# WOOD DISPOSAL OR WOOD HARVESTING[1]

**by Pete Ratcliff**

Morbark has the answer to your problem of wood disposal. Since 1970, we have seen many of our Chiparvestors put to work handling wood residues, and very successfully I might add. Thousands of trees from hundreds of acres have been chipped by contractors and municipalities that otherwise would have filled landfills or put an air pollution control inspector on your payroll. Today, I would like to take you to the next step in handling wood residues. From here on, you should think and operate a *wood harvesting* system rather than a wood disposal system.

In a recent talk to a group of urban foresters, I commented that the major difference between the city forest and the country forest was the city limit sign that separated them. If you examine the trees from both areas closely, you would find that the fiber characteristics are the same, the requirements to grow them are the same, the rate of growth is similar and, while growing, the uses are the same. A city tree requiring removal seems to have a stigma of being worthless, even though it has the same fiber as its country cousin. This approach needs to be reevaluated in the light of several important developments.

Today, you have as high a cost in managing trees for shade and esthetics as there is in growing and managing trees for fiber. The cost of trucking logs and brush has doubled, maybe tripled, with the new price of fuel and equipment. Now this tree within the city limit sign is a resource, having value once it is harvested.

Harvesting wood within a city forest makes *economic sense.* You can justify the cost of planting, spraying, pruning, and fertilizing. You can reduce the high cost of trucking. You can circulate dollars of revenue within the city rather than importing services and materials.

Harvesting goes hand in hand with marketing. Since the advent of chipping logs, rather than burning or burying them, markets for wood chips have developed. In fact, many markets today are the result of positive assurance that the trees will be harvested rather than disposed of.

Established markets have become involved in purchasing dimensional wood chips meeting certain specifications from our Chiparvestors. This market is the pulp and paper industry, presently buying from the Detroit area, St. Paul-Minneapolis area, the Appleton, Wisconsin area, the Chicago area, the Washington, D.C.-Maryland area, and several urban areas in Ohio. Tree contractors and municipal operations are the producers. Other markets that have developed in recent years and are being supplied by the same type of producers are large nurseries, park systems, landscaping companies, homeowners, state department of highways, city street departments, and construction companies.

The most exciting and perhaps the most significant market is being developed right now. This market is fuel. Wood chips dry will have an energy value of 8,000 to 8,500 BTU's per pound. One ton of green wood chips is equivalent in heat value to two barrels of commercial fuel oil. One city shade tree represents, when totally chipped, 2 to 12 barrels of oil, and maybe more.

When wood chips are compared to coal, you again have some interesting facts. Wood is organic matter that contains less than 0.1 percent sulfur. The product of combustion will not require sulfur removal. One ton of lignite coal from Montana will have only slightly more BTU's than one ton of green wood chips. The cost of wood chips delivered as fuel can be $ .80 to $1.00 per million BTU's as compared to $2.00 and $3.00 for coal and oil.

Wood chips can be a direct-fired fuel and are being used as such in boilers across this country now. The Forest Products Industry is moving into wood residues as fuel rapidly, as it is faced with

[1] Presented at the International Shade Tree Conference in Detroit, Michigan in August 1975.

gas supply shutoffs and increased oil and coal prices. Many coal-fired boilers have the ability to fire wood chips mixed with coal. Many more coal- and oil-fired boilers can accept wood chips as a supplemental fuel by modifying the boiler and/or sizing the wood chips. The people who are building steam generating power plants fueled by MSW have stated that wood chips manufactured by our Chiparvestors, around and in the cities, will be considered a clean fuel that can be stockpiled.

Recently, Morbark introduced its version of a wood refinery called the Class-A-Fiber System. This system takes the chips from a Chiparvestor and refines and sizes them for market. The chips are separated from impurities such as bark, dirt, and leaves by a fan mill and a series of hexagon drum screens. All over-sized chips are rechipped and returned to the screening system.

This wood refinery incorporates several new Morbark products. We have developed the Scoop Roveyor van that will unload a 25-ton load in about 12-15 minutes. The conveyed chips are placed in a 30-ton surge bin. From the surge bin, we put the chips through a fan mill and then through a series of hexagon drums. The finished product is loaded into a truck or rail car with the Super Blower. We at Morbark believe that this system, when placed within a reasonable transporting distance to a market, will supply pulp-quality chips from all types and conditions of trees, and that it can be a new source of energy for that region.

Morbark has two models of Total Chiparvestors and in 30 days will be introducing our third model. This unit will have the capacity to handle a 10-inch whole tree. It will be approximately 13 feet long, 7 feet high, complete with a loader and weigh approximately 6,500 pounds. It will be powered by a diesel engine. We at Morbark call it our "Brush Chipper".

Wood in chip form has utility. This has been proven. New markets are being developed that will consume all that can be produced. Now it's a case of discontinuing the old practices of disposal and getting on with the task of harvesting.

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## ABSTRACTS

Patton, D.R. and P.F. Ffolliott. 1975. **Selected bibliography of wildlife and habitats for the Southwest.** U.S.D.A. Forest Service General Technical Report RM-16, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 39p.

In recent years the amount of wildlife literature accumulating in professional journals has made it difficult for field biologists to maintain a reference library. As a result of many requests for literature we have gradually compiled a bibliography on wildlife habitat management reflecting the types of information sought by biologists in the Southwest. Even though we excluded some periodicals and information on selected species this bibliography contains 390 references. Students, research and management biologists, and professors alike should find it useful in their search for information on wildlife and habitats in the Southwest.

Shurtleff, M.C. 1976. **The destructive root-knot nematode.** Grounds Maintenance 11(1):22,24,27-28.

Nematodes injure plants (1) directly by their feeding, which results in loss of roots, lack of vigor and general stunting; and (2) indirectly by wounding plant tissues and affording easy entrance to fungi and bacteria capable of producing root and crown rots, wilts (Fusarium, Verticillium, or bacterial), and crown gall. Plants severely infected with nematodes are also more susceptible to winter injury than healthy ones. The best known plant-infecting nematode, and one of the easiest to recognize, is root-knot (*Meloidogyne* spp.). Over 2,000 species of plants are susceptible to one or more of the several species of root-knot nematodes.