



## SPRING NEWSLETTER-JUNE 2019

### WOODSMEN INVADE THE BEREA FOREST

BY BEN BURGESS

Eleven Suffolk Punch horses and seven good mules descended on Berea, Kentucky, during the week of October 28 - November 3, 2018, for yet another terrific Biological Woodsmen's Week. For those who may not know what this means, Biological Woodsmen's Week is an annual gathering of proven practitioners of restorative forestry, along with a few invited guests. Most of the practitioners have completed an apprenticeship through the Healing Harvest Forest Foundation, and all are dedicated to the practice of doing the best work possible in the woods while using draft animals to extract the logs.

This year's gathering was hosted by Berea College, who has a real interest in this method of managing forests, since they own a large acreage that is of great importance to them to manage properly. One of the school's eight great commitments is about "supportive and sustainable living", which fits in very well with the practice of restorative forestry. The college forester, Clint Patterson, along with Wendy Warren, director of the Forestry Outreach Center, worked diligently to put this event together in order to demonstrate just how viable an option an animal-based extraction system can be to meet the objectives of the school. The week was broken down into two phases. Monday through Friday was about harvesting timber safely and effectively, while protecting the residual stand. Saturday was a day for public demonstration and education.

The leaves were in full color and as the temperature and weather held steady, our timber cutters hit the woods on Monday morning. We divided into four separate crews ranging in number from two to four men. Ronnie Tucker (teamster - TN), Sam Tackett (teamster and timber cutter - TN), Eric Hicks (teamster - TN), and Mitch Eakin (timber cutter - VA) made up the team closest to the horse and mule paddocks. This was our mule crew, and they are always quick to point out the benefits of their chosen animals! The mules were Nell, Buck, Rock, Rye, Callie, Fred, and Kate.

Jason Rutledge (teamster - VA), Chad Vogel (teamster and timber cutter - NY), and Clifford Cox (teamster - NC) made up the next team down the road with Jason's pair of full brother/sister Suffolk Punch horses, Rube and Meg, along with Berea College's Suffolks, Willow and Holly. Clifford had been training this team of mares for the college for the last month or so, and was finishing up his time with them by forwarding the tie logs from Jason and Chad's landing to make room for the bigger saw logs.



*Jason Rutledge (photo credit: Joe Mischka)*

Chad Miano and his son Frank Miano from Nickelsville, VA, worked the next section with their Suffolks: Red Cedar, Ricky Bobby, and Alabama.



*Ronnie Tucker (left) and Eric Hicks (right) (photo credit: Joe Mischka)*

Cedar was the only stud horse at the event, but behaved perfectly, as he's always done. Ben Burgess (teamster, timber cutter, and author of this article - KY), Gary Burgess (teamster - KY), and Berea College student and apprentice John Hite (timber cutter - FL), along with four Suffolk geldings Gus, Tucu, Blondie, and Pilgrim made up the last team.

Clint had already marked the trees to be cut based upon indicators deeming them ready for harvest. As Jason Rutledge would say, the "worst first", meaning trees that have reached their maturity and are in decline or soon will be and losing value. Healthy trees are left to reach their potential both ecologically and economically. Most of the trees marked were in the 22"-26" range, with a lot of them leaning hard, and on steep

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terrain. There were a variety of species, as one might expect, coming from the Eastern Deciduous Forest, but mostly we dealt with oaks, ash, maple, and poplar. Chestnut oak made up the majority of the board footage harvested. There were some high winds on Thursday and an overnight rain that caused the hill to be slick on Friday which did cost us a little work, but it was still a productive week. All told, we put a little over 47,000 board feet on all the different landings.

Throughout the week there were a few classes from the college that made a field trip into the woods to learn about what we were doing. Jason and his crew spent time educating and instructing them about our work and the importance of it, as well as answering their questions, while the rest of us kept on working.

Our good friend and advocate Wendell Berry and his son Den Berry joined us on Friday afternoon and accompanied us that evening to the home of the college president, where we were treated to a feast. It was a great reward for our week's effort. This also marked the end of the working portion of the event, and helped to shift gears over to the educational phase.

Saturday morning broke clear and crisp, promising sunshine and a beautiful fall backdrop for our guests to turn out and enjoy. At 9:00 am the crowd was welcomed by Lyle Roelofs, the college president. Steven Connelly, the mayor of Berea, then spoke, followed by Clint Patterson and Jason Rutledge. I wasn't there to hear everything they said since I was getting my team harnessed and ready for the felling and skidding demo that was scheduled for 10:00. Sam and I arrived with our teams, almost on time, to find a large crowd there and waiting. We greeted the crowd briefly, then departed into the nearby woods to begin the tree felling demonstration.



*Sam Tackett with Callie and Fred. College President Lyle Roelofs standing off to the side next to Fred. (Photo credit: Ben Aguilar with The Berry Center)*

Clint had preselected a nice sized white oak in a state of decline to serve as an example of "worst first". Chad Miano gave a great presentation about tree selection, precision felling techniques, and log bucking to an estimated crowd of 200. Frank Miano dropped the tree, punctuating perfectly everything that Chad explained to the audience.



*Timber!!! (Photo credit: Leah Bayens with The Berry Center)*

After the tree was bucked into logs, Sam and I proceeded to demonstrate how to extract the logs from the woods and skid them to the landing. Clifford Cox made a late appearance with Berea's team to help skid the last log. This was a very attentive crowd



*Chad and Wendell having a good time, as Sam goes to hook on a log (photo credit: Ben Aguilar with The Berry Center)*

that seemed to really enjoy learning about the whole process. People are always amazed by the strength and agility of these animals, as well as the fact that they are so sensitive to the land that one can hardly tell where they've been. That is what most forest landowners want to see in a harvest.

The afternoon was full of discussions about the horses and mules by Jason and Sam, along with an interactive question and answer session with the audience. Clint then gave an informative presentation about Silas Mason, the original Forester and visionary for the college. While this was going on, the three teams stood quietly, tied to a fence as many children and adults came by to visit, pet, and take pictures with them.

Late Saturday afternoon, the crowd increased to around 300 with anticipation of the multi-generational panel discussion featuring Wendell Berry, Jason Rutledge, Chad Miano, Chad Vogel, Ben Burgess, Frank Miano, and John Hite. Clint moderated the discussion which focused primarily on the work of restorative forestry and the importance and challenges of attracting young people to this profession. Jason presented a well-deserved Biological Woods-



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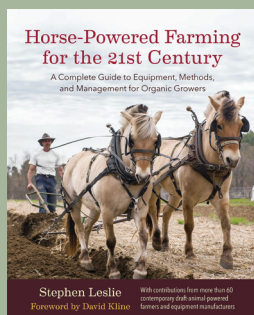
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## UPCOMING EVENTS!

**June 21-23, 2019**  
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**July 5 - July 6, 2019**  
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Arthur, IL  
(717) 940-4412, logcab7@ptd.net  
<http://www.horseprogressdays.com>

**October 4-6th, 2019**  
**2019 Draft Animal-Power Field Days**  
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## REVISITING THE BUCKRAKE BY KEN GIES

A number of years ago, before I experimented with mini horses, I built and used a buck rake (or sweep or push rake) with my Haflingers. I watched several archived video clips of these in action, read up on their efficiency, and discovered that they were actually used here and there in the northeastern US, not just in the west as I had believed. This motivated me to build several prototypes before actually building a decent working model for use on my central New York farm.

As with a lot of Internet research, there are many opinions interspersed with the facts. I finally decided that Lynn Miller and his book "Haying with Horses" held enough practical value as far as present day production estimates and working experience. One of my goals was to use off the shelf

materials, namely "normal" lumber and hardware. This means that my unit is not as nice looking as those of yesteryear, but it works and is not overly expensive.

My major reason for reconsidering the buckrake was that my kids "suddenly" grew up and moved out. So when I read that a hay sweep can move more hay with less labor at distances under ¼ mile than other horse powered methods, I figured it was worth a try. My experience verified this estimate at distances out to at least 1000 ft of travel distance from the barn. No other special equipment was added. I successfully used the same hay grapple and trolley system as for wagon loads of loose hay.

I found that it worked really well on long first cutting, but failed to perform well on the much shorter second cutting hay that my farm produces.

That is part of the reason I built

my little hay loader several years ago. Since then I experimented more with the buckrake and found that a reasonable job can be done on short hay by raking many windrows together into a very large one. Then most of the hay will push up on the rake teeth and leave only a little bit in the field. I also found that the short hay must be very dry or it will stick to itself and make balls that roll under the teeth dragging wads of hay off the rake.

Just to mention, when I worked with the minis, I did not consider a sweep rake a viable option for them. Looking back, I believe that an 8 foot wide rake with 6 foot long teeth and smaller diameter wheels would have been within their capabilities. I may have short changed myself on that one.

Lynn calls the buckrake an adventurous design for horse powered machines. It is steered by braking one animal and urging the other one on. It can be made to spin

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within its own length with one horse backing and the other moving forward especially if a side hitch version is built. Lynn suggests, and I agree, that a set of team lines, using one line for each horse, with the longer side of the "Y" to the outside of the horse and the shorter side to the inside works well. In addition, the horses are tied to the side poles from their halters (under the bridles) by lead ropes so that they are pulled around when the opposite horse is slowed or stopped while steering. It takes a few tries to get the length right so that the horse can back and turn since both the backer and the lead rope connect at the same spot. The basic movements are forward, stopped and back. Sidestepping is mostly "figgered out" by the horse as it happens when turning.

I settled on the side hitch design because it is the simplest to construct and shorter in length which mattered for unloading between my barn and the neighbor's fence. I also think that it was easier for my horses to learn the buckrake as a side hitch because there is nothing in front of them as with a push model.

There are several side hitch styles although the basket remains the same for all styles of push rakes. My first model, seen in photo1&2, was built with a lifter and seat. It worked fairly well, but I eventually took the whole seat affair off and used it without any riding position.

With my second one, I chose to eliminate the various ride-on options such as a sliding seat on a board, caster wheel mounted seat with a lifter and the stand on platform. It may add to the draft since the teeth are always down, but it has not seemed significant even after a long hot afternoon sweeping hay up to the barn. It does help with steering it since I am 6'2" tall and can see over the hay bunch Easily.



*Photo 1*



*Photo 2*

I bought my first set of wheels for my first rake at an auction The second set was custom fabricated by a local Amish welding shop. He used existing steel rims about 20" in diameter, and welded a heavy pipe in the center of the spokes as a hub which fit nicely over the 2" pipe used as a full width axle as seen in the photo3. I added 2" muffler clamps on each side of the hub to keep the wheels from shifting sideways and rubbing on the wooden teeth. I also put grease fittings in the wheel hubs so I could grease it every time I used it. The hay sometimes gets into the hubs and dries up the grease. It is best if the wheels are slightly rounded on the edges so that they don't cut the sod when turning sharply. It may be possible to use rubber wheels and mount them like wheelbarrow tires between two teeth, but I haven't tried anything like that.

I combined several sets of plans found online, the photos in Lynn's book, ideas from several of my failures and the stuff I had on hand to fabricate my latest rake. The present rake is nine feet wide between the horses and the teeth are eight feet long, spaced 12" apart on center. The rear frame is only a pressure treated 4x4 a little over 9 feet long... (because it was handy). I would rather have used a 14 footer, but instead I added u-channel iron extensions to make it wide enough for the single trees to fit beside the hay basket. If using full sized drafts I would definitely use a 6x6 sixteen feet long and add three more teeth making the basket 12' wide.

To mark out the holes in the back 4x4 and pipe axle, I measured from center. Since I have an even number of teeth, I had to mark center and then make my first holes 6" out from center and then every foot out to either side after that. If you choose to use an odd number of teeth you can just start marking and drilling from the center out. Be sure to leave at least 2 feet on the ends for the single trees; this gives the horses room to move a bit when turning.

2"x6"x8' untreated boards make the teeth, set flat side to the ground, tapered to a rough point with a slight up cut on the last 2 inches like a ski (to keep the teeth from digging into the dirt) and bolted to a 4"x4" post spaced 12 inches apart on center, with carriage bolts and fender washers. When I cut the teeth, I cut from the 4'



*Photo 3*





Photo 4 & 5

mark (halfway) and left 1" either side of center on the pointy end. Then I tapered the end to a flat topped point by cutting in more sharply from the sides about 4 inches back and up from the bottom for the ski effect. The rear holes are drilled centered in the board to align with the holes drilled along the centerline of the rear 4x4. The second hole is 24" away from the end. This is for the pipe axle which has holes drilled every foot as well. It leaves a lot of room for the wheel to clear between the two cross members. It also makes the angle of the backer poles nearly the perfect height for Haflingers. The spacing could be slightly closer for drafts so that the end of the poles are higher. The two side hitch poles function as one sided tongues. They angle out and up from the basket for the backing straps. As well, the angled poles guide the horses so that they do not step into the teeth when turning.



Photo 6

Note that the side poles are bolted under the rear frame 4x4 and over the pipe axle. This gives enough upward slope to be comfortable when the team backs out of the hay load. They are angled from inside the outside tooth to align just about center of the single tree at the far end. When set correctly, the ends of the poles are almost the same width as the single tree centers. They must have angle braces to keep them properly positioned and to strengthen them. I also added two angle braces that cross from the rear 4x4 to the pipe diagonally forming triangles. These keep the rake square. The two on the side poles help to keep them from bending or breaking while backing or turning. These four pieces of angle iron were the biggest improvement over my first successful rake.

I used threaded rod to cinch 3' of 1/4" chain around the pole ends to hook to the horses breast (backer) straps. The easiest way to connect the single trees is the same. Wrap a 30" length of 5/16 chain around the end of the rear 4x4 (or 6x6) and cinch it tight with a threaded rod. Use a screw link or clevis to connect the single tree to the chain.

The back board I installed to keep the hay from being pushed off of the back of the rake. I added short vertical boards to act as fenders for the wheels. All the bolts are galvanized since much of the rake is pressure treated lumber which eats untreated bolts. They are mostly 3/8" diameter. I added angle iron braces to stiffen the whole affair and keep it square when turning. My total cost was under \$300 and it took me the better part of three days to fabricate since I was making some of it up as I went. This implement can be scaled larger or smaller to suit different sized animals. Some things are not mathematical just cut and try.

**A FINAL RECAP ON PARTS AND DIMENSIONS OF MY BUCKRAKE (BIGGER SIZE IN BRACKETS):**

- 10 2"x6"x8' tapered from 4' to the point with a slight up sweep on the very tip to keep them from digging into the dirt for the teeth (like a ski, add 3 for 12ft wide)
- 2 12' 4"x4"s for side poles (this length is fine for drafts too)
- 1 2" inside diameter heavy wall pipe 9' long for the axle (12ft for a wider rake)
- 2 20" steel wheels with pipe hubs to fit the 2" pipe
- 1 14' 4"x4" for the back frame (6x6x16 if building for draft sized horses)
- assorted 2" angle iron for bracing (all scrounge or even old bed frames)
- 10 5"x3/8" galvanized carriage bolts, nuts and 2 washers each (3 more for 12ft)
- 10 8"x3/8" galvanized carriage bolts, nuts and 2 washers each (3 more for 12ft)
- (If using a 6x6 add 2" to the bolt lengths)
- 4 2" muffler clamps for the wheel guides
- 6' of 1/4" chain -5' of 5/16" chain
- 2' of 3/8" threaded rod with nuts and washers for each end

I should conclude by confessing that I am not a carpenter nor a horse whisperer. I believe that if I can do this, just about anyone can. Use good judgment, enlist experienced help when possible, and be willing to fail a bit. I personally try new things with my horses after they are worked down at a familiar job for a while. They tend to be more willing to whoa....

These links may provide some points for the aspiring sweep rake/push rake/buck rake builder/operator.

<http://www.ag.ndsu.edu/aben-plans> has several sweep rake plans

<https://vimeo.com/9972998> excellent video!

<https://digital.library.unt.edu/ark:/67531/metadc96479/m1/> This is a good pdf pamphlet



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## DUES CHANGES FOR 2019

Happy June! With the approaching season comes new changes to the Draft Animal-Power Network. First, we want to let you know we have a new administrator for our organization office, GWC Communications out of Rutland, Vermont! Thank you to Reva for holding the lines as administrator for so long! If you get a reply from our email with the name Erin Lorentz at the bottom, that is why! Welcome to GWC Communications!

In our annual donation email we told you that we were working on an online resource directory that will become a great tool and resource for teamsters at all levels! You will be able to find useful information and connect with businesses to strengthen our draft animal-power community. Our online presence reaches people far and wide who are working with draft animals. There are other great draft animal power organizations in the US, but none with the breadth of our organization. We've seen our virtual networks on Facebook and the website expand to more than 7500 users in the last year alone! We feel the best presence for you and/or your business is through online promotions, so we decided that this listing will become a benefit just for our members!

Our efforts over the last several months has been to revamp our website. If you haven't been to our website recently you should check out our new look! We also wanted to let you know that we have increased our rates from \$25 to \$35 for individual memberships, and from \$50 to \$75 for our Business memberships. Many of our efforts for 2019 will be to increase our communications to community and alter some of our methods in doing so. We feel that more frequent communications via our website, facebook, instagram, our discussion group, and e-newsletters are of more benefit to you than our seasonal printed member newsletters. We think that you will find you agree! So please note that all of our future member communications will be done digitally. We are more than willing to still mail copies of posted online newsletters, or print from home, if that is your preferred format, but thank you for considering this more efficient, environmentally friendly, and lower cost format. We would like to focus more of our resources and time on providing services and benefits to you and your business! If you have any thoughts on the new format moving forward we are always looking for member feedback!

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To become involved, send us an email: [dapnetinfo@gmail.com](mailto:dapnetinfo@gmail.com)



The goal of the Draft Animal-Power Network is to provide year-round educational and networking opportunities, highlighting ongoing efforts of people throughout the region who are educating, mentoring and building community around animal-power and renewable land use. Who We Are: We are a community of farmers, foresters, loggers, teamsters, homesteaders, land owners, "part-timers", & draft animal enthusiasts dedicated to providing educational & networking opportunities.

**OUR MISSION STATEMENT:** Advancing the use of draft animals and promoting sustainable land stewardship to build community through education and networking.





*Frank ready to hook the log as my team gets backed up close. (Photo credit: Ben Aguilar with The Berry Center)*

Burgess, Frank Miano, and John Hite. Clint moderated the discussion which focused primarily on the work of restorative forestry and the importance and challenges of attracting young people to this profession. Jason presented a well-deserved Biological Woodsman certificate to Frank. At seventeen, he is probably the youngest person to receive this certification. His skills have been well honed by years of instruction from his father. We are very proud to add him to our ranks as an equal member and fellow woodsman. Well done, Frank!



*Tuco with some future teamsters perhaps (Photo credit: Ben Aguilar with The Berry Center)*

The festivities came to a close with a final word from the college president, and this year's event was, as they say, "in the books". Our hope now is that the college will take what was demonstrated and see the potential role that they could play, both in managing their forests with animals, and in training new practitioners to this work.

While it's not for everyone, and in fact is probably going to interest only a very small percentage, it is still a great fit for some people. It's time to get the word out that this is an option for highly skilled and dedicated individuals. That's exactly what we're trying to do. Anyone wanting more information can go to [www.healingharvestforestfoundation.org](http://www.healingharvestforestfoundation.org) or contact any one of the practitioners mentioned in this article on Facebook. Keep your eyes and ears open, the woodsmen may be invading a forest near your home in the future!

*About the author: Ben Burgess is a certified master biological woodsman, trained through the Healing Harvest Forest Foundation. He lives in Russell Springs, Ky., where he runs his own restorative forestry business: Burgess Draft Logging and Lumber. He uses four Suffolk Punch Draft horses as the power units to extract logs. Currently he is partnering with Sam Tackett to finish the harvest that was marked for this event in Berea, Ky.*



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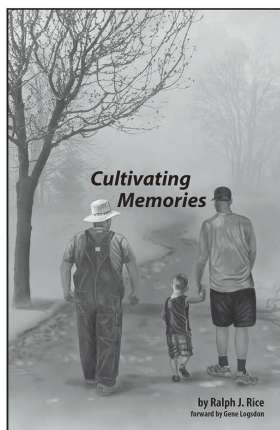
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## **RURAL HERITAGE MAGAZINE**

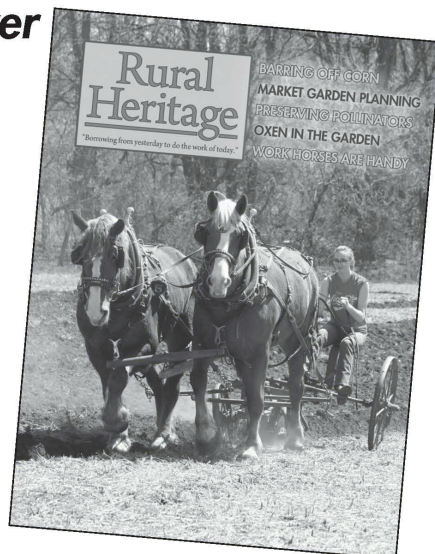
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