, I sprayed a little basal bark solution on the lower stems of this plant and about 50 others. By marking the stem with paint I can return later and see that indeed the plant is dead. If I took you to this area and exclaimed that I basal barked the shrubs you might say it “sort of” works. You would say that because there would be live honeysuckle here, there, and seemingly everywhere. That would be until I pointed out that every shrub I herbicide sprayed and then marked with paint is dead. There are shrubs around the treated plant that are not dead because they were not sprayed. The plants sprayed are dead. So applying basal bark in October with the leaves still on worked. In my next post, I will tell you about a spring application.

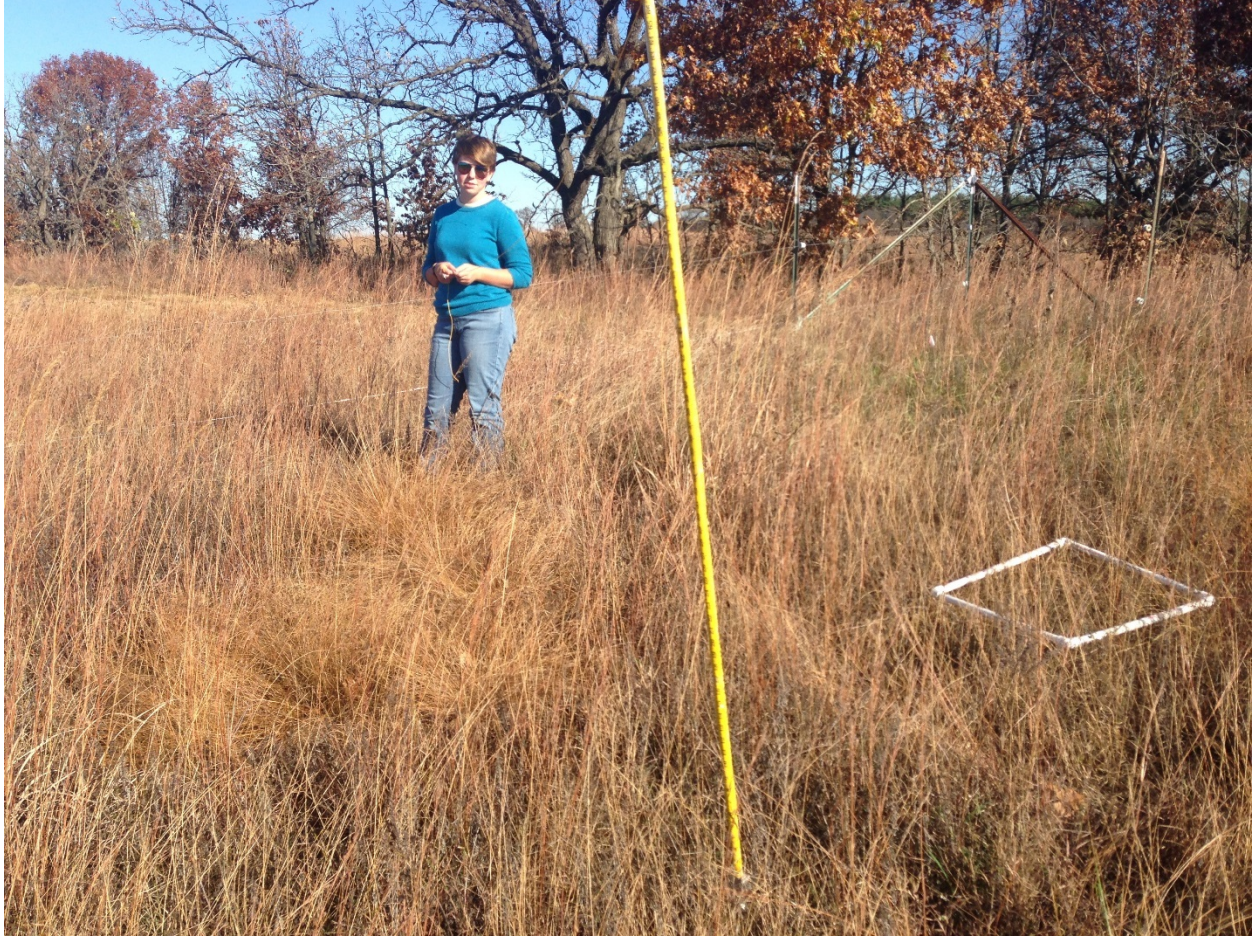


My daughter and wife and I have been doing field experiments and stewardship for years. We have experience in marking and treating honeysuckle. In late May of 2014 the three of us treated and paint marked about 250 honeysuckle shrubs with 17% Garlon4 in mineral oil. We had a control of 180 live shrubs. The photos below are from a few of our scientific escapades.









After that May basal bark treatment we returned in September and tallied our results. The painted stems made the tally easy. We had 100% death to the Garlon4 treated stems! This was true in all size classes, from dinky to huge honeysuckle. We did not spray an excessive amount. All dead. We can exclaim that when honeysuckle are leafed out in the spring you will get excellent results treating them with basal bark herbicide at that time. It works!

Previously I described success in killing honeysuckle with October and May applications when the leaves were on the stems of the shrub. Here are a few kill counts we have from dormant season applications with leaves off:

March 6 and 7, 2011: 80% kill from basal bark application to about 70 plants.

April 10, 2010: 100% kill from basal bark to a few dozen plants.

April 1, 2012: 100% kill from basal bark to 24 plants.

Here is a nice quote from an experiment by Ronald Rathfon “...month of application did not affect the three triclopyr-containing herbicide treatment efficacy rates, which exceeded 95%...” (2006 North Central Weed Science Society Proceedings).

So the last few posts I have made the case that basal bark application works in any season, but don't apply it in hot weather as it volatilizes.

And kudos to Mike Carr, Volunteer Steward of Nachusa Grasslands who has been helping me note basal bark treatments of honeysuckle.

One more basal bark post to follow, then a post on foliar application and mowing.



Some tips to apply basal bark herbicide:

Read and follow the label on the herbicides.

Be careful applying these mixes in quality vegetation areas. It is not only a brush herbicide, but a broadleaf plant herbicide. It kills forbs!

In nice areas tighten up your application method. You can leave the pressure very low on the pack, and just gently press the trigger to get a minimum of herbicide on the stems. Or use a paint brush or paint sponge and carefully wipe the stems with the mix. You can also cut the shrub and dab on some mix this way, but the cutting is not necessary. You can wire a sponge to the tip of your backpack sprayer wand and then dab or wipe the mix with little dripping and no overspray. Don't drip herbicide on good plants.

I generally don't apply basal bark mix on hot days because it volatilizes and perhaps harms nearby good plants. In good areas don't apply unless it is sweater weather or cooler.

Do not apply when bark is wet as the mineral oil may not penetrate. Water and oil do not mix.

Mark some plants with tree marking paint so you can do your own testing. It is fun.

Expect to return to the area several years in a row to treat the ones you missed.

Expect to get some off target kill within 2 to 8 inches of the stems you sprayed, depending on how carefully you sprayed.

While treating honeysuckle also treat the autumn olive, buckthorn, and mesophytic trees like box elder.

Typically, I apply the mix to all the stems and all sides of the stems. When there is thorny brush in the way I don't worry about getting all the stems treated.

Go after the scattering of shrubs in a field before worrying about the huge thickets.

Wear safety glasses. Folks who wear prescription glass might get side shields for the frames or wear goggles over your glasses.

Bring some paper towels to clean up. Some rubber gloves for when you are filling your pack or fiddling with the pack. Once you have got the pack working good you can go back to your thicker and warmer gloves. If you get herbicide on your clothes wash those clothes in warm soapy water separate from your other clothing, and perhaps wash them twice. The mineral will mix will come out.

Don't fill the pack all the way. Halfway is plenty and will last a long time.

Take your time. You are going way faster than those folks cutting the shrubs. You can whistle while you work while they are still back at the shop preparing their chainsaw.

[Elsewhere](#), I describe how to take care of your Birchmeier pack.

This year, we ramped up our basal bark solution on the advice of Rick Schulte of Crop Production Services. We increased the Garlon4 from 17% to 20%. And we add one quart of Vanquish herbicide to each 12.5 Gallons of mix. Others have adopted this mix so I am trying it out.

Future research question. If I basal bark honeysuckle in winter, say January, does an April fire that top kills the stems still kill the root of the shrub? My current sense is yes, but I don't have the data.

### **Foliar herbicide application**

Yes, you can spray the leaves, the foliage, and kill the honeysuckle too. Foliar applications of the right herbicide can work but nearby forbs will suffer from off-target spray. Picture a shrub that is four foot tall. You spray its foliage and feel good about killing the shrub. But below the shrub, in a significant sized area you will also have sprayed and perhaps killed various forbs/flowers.

Below is a photo that is illustrative of this overspray. Here, I sprayed a honeysuckle shrub with some glyphosate/habitat mix. I had been spraying some alien lily and I thought I would see what happens if I foliar sprayed this one shrub. Since the mix kills grass and flowers you can see the off target effect. ( I know I did not need to use glyphosate to kill the shrub, but it illustrates off target damage.) Hence, I would recommend you don't foliar spray tall plants like shrubs in areas with good vegetation.





I am skeptical of claims that honeysuckle can be sprayed in the late fall when other forbs are dormant. I tested a small number of marked plants, foliar applying Milestone and Krenite to dozens of honeysuckle shrubs and several species of forbs in mid-October in Northern Illinois. The next summer the honeysuckle was mostly alive and I found dead forbs with my tags on them. My experiment was a small scale that I thought I would expand if results looked promising.

#### Foliar application to honeysuckle

I have used foliar application on honeysuckle in the following manner. On a fire break in a ruderal area with no native plants I had mowed down all sorts and sizes of honeysuckle and other woody plants. The fire break was about 30 foot wide and maybe a quarter mile long. I made a solution of 4 ounces of Progeny per gallon with 2% methylated seed oil. I applied this mix with a boomless 50 gallon Kings sprayer from a 30 horsepower tractor. After two months the application had a good kill on the smaller

sized honeysuckle and other woody plants, and had set back the bigger plants, but maybe it was not going to kill them. I expect I should repeat that next year for better effect. If I tried to do that job with a backpack sprayer it would have taken me days.



Another time to foliar spray honeysuckle could be when the plant is really short, like when they re-sprout after fire or mowing. Let the plants emerge several inches and turn green. I applied our 17% Garlon 4 basal bark mix to the leaves and stems of about 40 plants. I painted a bit of blue on each one. All were dead after three months. I bet I could have sprayed them with Progeny or glyphosate and also gotten good results.

So my bottom line is you can use foliar spray in ruderal areas or spot spray on short emerging honeysuckle. Foliar spraying tall shrubs in good vegetation will yield a big circle of off-target kill.

### **Mowing pros and cons**

My comments on mowing are similar to fire. You can't kill honeysuckle roots by mowing it. But you can reduce a huge shrub to a tiny re-sprouting shrub that can then be easily treated with herbicide. Mowing down the tall shrubs also stops them from producing fruits and hence seeds, and gives needed sunlight to other plants you are encouraging. So mowing is great but follow up will eventually be needed.

When we encounter those big thickets of brush our first step is often to brush mow it with our tracked skid loader. After mowing, the problem area is open and easier to manage. Light can get to the ground, air can flow through the habitat working to reverse mesophication (increased shade and moisture changing the composition of the habitat to species liking those conditions). Fire should be able to carry

across the habitat. It may take a few years for the herbaceous layer to grow back and support fire. Photos are before and after brush mowing.



**Pulling it from the ground.**

Below is an implement I have not tried. You attach this to your skid loader and drive up to a shrub, grab it, and pull the shrub from the ground. I am sure this kills the shrub. I assume also it disturbs a fair amount of ground. Try it in ruderal areas and let us know.



#### Conclusion

In conclusion, invasive honeysuckle can be kept to a small stature with fire and mowing, which gives sunlight to other herbaceous plants to do better, which should support more prescribed fire. To kill the root a herbicide needs to be applied. Repeat visits will be necessary. Basal bark applications offer the advantage of being quiet, safe, and fast. I have found good control with basal bark applications but there is at least one paper with listed “inconsistent results” (Rathfon and Ruble).

Go get them!

End.

- Bill Kleiman, Nachusa Grassland Project Director, The Nature Conservancy