



Woodlands and Woodcutters

"I'm a Lumberjack and I'm Okay . . . "

by S.E. Mortimer

Introduction

It is difficult to overstate the importance of woodlands to low-tech communities. Many resources essential to their survival were directly or indirectly dependent upon the forest. Timber was used as fuel, for the manufacture of household items and tools, and for construction. The undergrowth was used as forage for pigs and cattle. Bark was collected for tanning leather. Resins and turpentine were extracted. Wild berries, nuts, mushrooms, and honey were collected to supplement the sometimes meagre diet. This work attempts to give some information to those who are interested in low-tech campaigns to help flesh out woodlands settings and give some insight into how woodcutters might live and work. Any *GURPS* rules endeavour to remain consistent with existing material in *Basic Set* and *Low-Tech* when possible.

The Forest

Disciple: "What is the forest of the King, and what is the reason for this name?"

Master: "The forest of the King is a safe lair for wild beasts; not of any kind of beast but of those of the woods only; not in any place whatsoever but only in certain places and in those suitable to the purpose; whence such a place is called a forest, the 'o' having been changed from 'e' as it was in 'feresta,' i.e., the place of wild beasts."

Disciple: "Is there a forest of the King in every county?"

Master: "No. But in wooded counties where there are lairs for wild beasts and forage in abundance; it is immaterial who owns the woods, whether the King or a noble, the wild beasts are safe and may roam at will anywhere."

-- *Dialogue of the Exchequer* (1177 A.D.), *On Forests*, Bk 1, C.12.

The Crown (via the local lord) usually claimed all rights to the woodlands in a demesne (and the wildlife therein) and granted licences and dispensations in return for feudal service or monetary compensation. "Forest" was a legal term, describing a wooded area subject to special Royal laws designed to protect the valuable resources of timber and game within its boundaries. These laws were strictly enforced by Crown employees. The Forester was in

Coppicing

The word "coppice" comes from the French *couper*, "to cut."

Coppicing is the art of cutting of trees and shrubs in such a way that allows vigorous regrowth and a sustainable supply of timber for future generations. Evidence of coppicing has apparently been dated to the Neolithic period. Coppiced trees and shrubs produce new saplings, which sprout from the base of the

charge of the Crown's Forest and was sworn to attend upon the plants and animals ("vert and venison") within his "Bailiwick," to attack or arrest transgressors, and to bear witness against offenders in court. He had many assistants: agisters, rangers, wardens ("verderers"), bow-bearers, underkeepers, and underforesters. Penalties for infringing forestry laws were severe; the punishment for poaching could range from a fine or imprisonment to maiming, which might be loss of a hand, blinding, or even castration. Repeat offenders were sometimes executed. Outside the boundaries of the Forest, control was less strict, but often a Forest extended outside the woods to include heathland, meadows, and even some cultivated land.

In the Forest, commoners were usually permitted to collect deadwood for fuel and to forage livestock (though sometimes licences were required even for these activities), but not to cut down trees or hunt game. In the village of Leafield near Wychwood Forest for example, the locals were only permitted to collect deadwood on Tuesdays and only so much as one man could carry. The saying "by hook or by crook" referred to the collection of deadwood: Fallen timber and brushwood would be cleared and collected using either a weeding hook or a shepherd's crook. Once each year, on Whitsunday, Leafield villagers were also permitted to hunt game in the Forest. There was a separate license for hunting small game called "warren." Some villagers were granted the right to "free warren" which meant that they were permitted to hunt rabbits, hares, foxes, cats, otters, martens, squirrels, etc. Sometimes "deer parks" were created within the Forest to make hunting easier for the nobility. These parks would consist of an area usually between one and two hundred acres (but became gradually smaller in later times) that was enclosed by banks and ditches topped with fences and hedges, thus trapping the deer within a controlled area.

Woodland Management

The "wood pasture" provided a largely subsistence-based local community with most of its requirements for fuel, building materials, food and forage. Typically there were more bad trees than there were usable ones in any given area of woodland. Reasons for this include previous logging activity ("high grading" involves taking only the best trees and moving on), invasive plant species, over grazing, pests, etc. Woodland management involves human intervention in the natural growth of a forest to increase the amount and quality of timber. Usually this management took the form of "coppicing" and "pollarding" (see textbox, right) to produce poles and laths for building. "Underwood" (twigs, brushwood, etc) was collected and used for domestic fuel. Sometimes cleared land that was deemed unsuitable for agriculture was replanted with quality species to improve the timber yield of a particular landholding.

The Woodcutter

previously-cut plant (called "coppice stool"), that can sometimes grow over one foot per week. For most species, coppicing actually prolongs the plant's lifespan. Regular coppicing involves cutting all trees in a certain area but "standard coppicing" involves allowing a certain number of trees to grow to maturity. The amount varied, but in early 16th century England, regulations set this standard at a dozen trees per acre of coppice.

Pollarding was similar to coppicing except that the new shoots were encouraged to grow horizontally rather than vertically. With coppicing, the tree is cut down low near ground level, but with pollarding, the tree was cut at a height of around six to eight feet. This was useful in areas where growth from the ground upwards was less desirable such as in woodland pastures. Pollarding permitted more of the ground to be used for grazing.

The poles of saplings were harvested for light carpentry work, fencing, basketwork, and fuel (firewood and charcoal). A stand of coppice (called a *copse*) was usually demarcated by an earthen bank, sometimes topped by a hedge. These were erected mainly to prevent grazing animals from

Also called a "feller," the woodcutter lived on the fringe of medieval village society. He spent most of his life in the forest chopping wood for the local lord or working in conjunction with sawyers or charcoal burners ("wood colliers"). Villagers viewed anyone who lived outside the "civilized" borders of village, town, and castle with deep suspicion. The woodcutter had the double social disadvantages of living in the wild *and* being poor. There are many folk tales associating the woodcutter with symbols of both poverty and the "dangerous wilderness." Even in more modern times the woodcutter, or "logger," was considered to be rude and uncouth by townsfolk. Loggers were wild, boisterous, and rowdy. They lived deep in the woods for months at a time in logging camps where the work was long, hard, and dangerous. They evolved into a breed of men that, even today, symbolises strength, virility, and masculinity.

Because of the nature of his work, the woodcutter rarely lived in a fixed abode for any length of time. Many set up temporary shelters on the edge of the woods and moved on when the best trees had been harvested. In areas that contained dangerous wildlife, the shelters could be constructed in trees. For example, today in Bangladesh, woodcutter's shelters are constructed eight to 10 feet above the ground to reduce the likelihood of tiger attacks. Sometimes the woodcutter's entire family would travel with him, while other times he would leave them behind in the family home.

The medieval woodcutter and his family would be involved in the following activities: felling trees, coppicing and pollarding, uprooting unsuitable plants and preparing a glade for future use, bundling underwood into fagots (called "fagotting") for sale as domestic fuel, collecting suitable barks for the leather tanners, and making small amounts of charcoal for personal use. He might also work in sawpits or sawmills. Occasionally he would be called upon by his Lord to perform a specific task, such as providing material for a castle, manor house, mill, bridge, etc. Hazards of the job include being hit by falling branches or the whole tree; injuring oneself with the axe; forest fires; being attacked by poachers, bandits, or wild animals, plus any number of natural hazards that anyone travelling or camping in woodlands would face.

Fuel

Only a very small amount of harvested timber was used by the craftsman. The vast majority was consumed as fuel (firewood and charcoal). There is an old saying -- firewood warms you three times: once when you cut it; once when you carry it; and once when you burn it. In cooler climates it has been estimated that a cottager's family required between one quarter and one half an acre of 20-year-old coppice wood (six to 12 cords) for heating each year. If the wood needs 20 years to regrow then each family required between 5 and 10 acres of woodland for a constant supply of fuel (modern wood heaters are much more efficient, usually requiring less than one cord per year). According to *Low-Tech* (p.LT39) freshly cut (green) hardwood contains 30% water and has an energy content of about 7,000 kilowatt-seconds (kWs) per pound. After seasoning, its water content drops to 15% and its energy output increases to 8,200 kWs per pound. Coniferous woods contain 40% water and 7,500 kWs per pound when green and 10,000kWs per pound when seasoned.

Fagot: A "fagot" or "bavin" of firewood is a bundle of timber roughly six feet by three feet by three feet, or 54 cubic feet. It usually consists of "deadwood," such as brush and twigs, rather than felled

destroying new growth. Occasionally, dry stone walls were constructed. Each copse typically covered an area anywhere from 12 to 50 acres.

Wood Stacking

Another occupation is that of "woodstacker." Although originally both cutting and stacking of timber would have been done by the same person, by the fourteenth century in London, the occupations became so specialised that the Woodcutters' Guild was kept rigidly separate from the Woodstackers' Guild. These guilds fiercely guarded their spheres of influence and demarcation disputes were handled by a guild-court.

trees and sawed branches. A fagot might contain 20-25 cubic feet of solid wood. Two fagots of brushwood could bake thirty loaves of bread, or fire three terracotta bricks, or provide warmth for a small, one-room cottage for a week or so.

Cord: A "cord" is the traditional volume used to measure firewood. It is a stack roughly eight feet by four feet by four feet, or 128 cubic feet. This stack contains an average of about 80 cubic feet of solid wood. An acre of 20-25 year old native trees produces approximately 20-25 cords of wood. Managed pine plantations can produce more than double this amount. An average woodcutter could cut two cords of wood per day. An experienced woodcutter could cut three cords.

White coal: This is timber that has had its bark stripped and then dried in a kiln (but not rendered into charcoal) for use as fuel. Some industries that made use of white coal included ceramic, glass, and lead smelting. White coal burned hotter than regular timber but cooler than charcoal and so was unsuitable for industries such as iron smelting, smithing, and so on. An upcoming article will go into more detail about the use of charcoal.

Prices

The price of firewood varied greatly depending on season, availability, distance to source, etc. In England, between 1250 and 1350, a cord of firewood varied between 6 and 12 shillings, but 8 shillings is a reasonable average cost. For comparison, [Tilting at Windmills](#) states that a bushel of wheat costs 1.5 shillings (18 pence) during the same period or \$30 (*GURPS*). A cord of firewood would therefore cost \$160 or about \$70 per fagot. A years' worth (6-12 cords) of firewood would cost between \$1,000 and \$2,000. Heating one's home was an expensive proposition if you didn't have free access to deadwood in nearby woodlands. The incentive to circumvent the Lord's regulations on collecting firewood would have been great.

New Skill: *Lumberjack (ST/Easy) (defaults to Carpentry -2).*

In order to prevent an unnecessary plethora of skills that are closely related, a single Professional skill will be created to handle all related occupations. Lumberjack (*ST/Easy*) will be the skill used to acquire and process timber. Carpentry (p.183) will be reserved for working with wood that has been prepared with the Lumberjack skill. This skill involves managing the woodland through various techniques including coppicing; knowing which trees would be suitable for felling; knowing the most efficient way of felling these trees and which tools to use; the physical act of felling the tree; care and maintenance of timber-felling and sawing tools; and operating a sawpit or a sawmill. Some maneuvers would be based on other attributes besides ST. For example, Per might be used to select suitable trees for felling, and DX might be used to repair a tool (though the Smith skill would be needed for major repairs).

The *GURPSnet* Archives has a document about [Architecture](#) written by Matt Riggsby and his suggestions are worth repeating here:

A team of foresters with axes and saws can harvest 3 x ST cubic yards of simple logs and rough beams per day. For example, a man with a ST of 10 can produce 30 cy per day. Softwoods

Timber Weight

This table approximates the weight per cord of timber depending on tree species.

Species	Green	Seasoned
Ash	4,000 lbs	3,400 lbs
Cedar, red	3,200 lbs	2,700 lbs
Elder, box	3,500 lbs	2,500 lbs
Elm	4,400 lbs	3,000 lbs

weigh 800 to 1,000 pounds per cubic yard. Hardwoods weigh 1,200 to 1,500 pounds per cubic yard.

It is required that at least one man in 10 has Survival (Woodlands) at 12+. If not, someone must default it (IQ-5, Naturalist-3). One Survival roll must be made per day (see pp.B223-24). A successful roll allows the full amount of lumber to be harvested. A failed roll halves this amount and a random member of the team takes 1d of injury. A critical success increases the day's harvest by 20%. A critical failure halts production for the day and one member of the team is injured for 2d damage.

If a character has the Lumberjack skill at expert level (14+) then he might increase his daily production to $4 \times ST$ since he works more efficiently than less experienced woodcutters (he often has a higher ST too). The Lumberjack skill may also be substituted for Survival in some situations (GM's decision).

Low-Tech has rules for felling trees with stone age tools (TL0) on p.LT16.

Hickory	5,000 lbs	4,200 lbs
Maple, sugar	4,400 lbs	3,500 lbs
Oak	5,000 lbs	3,800 lbs
Pine, shortleaf	4,100 lbs	2,700 lbs
Walnut, black	4,600 lbs	3,200 lbs

Sawpits

Sawyers or "board hewers" selected the best of the logs to cut up into planks and beams to be jointed by carpenters. In a managed woodland, the timber was often sawn on site, and today, the remains of sawpits can sometimes be identified as depressions, often near a major track or a convenient waterway. Sawtimber logs must not contain too many defects such as decay, scars, bulges, bark distortions, holes, branch stubs, and crookedness. The logs were slung over pits to allow one sawyer to get underneath the tree while his sawing partner stood on the log above. A common occupational hazard was conjunctivitis caused by sawdust falling into the eyes. Respiratory diseases were also common. Sawdust is also a fire hazard and fine sawdust can explode if enclosed.

Mr. Riggsby's rules again seem reasonable and are repeated here:

Once the timber has been harvested, carpenters are required to shape it into boards. Carpenters can produce an average of one square yard of board per man point of Carpentry skill per day. The exact volume of wood depends on the thickness of the boards (cutting thick boards doesn't take more time but it requires more trees to be cut to produce a given area of wood). Carpentry skill is at an effective -1 for every half-inch of thickness beyond the first and -3 for working with hardwoods. All members of the team should have Carpentry at 12+. Water- and wind-powered sawmills, which become available late in TL3, can double production rates.

The GM may place arbitrary limits on the maximum length of cut boards. Major construction projects were occasionally delayed as the result of a search for large enough trees to produce the required beams, and extremely long lumber was often imported from distant forests.

It is suggested that the newly proposed Lumberjack skill could be substituted for Carpentry for those working in sawpits and sawmills.

Construction

A constant source of timber for building construction was very important. Each new house would require logs from over a dozen oak trees. A new church might require the timber from 300 to 400 trees. Mr. Riggsby's article goes into building construction in great detail and there is no point repeating it here.

Equipment

Axes: The single-bit axe is safer for inexperienced woodcutters to use because it only has one cutting edge. Experienced woodcutters usually use a double-bit axe, which has two cutting edges. **Low-Tech** (p.LT35) states that a bronze axe will enable a 1 foot oak to be felled in 20 minutes. An iron axe enables a 1 foot oak to be felled in 15 minutes (p.LT59). Experienced woodcutters could fell trees even faster. Weight 5-20 lbs. Cost: \$50-\$70 (p.LT55).

Saws: Used for removing branches and shaping planks and beams. **Low-Tech** (p.LT55) states that the notion of bending alternate saw teeth left and right was not developed till the end of the Bronze Age. A two-man saw weighs 5 lbs and costs \$10.

Scaling Equipment: Ropes and tree climbing spikes and slings are also required. These are covered in [Scaling the Heights.](#)

Transportation: Equipment for moving the timber is necessary. Sledges or wagons would be pulled by teams of oxen. Alternatively, logs could be floated down a nearby river. The difficulty involved in moving logs by land meant that the timber was often processed on-site as much as possible.

Roleplaying Suggestions

- The heroes are traveling through the woods and come across the local lord who is hunting game with a small party of nobles. The party has unwittingly wandered from the common woods into the Lord's Forest and all hunting and woodcutting is illegal here without the appropriate licences. The Lord's Forester is present and he approaches the party to inspect their belongings. If there is any evidence of poaching or illegal wood harvesting, they had better produce the correct paperwork, or have someone who is very skilled at Fast Talk.
- The PCs have been hired by the local Forester to apprehend some particularly troublesome poachers. They can either attempt to track the offenders, or they could find an area frequented by game and patiently wait in hiding for the poachers to come by. The "ghillie suit" made famous by modern sniper movies was originally created by Scottish gamekeepers ("ghillies") to help them catch poachers. See [The Art of Camouflage](#) for more detail.
- The party is camping in the local forest and enjoying a late afternoon meal by the campfire. They spot three men with spears and bows. The largest of the three is carrying a deer carcass across his shoulders. These men are poachers. Since the PCs have seen them, the poachers decide to stop them from informing the authorities. The deer will be dropped and the poachers will dash to cover. The stealthiest of the trio will circle around to try and stop the PCs from fleeing while the other two pin the PCs down with arrows. Then they will move in . . .
- There was a legal requirement for all hounds greater than a certain size to have their claws extracted, so they didn't injure the forest game. This was called "lawing." If any of the PCs owns a hound or mastiff and hasn't had it declawed, then he will face court and a fine. If the court official finds the PC offensive, or if the local Lord expresses an interest in the PC's hound, the animal could be confiscated. If this hound actually injures or kills any game in the forest then there will be very serious consequences. The owner of the dog will face the same penalty that a poacher would face (heavy fine, maiming, etc.)
- While the party is traveling through the woods, a small boy runs up to the PCs. He is out of breath and pants that his father, a local woodcutter, is hurt. A tree has fallen and pinned him

underneath. The tree is too heavy to lift without some sort of mechanical assistance. If the PCs manage to rescue him, he will need medical attention.

- January is known as "Wolf Month." Wolf packs driven by snow and cold can come closer to human settlements. Food is scarce at this time of the year and some wolves overcome their natural fear of man to enter villages and carry off livestock or even small children. Medieval accounts even report grown men and their horses being attacked by wolves as they traveled through the forest.

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