

## Pallet Re-Use and Recycling Saves High Value Material from Landfills

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Pallets move the world. In the United States, an estimated 4 billion pallets are in daily service. Nationwide, on an annual basis, an estimated 441 million new pallets are manufactured and 357 million pallets are repaired or rebuilt from discarded pallets. Manufacturing these pallets consumes more than seven billion bd ft<sup>1</sup> of lumber annually, roughly two-thirds hardwoods<sup>2</sup>. This makes the pallet industry the single most important user of hardwood lumber (by volume) in North America.



Figure 1. New pallets ready to be shipped. Photo by Urs Buehlmann

Pallet reuse and recycling have increased greatly over the past two decades. While only 51 million pallets were recovered, repaired and reused in 1992, almost triple that number were recovered, repaired, and reused in 1995 (143 million pallets), and in 2006 this number increased to 357 million units. It is estimated that pallet reuse and recycling saved an estimated 5.7 billion bd ft of lumber in 2006, bringing the volume of lumber being saved close to the level of new lumber being consumed (43.8 percent recovered, repaired, and reused versus 56.2 percent new lumber, Figure 2).

<sup>1</sup>A board foot (bd ft) is a volume described by 1'x1'x1".

<sup>2</sup>Bush, R. and P. Araman. 2009. Material Use and Production Changes in the U.S. Wood Pallet and Container Industry: 1992 to 2006. *Pallet Enterprise*. June 2009. pp, 38-43.

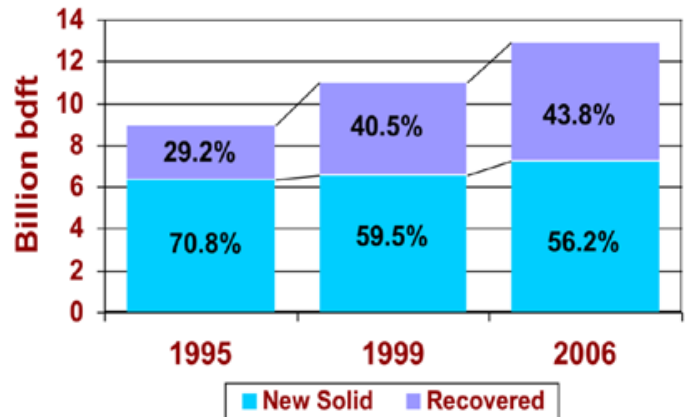


Figure 2. Volumes of lumber used in the United States pallet industry.<sup>3</sup>

Despite all these efforts, Bush and Araman estimate that up to 100 million pallets are still landfilled.<sup>3</sup> However, there is no reason why pallets should end up in landfills. Many alternative uses for discarded pallets exist besides reuse or recycling into pallets, ranging from the production of mulch, animal bedding, or fuel to more value-added opportunities like producing flooring for eco-friendly buildings, as shown in Figure 3.

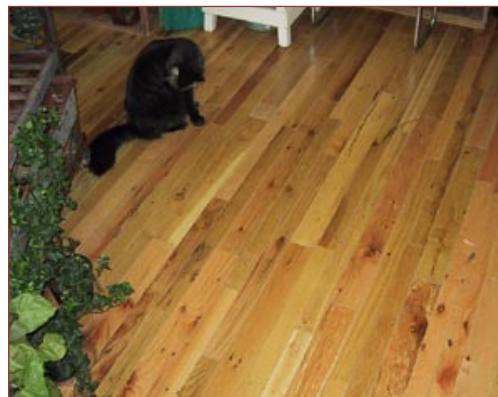


Figure 3. "Green" flooring from recycled pallets installed in Sprig Garden Shop, Grove Arcade Mall, Asheville, N.C. Photo by Urs Buehlmann

<sup>3</sup>Araman, P., B. Hansen, and R. Bush. 2009. Wooden pallet reuse is growing, but more can be done. Workshop presentation. Department of Wood Science and Forest Products, Virginia Tech.

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In fact, having pallets commingled with municipal solid waste (MSW) is a loss of valuable resources that reduces available landfill space. For example, pallets cause the Southeastern Public Service Authority (SPSA) in Chesapeake a sizeable amount of problems. They have to be manually removed from the overall waste stream that feeds into the authority's waste-to-energy Refuse Derived Fuel Plant (RDF) powering the U.S. Navy's Norfolk Navy Shipyard. Those pallets, for lack of a better solution, then have to be landfilled at the SPSA's 833 acre regional landfill in Suffolk, a costly and wasteful solution. If local pallet or wood recyclers had use of the discarded pallets, they would not end up in the MSW stream. To help salvage pallets, the Department of Wood Science and Forest Products,

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in collaboration with the USDA Forest Service, Blacksburg Station, has held workshops in Abingdon, South Boston, Harrisonburg, and Virginia Beach, teaching about pallets and how to recycle them and matching those who have pallets with those who need pallets. As a consequence of these workshops, two companies have invested in their own pallet recycling operation and several companies were able to find a solution to their pallet problems. However, more work remains to be done by the VTWood Recycling team to promote the reuse or recycling of pallets, and future workshops are in early planning stages.