Moving Logs –
Small Scale Logging for Woodland Owners

by Jeff Stringer

While timber production is only one of the reasons that families own woodlands, many owners like the idea of being able to cut and use some of their own timber. Regardless of whether you are gathering firewood for your own use or making lumber and wood products for a profit, removing logs or poles from the woods can be a challenge. This is especially true because most woodland owners do not have commercial logging equipment specifically designed to safely and efficiently drag and haul logs from the woods. Instead most woodland owners will use equipment that is readily available such as farm tractors or four wheelers, either ATVs (all terrain vehicles) or UTVs (utility task vehicles or side by sides) to drag or haul logs. Unfortunately, these vehicles are not designed to undertake this type of work. Commercial logging equipment is designed to drag (skidd) timber safely. It is designed to work in rough terrain and is difficult to tip over. Further, commercial logging equipment such as timber skidders or dozers are designed to and can safely drag very heavy loads behind them. ATVs, side by sides, and farm tractors are not. In many instances their designs can make them inherently dangerous when dragging timber from the woods. A number of steps can be taken to ensure your safety when dragging logs and poles from the woods with tractors or four wheelers, and a number of equipment manufacturers have designed attachments to allow for the safe removal of timber with these types of equipment.

Turn Log Dragging into Log Skidding

A large number of attachments have been designed to help woodland owners safely haul logs (including sawlogs and smaller diameter pole-sized material) out of the woods. While there are many different designs, they all have one thing in common with commercial logging equipment: They are designed to lift the front end of the logs off the ground. This issue is extremely important. If the front end of logs remain on the ground they can easily hang on rocks, stumps, and uneven ground as they are dragged. This often happens unexpectedly and farm tractors and four wheelers react by raising the front end. When these types of equipment are put under this stress they can quickly become unstable. Flipping over backward or to the side can easily occur, leading to injury or worse. Raising the front end of the logs or lifting them entirely off the ground, which some attachments are designed to do, significantly reduces these incidents. Lifting the front end of the logs also decreases the friction of the log along the ground and thus increases the weight that can be moved. In essence these attachments turn farm tractors and four wheelers from log draggers into log skidders. All of these factors improve both the safety and efficiency of moving logs with tractors and four wheelers.

Attachments for Four Wheelers

ATVs and side by sides are different machines, but there are attachments that can be used by both to safely skid logs from the woods. A great deal of ingenuity has gone into the development of these attachments, and all have their pros and cons. However, using one or more of them will make removing logs safer, more efficient, and enjoyable. The following describes some basic types or categories of these attachments designed for use with four wheelers.

Skidding Plates - One easy way to get the front end of logs off the ground is to place a steel plate underneath the front end. A number of manufacturers and distributors sell log skidding plates; Figure 1 shows an example. These plates

Figure 1. A skidding plate is the least expensive attachment for safely skidding with a four wheeler.

are simple and relatively cheap. The front end of the log rides on a plate that is turned up on the front end allowing the plate to move over rocks and other impediments. The steel running across the ground results in less friction than dragging the log with the front end constantly pushing dirt. One downside to the plate is that the log must be rolled up onto the device and secured before pulling. Using peavey's or cant hooks (Figure 2) can help to roll the logs onto the skidding plate. They are designed to grab or bite onto a log, and the leverage developed from the long handle makes

Figure 2. Cant hooks and Peaveys are valuable tools to help move logs by hand.

turning and rolling logs relatively easy. These useful devices are widely sold by forestry suppliers. Woodland owners will find many uses for them, such as stabilizing and lifting logs off the ground for cutting into firewood or rolling logs off a road.

Arches - Arches are taken from a design that was historically used by loggers who were relying upon animals to skid logs and poles. Later these arches were modified to be pulled by bulldozers or tractors. A similar design is now configured to be pulled by four wheelers (Figure 3). A number of arch designs, all of which have pros and cons, lift and suspend logs under the arch between a set of wheels. Some designs lift the front end of the log, and others can totally suspend a short log. The wheels are nearly frictionless compared to dragging the front end of the log across the ground, and arches can provide significant lift as well, allowing obstructions to be cleared. Some arches are designed to be pulled by hand (Figure 4), and some can be both pulled by hand and with a four wheeler. Arches also differ in their capacity, how logs are attached to them and their method of lifting the logs. Logs can be attached through the use of a manual tong or grapple that is integrated into the arch (Figure 5).

Figure 3. Arches are arguably the safest and most efficient way to move larger logs with four wheelers.

Figure 4. Some arches can be pulled by hand and by four wheelers.

Figure 5. Some arches use tongs to grab logs while others use cables and chains.

The other method is to use log chains or cable chokers. Figure 6 shows one method of lifting logs that is used by several manufacturers. Notice the bar that extends from the top of the arch sloping downward to the tongue at the front of the arch. A ring or pulley rides along this bar. Logs are attached to the ring or pulley using a chain or cable "choker." The choker is pulled tight around the log, and the arch backed up or set over the log. The choker is attached to

the ring or pulley as it rests at the bottom of the bar (Figure 6a). As the four wheeler moves forward, the resistance of the log allows the ring or pulley to move up the bar, eventually being pulled all the way to the top and lifting the log or logs off the ground (Figure 6b). With these arches the four wheeler power lifts the front end of the logs off the ground. When you are ready to stop, reverse the four wheeler and the ring/pulley will slide to the bottom of the rod and the front end of the log will be on the ground. These types of arches will not allow short logs to be fully suspended. Another method that manufacturers use to lift the logs is by using a hand crank pulley. Figures 7 and 3 on the previous page show examples of an arch that uses a hand crank pulley. These arches can be used to fully suspend short logs, which can be advantageous. This is especially true for those milling their own lumber. Fully suspending logs reduces the amount of dirt and debris in the bark, which can prolong the life of chainsaw chains and saw blades.

6a.

6b.

Figure 6. An example of an arch that attaches to the logs while they are on the ground and are lifted off the ground with forward movement of the four wheeler.

Figure 7. Arch with a hand operated winch with cable that attaches to chains wrapped around logs.

Trailers - Trailers can be used, typically for smaller diameter and relatively short pieces (Figure 8). These trailers can be loaded with an attached hoist. The hoist can be either manually or hydraulic powered. The hydraulic hoists designed for use with four wheelers have a gas/diesel engine that powers the hoist. Trailers are designed for a wide range of capacities and can be pulled by four wheelers with larger trailers designed to be pulled by tractors or trucks. All of these trailers are designed to haul relatively short logs or poles typically less than 16 feet in length. Also the lifting capacity of the hoists can be problematic for large heavy logs. However, they can be very efficient when hauling short pieces on relatively flat ground. Steeply sloping ground and heavy logs can present challenges and potentially safety issues for trailers.

Figure 8. Trailers are an efficient means of moving smaller logs, poles and firewood.

Using Tractors

Farm tractors are certainly an option for hauling logs from the woods. However, as with four wheelers, most farm tractors are not designed to work in rugged terrain, nor are they designed to pull heavy loads under conditions where the load can hang. These scenarios are common to woods work, but a number of different attachments can be used to assist woodland owners in using farm tractors. Log skidding plates and arches that can be used with four wheelers (described on page 2) can also be used with tractors. Along with the attachments that are designed for four wheelers are a host of attachments designed specifically for tractors. Some are designed to use the lifting capacity of a three-point hitch as well as the engine of the tractor to provide power either hydraulically or from the PTO (power take off).

Skidding Winches - One of the most common tractor attachments is a skidding winch (Figure 9). Several manufacturers offer skidding winches, and they all share the same basic functions. All skidding winches attach to a three-point-hitch. They come in different sizes to match differing tractor sizes. As would be expected, models designed for larger tractors have more capacity than those designed for small tractors. To work the skidding winch the attachment is lowered to the ground with the three-point-hitch and a steel cable pulled out to the waiting log or logs. Typically log chains/cable chokers are used to attach the logs to the cable. The operator then engages the winch and the logs are pulled up against the attachment (Figure 10a). All of this is done with the attachment firmly on the ground and the operator standing to the side, making this a very safe operation. Once the logs are winched

Photo courtesy: Chris Schnepf, University of Idaho, Bugwood.org

Figure 9. Log skidding winches are designed to work with small farm tractors and allow logs to be skidded to the tractor from over 100 feet away.

10 a.

Figure 10. Skidding winches provide a safe means of using farm tractors. The logs are first pulled to the winch using cables (a) and then lifted off the ground and skidded from the woods (b).

10b.

Figure 11. Arches attached to winch cables can be used to lift the front end of logs when the winch cable is drawn tight facilitating movement of the log back to the winch.

Figure 12. Grapples are also made for tractors but require the tractor to backup to each log.

up to the attachment they are secured to the skidding winch. The operator can then climb onto the tractor and raise the attachment, raising the front end of the logs, which can then be safely skidded (Figure 10b). These winches have the advantage of using the cable to reach difficult locations that are unsafe for the tractor, a significant advantage for many woodland owners. The skidding winch positioned on the three-point hitch eliminates tip over concerns while winching the log to the tractor and significantly reduces tip over problems while driving the tractor with the load behind. Usually the logs are simply pulled across the ground to the attachment, but arches and log skidding plates attached to the logs can be used to facilitate the process. Figure 11 shows an arch that is attached to a log with tongs and the cable from the winch is attached to the tongue of the arch. As the cable is drawn into the winch it pulls the front end of the arch down and lifts the log off the ground, allowing a smoother and safer pull back to the tractor.

Grapple - Another device that can be used with a tractor is a grapple (Figure 12). This device is attached to a three-point hitch or loader arms, but unlike the skidding winch the majority of these grapples do not have a cable and winch system (unlike some commercial grapple log skidders) and the tractor must be driven to each log. For gentle terrain and smooth ground this attachment would quicken the pace of skidding compared to a skidding winch.

Skidding without Attachments - Tractors, particularly medium to large horsepower tractors, have the power to drag logs across the ground. However, as mentioned earlier, this method can pose safety concerns for operators. If a tractor is used to pull logs, attaching the log directly to the drawbar decreases the tendency of the tractor to flip compared to attaching the logs to the three-point hitch and lifting the logs off the ground with the hitch. Also there are instances when attaching the logs to the front of the tractor and backing them out of difficult locations can be helpful and reduces the opportunity for flipping. Regardless, tractor skidding can be greatly enhanced and made safer using the implements designed for skidding logs.

Summary

The use of attachments and implements specifically designed to move logs, poles, and firewood behind four wheelers and farm tractors can be of great assistance to woodland owners. Using these implements makes the work more efficient and decreases the risk of injury. A number of manufacturers and distributors handle this type of equipment. Internet searchers, trade shows, and consultation with other woodland owners and foresters can also help you find sources. The cost of log skidding plates and arches for hand and four wheeler use is relatively inexpensive, ranging from approximately $300 for plates to $500 to $1,500 for arches. Trailers range from $500 to $5,000 or more depending upon capacity and lift options. Skidding winches and grapples for tractors range $3,500 to $10,000 or more. With so many options and attachments to fit a wide range of needs and budgets consider investigating the opportunities that these present. Their use will make woodland work safer, more enjoyable, and more productive.

Small Scale Logging Suppliers

A large number of companies sell small scale logging equipment. The following have provided graphics or information used in this article.

Timber Tuff Tools
www.timbertufftools.com
(Figure 1)

Hud-son Forest Equipment
www.hud-son.com
(Figures 10a, 10b, 12)

Logrite
www.logrite.com
(Figures 2, 3, 4, 5, 7, 11)

Country Manufacturing
www.countryatv.com
(Figures 6a, 6b)

Anderson Group
www.grpanderson.com
(Cover photo, Figure 8)

About the Author:
Jeff Stringer, Ph.D., *is an extension professor at the University of Kentucky and is responsible for continuing education and research in hardwood silviculture and forest operations. He is also an editor of the Kentucky Woodlands Magazine.*

Cooperative Extension Service, Department of Forestry, University of Kentucky, 201 Thomas Poe Cooper Building, Lexington, KY 40546-0073; Phone: 859.257.5994; Fax: 859.323.1031; E-mail: stringer@uky.edu