

# Wood Waste Utilization

Utilizing wood wastes is a good way to practice environmental conservation, even in areas of Appalachia where wood is relatively plentiful. When the wood is recycled a resource is conserved and construction money is saved. "Wood," says Jim Broadstreet, "is one building material which technology cannot refine all the character out of, and it is the one which is replenishable." Those of us who descend from foresters or lovers of trees have almost an instinctive respect for wood. That applies to most native Appalachians who can show respect for what has been plentiful by preserving and refraining from wood waste. Let's look at the three wood-saving opportunities: conserving wood when cutting or harvesting trees; processing wood products; and in constructing, storing, and razing operations.

## Wood Harvest Wastes

While many foresters for economic reasons seek to utilize the entire tree, or as much as possible, it makes good environmental sense to leave portions in the woods as ground cover.

**Leavings.** Thatch or sloughed wood portions, cones, needles and leaves build up on a forest floor, and can be a fire hazard in certain places. Natural and human-caused fires remove this excess. However, in many biosystems the litter furnishes some of the nutrients that will help regenerate a healthy stand of trees. The uppermost branches and twigs at the extremity of the tree contain more nutrients than the timber log portions and should normally be left in the woods to decompose to forest floor humus. In the same manner the roots and discarded and rotted portions of the tree trunks should be left for litter and eventual decay. While such debris looks bad for a few years until the smaller trees cover the floor, it is a green practice worth continuing. In point of fact, the recent movement to harvest wood chips for industrial purposes encourages both clear-cutting and the removal of all carbonaceous material from the soil surface, thus denuding forestlands and opening the surface to soil erosion, which exacerbates the impact of wood chip harvesting.

**Note:** discarded logs or rotting standing trunks make excellent habitat for numerous wood critters. Don't clean up forest floors too thoroughly. When gathering litter for tender, take from hard surfaces or where ground thatch may be a fire hazard.

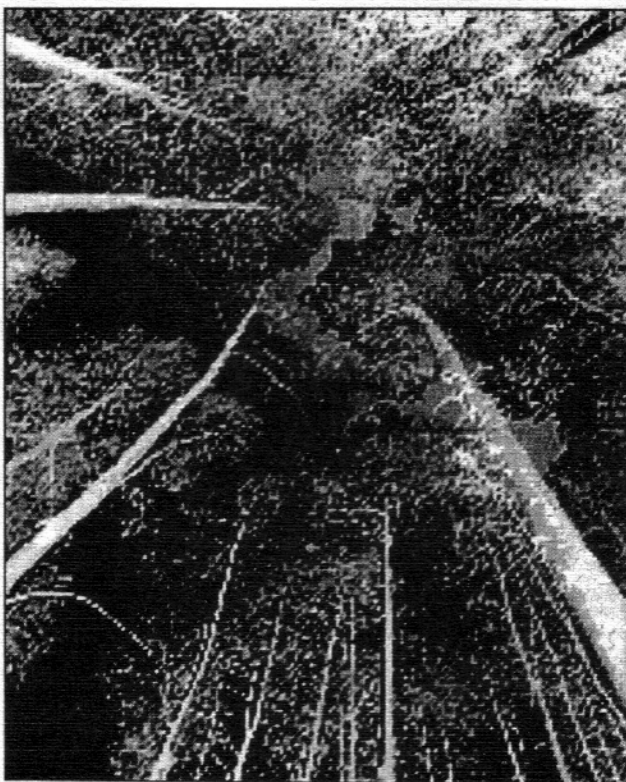
**Tree Stumps.** Often it is impractical or impossible to cut a tree at the ground and without leaving a stump. Depending on the type of wood, some of these stumps will be around a long time. However, enduring stumps can be creatively converted into flower or fern stands, or ornamentally decorated or covered with ivy. Consider a resting stool on the top of a large one or a rustic bench if two stumps are in close proximity.

**Defective Logs.** Many trees have split areas, knots or other imperfections that reduce the economic value of the cut logs for lumber. Generally such trees are cut into reasonable sized lengths for cordwood to heat buildings in winter, for wood is a popular mode of Appalachian space heating. Check Cooperative Extension Service literature on firewood choices and heating value. Certain woods are valuable even in small pieces or knots. The artistic person can see the creative possibilities in defective walnut, wild cherry, etc. and salvage such wood. Defective wood can be

used for firewood or minor construction. See TP-5 *Cordwood Buildings*.

**Branches.** Larger upper oak branches can be cut into three- or four-foot sections that serve as substrates for shitake mushroom cultures. These lengths are consumed in the mushroom growing process. See TP-36 *Mushroom Culturing in Appalachia*. Small branches of certain types of wood can be soaked and bent to make walking canes and sticks. A straight branch with several side stems can be cut and turned into a pole ladder for a rustic dwelling or barn.

**Bark.** In former times barks were of greater economic value than they are today because they were used for tannery products, natural dyes, building siding, and other purposes. Though these uses are now mostly historic, certain barks make good mulch when shredded. Other uses include path surfaces and decorations. Stripped portions under the bark are still used for making cane chairs and baskets.



## Wood Processing

Just as some harvesters want to remove everything and not leave a mess, some wood processors want to utilize every ounce of the log that comes to the sawmill or finishing plant. Here economics and ecological practice come closer together than they did in the first operation. Good stewardship encourages use if at all possible. Some Appalachian saw and planing mills pride themselves in not allowing anything to go to waste, though often the amount of unwanted materials seems to accumulate beyond what the local community can absorb.

**Saw Dust.** The primary wood processing waste is the saw dust from the milling and planing operations. Segregating wood types simplifies matters for certain saw dust is most useful for specific purposes. ASPI has utilized sawdust in the following ways:

Compost Toilet Cover - - Materials can be added after each use to furnish the carbonaceous substrate that helps turn manure back to humus. See TP- 2 *Compost Toilets* and TP-41 *Humanure*.

Packing - - In rare cases where the sawdust is fine and dry it can be used for shipping certain materials, especially certain machine tools, metal pieces or glass materials. Cedar dust can be used as a clothing preservative.

Paths - - The greatest volume of sawdust that ASPI has used has been placed on paths of the vegetable and herb gardens and on the nature paths. We have used much sawdust and find it decomposes rapidly if the surface thickness is an inch or less. When the thickness is greater, decomposition takes longer, and the sawdust does not need replenishing for several years.

Soil Amendment - - For years farmers in Appalachia have added some waste sawdust to especially clayish soils as an amendment to loosen the soil and eventually cause decomposition. Earthworms seem to like a limited amount of sawdust present, but not too much. Raking the decomposed sawdust from paths into beds works very well.

Insulation - - Some use sawdust for insulation. We have placed plastic bags of sawdust under trailers as quick insulation before we could achieve more permanent underpinning. There are problems with saw dust wedged into tight places for it retains moisture and can become nesting areas for unwanted critters. Some have used clean and dry sawdust in walls of buildings, but we are reluctant to do this due to moisture accumulation, attractiveness to vermin and wood-working insects, and natural settling.

Scobs - - A good use of moist sawdust is to collect dust when sweeping out a place, a good practice during construction work.

Pressed Logs - - Some types of relatively dry sawdust can be pressed into logs for use in fireplaces.

Shavings and chips. Wood turning lathes and other machines creates wood chips and shavings. In large operations the chips are so numerous that the excess are shipped off to chip processors. When these wastes are of a single type of wood they are particularly useful for bedding for small animals such as hamsters and rabbits or for packing (we don't generally recommend sawdust for most animal bedding). Wood shavings may be used to starting fires in a stove or fireplace.

Pine and other Slabs. Slabs obtained when making fence posts and cutting logs for buildings are a major wood products waste in Appalachia and the Southeast. But these pine slabs can have a great variety of uses. ASPI and its friends have utilized slabs for the following purposes:

Siding on Exterior Walls - - An excellent use because of the low price of slabs (\$20 per 200 at an average of 3-4 inches wide and 8 feet long). Granted some individual slabs are too twisted or otherwise unusable, still the total cost can be as low as 5 cents per square foot of finished surface -- a very low rate. Pine slabs also weather well when placed in either a vertical or horizontal position.

Interior Walls - - We have used slabs for interior surfaces after planing off edges. For a continuous wall, face the first slab in one direction and next in the opposite. Ceiling can also be done in this manner or all can be turned in a single way for a more rustic look.

Outbuilding and Fencing - - A wide variety of buildings can be constructed with wood slabs. ASPI uses them for the sides of raised bed gardens. Granted, slabs touching earth do not last long, but they serve very well and can be easily replaced if supporting stakes are more durable. Also chicken and pet pens and specialized fencing can be made from the slabs.

## Wood Wastes in Construction, Storage and Razing Operations

After wood has been processed by and has left a conservation-conscious processing plant it can still be wasted in the crafting, fabricating and building process. Obviously the more economy-wise supervisor opposes such waste, but with high-priced or temperamental workers who do not share the supervisor's stewardship ethic, it may not be feasible to direct the proper use of each board. Saving time may result in wasting wood.

Primary Conservation. The best way to save wood is to build smaller home units and to reduce home-stead size by planning multi-purpose rooms. It is amazing how much smaller a home can be and yet be comfortable, with less building material, less maintenance, and less expenditure for heating and cooling. The decision to reduce the size of a wooden structure or furnished home is the primary way to reduce wood waste all along the process line.

**Construction Wastes.** Small pieces of untreated wood can be used for fire wood, door stops, rafter supports, and numerous other construction uses. Creative designers can take valuable wood blocks used in interior furnishings and fit them into wall sidings and even stair floor landings and similar places. Often such pieces could be saved by the builder and find use later. Thus storing valuable wood for later use is good, provided it is not forgotten.

**Log Ends.** In constructing log buildings or wood-enclosed terraces left-over, cut pieces can be erected upright, even at various lengths as artistic flower borders or for raised garden beds.

**Stored Wood Utilization.** Tales are told of discovering after a craftsman died the remains of a wood storage bin or attic that is like a gold mine. These sometimes contain precious American chestnut, maple, apple, black walnut, and other woods. Those in wood crafts will line up to be buyers. Such treasures are present in every community for the discovery.

**Razing Operations.** Another opportunity for serious wood waste occurs due to our American craze to tear down what is old and rebuild with far less durable products. Today many old 19th and early 20th century barns, agricultural warehouses, stores, and factories with excellent support beams such as 12 by 12 posts of oak, chestnut, poplar and other materials, are beyond the pale of the preservationists. Careful dismantling is a real and almost lost art. Besides taking time and effort, dismantling of some old buildings can be unsafe. Thus the popularity of the wrecking ball and bulldozer or the option of using the building for fire fighting practice. The amount of valuable wood in these structures is immense, but dismantling is a major challenge. This is especially true if older wooden barns are held together with pegs. The wooden frame would shrink and season and fit so tightly as to become a major problem for material reusers.

**Recycled Building Materials.** One-inch board house or barn siding has value whether in the protected state or as weathered siding which is used in a decorative manner. Some unpainted siding is so valuable that people will pay for it by furnishing the barn-owners with new siding. House siding that has been installed on the slant to stabilize the building against heavy winds has the added problem of old nails in random places. No recycler likes to find metal in wood, for one strike is death on tools. However, many building rafters and support beams can be used by cutting off the nail-containing ends. Sometimes recycled oak is so hard that the new nail holes will have to be pre-drilled before re-nailing. Certainly such quality recycled materials have their peculiar problems, but these are minor for wood lovers, those seeking economy and those wanting to save resources. Reuse is as varied as the creative mind.

Reference: Jim Broadstreet, *Building with Junk and Other Good Stuff: A Guide to Home Building and Remodeling Using Recycled Materials*, Loompanics Unlimited, Port Townsend, Washington, 1990.

