LOG SORTYARDS
and
Other Marketing Systems

Carol Daly
Flathead Economic Policy Center
15 Depot Park
Kalispell, MT 59901

Pinchot Institute For Conservation
1616 P Street NW
Washington, DC 20036

Grey Towers National Historic Landmark
Milford, Pennsylvania 18337

March 4, 1997
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>1</td>
</tr>
<tr>
<td>Issues Overview</td>
<td>5</td>
</tr>
<tr>
<td>Policy</td>
<td>6</td>
</tr>
<tr>
<td>Marketing System Gaps or Inefficiencies</td>
<td>6</td>
</tr>
<tr>
<td>Market Inequities</td>
<td>8</td>
</tr>
<tr>
<td>Improved Raw Material Utilization</td>
<td>8</td>
</tr>
<tr>
<td>Improving the Stewardship of Forest Ecosystems</td>
<td>10</td>
</tr>
<tr>
<td>Furthering Economic Development Objectives</td>
<td>11</td>
</tr>
<tr>
<td>Increasing Timber Available from Private Woodlands</td>
<td>12</td>
</tr>
<tr>
<td>Market and Financial</td>
<td>14</td>
</tr>
<tr>
<td>Goals</td>
<td>14</td>
</tr>
<tr>
<td>Ownership and Initial Capitalization</td>
<td>14</td>
</tr>
<tr>
<td>Costs</td>
<td>15</td>
</tr>
<tr>
<td>Land</td>
<td>16</td>
</tr>
<tr>
<td>Site Improvements</td>
<td>16</td>
</tr>
<tr>
<td>Buildings</td>
<td>17</td>
</tr>
<tr>
<td>Machinery and Equipment</td>
<td>17</td>
</tr>
<tr>
<td>Personnel</td>
<td>18</td>
</tr>
<tr>
<td>Supplies</td>
<td>18</td>
</tr>
<tr>
<td>Utilities</td>
<td>18</td>
</tr>
<tr>
<td>Maintenance and Repair</td>
<td>18</td>
</tr>
<tr>
<td>Waste Disposal</td>
<td>19</td>
</tr>
<tr>
<td>Marketing/Advertising</td>
<td>19</td>
</tr>
<tr>
<td>Transportation</td>
<td>21</td>
</tr>
<tr>
<td>Other Costs</td>
<td>21</td>
</tr>
<tr>
<td>Revenues</td>
<td>21</td>
</tr>
<tr>
<td>Raw Materials Available</td>
<td>21</td>
</tr>
<tr>
<td>Product and Service Revenue</td>
<td>22</td>
</tr>
<tr>
<td>Profitability</td>
<td>24</td>
</tr>
<tr>
<td>Roadside Sales</td>
<td>28</td>
</tr>
<tr>
<td>The British System</td>
<td>29</td>
</tr>
<tr>
<td>Endnotes</td>
<td>31</td>
</tr>
</tbody>
</table>
Background

Using log sortyards to improve resource utilization and increase profitability is not a new idea, but it is experiencing a renaissance of sorts, particularly in the Pacific Northwest and Northern Rockies, for several reasons:

1. Fewer large diameter trees are being harvested.
2. Smaller diameter materials make up a greater percentage of total timber harvests than in the past.
3. Community economic diversification efforts which seek to encourage the development or expansion of local value-added wood products manufacturers have found that many of those businesses need to buy raw materials in smaller-than-truckload quantities.
4. There are increasing numbers of community-based forest stewardship projects which seek to "separate the logger from the logs" and require a mechanism other than the traditional timber sale to deal with any merchantable products generated.
5. The saleable material produced by any one stewardship contract can be of varying species, quality, and quantity.
6. Non-industrial private forest landowners who want to harvest timber and maximize the return they receive for it benefit from an easily accessible, competitive marketing system.

The potential value of log concentrating and sorting yards was recognized decades ago in the eastern and southern United States, areas with high percentages of their forest lands in private ownership. In a 1964 article, Gordon D. Lewis of the Forest Service's Southeastern Forest Experiment Station observed that:

It is argued that log concentration yards would have many advantages over existing rough forest products markets because they would accept any quantity of all major forest products that were delivered. Economic waste would be eliminated because each tree and tree section could be put to its highest use. Furthermore, timber growers would no longer have to sell some of their trees for lower value products in order to have enough volume to interest buyers, and they would receive higher prices for their timber. For the timber operator, the concentration yard would provide a stable market for all roundwood products in large or small amounts.\(^1\)

A 1977 Forest Service report by Ken Kilborn looked at how a proposed agency-operated concentration yard, coupled with an expanded marketing effort, could be used in Idaho to "enable private enterprise to remove the dead and dying trees as prescribed by the Forest Service in an effective and efficient manner. The contract could focus more on the condition of the forest after the harvest than on the method of removal.\(^2\) The report concluded that having a private party
operate the sort yard would be even better, since the operator could also sell trees salvaged from state and private lands.

In 1981, Kilborn assessed the possible development of a log merchandising and concentration yard in the Matanuska-Susitna Borough in Alaska, and discussed industry response to the idea.

The log merchandizing and concentration yard concept has been proposed for many areas in the lower 48. Interviews of industry personnel indicated that in general large firms were opposed to the proposal and small operators were in favor of the idea. One reason why large firms opposed [it]...is that large firms by definition were already fully integrated with specialized sawmills, veneer plants, and pulp mills. They carried out their own sorting and grading operation and were able either to use all the products in their own operations or sell to other companies.... A wholesale log market would extend to small non-integrated firms some of the benefits already achieved by large firms.

The idea of a merchandizing and concentration yard has been adapted by several of the large pulp and paper industries. The Crown Zellerbach Corporation has established at least seven dry-land sorting yards all located close to its own timber sources. This company maintains as many as thirty-five sorts on a single location. Sorts are by diameter, species, grade, and length and are specifically managed to satisfy needs of individual customers.... Weyerhaeuser Company also maintains dry-land sorting yards. 3

Two site-specific studies were done in connection with the possible establishment of a merchandizing-concentration yard in the Bitterroot Valley of Montana. The first, prepared in 1975 by a University of Missouri researcher, viewed a sort yard as being a way to improve "the farmer-logger and stumpeage market interface. The intent is to expand employment and earnings, improve the supply of farmer-logger generated material and contribute to resource management through expansion of in-woods utilization rates." 4 Because the study began with the assumption that a concentration yard was needed, it focused on internal policy issues (ex., Should product purchasing be restricted to certain types of sales, "without participating in existing sawtimber markets?") and the investment needs for implementation of various yard size and function options.

The second Bitterroot study, done in 1981 by the University of Montana under contract with the Economic Development Administration of the U.S. Department of Commerce, was an analysis of "the economic feasibility of [establishing] a wood concentration yard to improve utilization of the forest residue resource in the Bitterroot...." 5 The researchers concluded that, even under their most optimistic scenario for estimated product mix and market prices, the yard would lose money. "Much of the residue is now left in the woods because harvest costs still exceed the price that manufacturers are willing to pay." The report did note that the demand for forest residue
(primarily house logs and small diameter materials) could be expected to increase later in the decade.

In 1980, the Forest Engineering Research Institute of Canada conducted an evaluation and economic analysis of 26 log sorting operations along the coast of British Columbia\(^6\) and, apparently concluding that additional such facilities could be beneficial, subsequently published a handbook for designing, building, and operating log sortyards.\(^7\) In 1990, other Canadian researchers analyzed how sortyards function, and concluded that

... conventional sortyard operations are highly efficient when handling large logs. Problems arise when log size declines below 1m\(^3\).... Alternative sortyard configurations should be identified and tested to improve small-log handling efficiencies and enhance the profitability of small pulpwood and chip-n-saw products.\(^8\)

The Lumby sortyard near Vernon, B.C., is one of the most studied and widely publicized facilities currently operating in North America, and its positive experience contributed greatly to the recent upsurge of interest in sortyard use. An in-depth analysis of its early history and operation is included in the 1995 Price Waterhouse audit and report on the Special Log Sale Project in the Vernon Forest District,\(^9\) which concluded that the yard's first year of operation (1993/94) was a financial and marketing success.

Back in the United States, the Congressional Research Service looked briefly at log sort yards as part of a larger study evaluating possible alternative systems for improving Forest Service timber sale practices and procedures.

The array of interrelated concerns has led some to suggest a complete overhaul of the current system of timber sales -- separating the sale of the wood from the contracts for cutting the trees.... [This] approach would entail an entirely new system for wood sales. First the Forest Service would need to establish log yards for delivery of the wood removed from the forest. Such yards are probably necessary to allow accumulation and sorting of wood deliveries...and to prevent the theft of timber.... However, in at least some areas, operating log yards and marketing wood could be contracted out.\(^10\)

In a 1995 analysis (hereafter referred to as the Oregon report), representatives of the Willamette National Forest, the Associated Oregon Loggers, and the Weyerhaeuser Company looked at the economic feasibility of each of four methods of selling small logs.

There is an ongoing struggle to define a process for contracting economically marginal sales of wood that have, in the past, been precommercial. [The comparison study document is] a proposal for service contract logging small wood
from federal timber sales in order to implement ecosystem management objectives.\textsuperscript{11}

Although concluding that the service contract mechanism would be beneficial in facilitating the thinning of small diameter, overstocked stands, the authors projected net losses to the Forest Service if either roadside sales or log sortyards were used to market the resulting products.
Issues Overview

In reviewing the literature on sorting and/or concentration yards published over the last three decades, two factors -- public policy and private markets -- emerge as keys to site-specific go/no go decisions. For vertically integrated wood products manufacturing companies, the market situation may be the only issue of importance. If a sortyard does not enable the company to more efficiently and profitably use its available raw materials, then it is of little value.

For the Forest Service, state land management agencies, non-profit stewardship projects, private foundations, community economic development groups, and some environmental interests, the issues are more complex and policy-sensitive. For them a sortyard may be a means to help correct perceived market inequities or fill market gaps; a necessary mechanism to facilitate achievement of local economic development goals (such as the creation of value-added manufacturing businesses); a way to disconnect ecosystem restoration activities from the sale of forest products; part of an effort to improve public timber sale practices and procedures; a component of a program to create jobs for low-income persons or displaced workers; etc.

The decision of these agencies/groups to establish (or support the establishment of) any particular sortyard will depend upon the answers to a number of policy questions, coupled with detailed and site-specific market, technical, and financial analyses.

For individual entrepreneurs or smaller companies, the decision to start a sortyard or to contract to manage someone else's will be mainly a market/economic decision, although it may be influenced by policy decisions made by others which affect the yard's potential viability. Those might include public or private sector commitments to channel a certain volume of material through the sortyard for sale; provision of local government financial assistance (through, perhaps, a Community Development Block Grant Program low-interest loan) to subsidize initial sortyard cost; or local development corporation assistance with early-stage marketing activities.
Policy

Marketing System Gaps or Inefficiencies

The impetus for establishing some sortyards is the perceived need to add a "missing piece" to local log markets. Frequently the primary beneficiaries are small businesses -- woodlot owners, independent logging contractors, and value-added manufacturers.

For non-industrial woodlot owners, a sortyard provides several services. First, it enables the owners to sell their logs whenever they choose, in whatever amounts they wish to cut, and in whatever species, size, and quality mix they desire. Secondly, it helps them maximize revenues. In conventional markets,

...the asking stumpage price is based on the values of all the products present. Because the timber buyer usually wants to purchase the entire stand for a single product, however, he will offer a price based on the value he will receive for his product. The result is generally a compromise price which pays the land-owner less than he should receive and costs the timber buyer more than he should pay.\(^{12}\)

A sortyard gives the woodlot owner the opportunity to sell to multiple buyers with minimum effort, and this is a definite advantage when the premium to be expected from the higher value logs would increase total sale revenues above the "compromise" price normally received from a single buyer.

Landowners also may wish to "separate the logger from the logs," contracting with one or more parties to do the harvesting and other land treatments, but not tying the contractors' payment to the timber removed. In this scenario, the landowner would pay the contractors on a per acre, per hour, or some other basis for their work. The amount of timber removed and the value of that timber would have no bearing on the contractors' compensation, so they would have no incentive to overcut or highgrade.

The use of a sortyard can reduce the financial risk for the small woodlot owner who is not fully conversant with market conditions and participants. Inexperienced sellers can make bad deals if they do not do their research or obtain sound advice. An unscrupulous buyer can take advantage of this weakness, purchasing a product for less than its fair market value. A sortyard fills the role of independent, impartial broker.

There are, however, some disadvantages which must be considered: (1) the additional time and expense of arranging transportation of the logs from the owner's property to the sortyard; (2) the fees charged for the sortyard's services; and (3) the time delays in receiving payment for the logs (after the logs are sold, rather than when they are removed from the property).
For independent logging contractors, a sortyard increases their ability to harvest and market multiple products profitably. If they buy a public or private timber sale that will yield a variety of products, the yard fulfills a marketing function that the contractors would otherwise have to carry out themselves. They can load various species and qualities of products together in the woods, and rely on the yard to separate the products and market them to the most appropriate buyers. The contractors' resources are thereby used more effectively and efficiently. As in the case of private landowners, however, contractors using a sortyard have to factor in the additional sortyard fees and the time lag in receiving payment. Some contractors may decide that the potential extra revenue produced from using a sortyard does not outweigh the ease and speed of selling directly to local mills with which they have good working relationships.

Contractors whose strength in is performing the work "on the ground" and who do not want to be responsible for log marketing may find that the availability of a sortyard makes more small private woodlot jobs available to them. Many non-industrial landowners sell their trees on mill-direct stumpage basis simply because that relieves them of the necessity of selecting logging contractors and selling logs. Some owners, however, might be persuaded to consider a more customized, end-results contract if they could be assured that marketing the resulting products would be easy. This option could be particularly attractive to landowners whose primary goal is not to create revenue from timber, but to improve the appearance of their property, enhance wildlife or recreation values, reduce wildfire danger to structures, and so forth.

Small, value-added wood products manufacturers (cabinet, door, and window shops; custom furniture producers; toy and gift companies; musical instrument crafters; log home builders; etc.) sometimes experience difficulties in being able to obtain the quantities and types of raw materials they need in a timely fashion. Buying in truckload amounts is prohibitively expensive for many of them. Further, their requirements tend to be very species-, size-, and quality-specific. Some large mills will separate out the needed material from larger loads and sell to these companies. Many mills, however, find that that sorting does not produce enough revenue to warrant the extra time and expense. Lacking a mill-direct market, small manufacturers are often forced into the retail market, buying from home centers and hardware suppliers. For these customers, a sortyard provides a much needed and cost-effective source of supply. As Lumby sort manager Tom Milne notes,

"Sometimes it's really hard for small operators to get wood. Try to buy some yourself, and you'll see what I mean. At this project, anyone can come and buy logs. As long as you've got the money and you're the highest bidder, we'll sell them to you."

This is the ideal way for occasional buyers to have trouble-free access to wood. "We get all kinds of people here looking at the logs and they have all kinds of reasons for wanting them. Just the other day, somebody asked what I was going to do with the waste pile. I had planned to burn it, but we ended up selling it
instead.13

In addition to being able to purchase exactly the materials they want, manufacturers can buy in the quantities and timeframes that fit their production needs. The sortyard becomes effectively a just-in-time supplier.

**Market Inequities**

Economies of scale and (in some instances) the strength of vertical integration may offer a distinct edge to larger firms when bidding on multi-product federal and state timber sales. If the mills purchasing those sales can't use all the logs in their own operations, they usually have yard space to sort out and market separately what they do not use. They also have ready access to the larger market place and to other, secondary buyers.

A log sortyard can provide a similar sort-and-sale capacity to smaller operators, for a fee. It becomes the rough equivalent of a contracted marketing department for the small business, and thereby may widen the competitive field in a geographic area ordinarily dominated by one or two large mills.

Without log concentration yards, the timber operator who attempts to supply a number of different markets must meet minimum delivered quantity requirements and maintain contact with the buyers of each product to determine specification for their raw materials and to bargain over prices. This is, in many cases, so time-consuming and expensive that it prohibits multiple-product marketing.14 On the other hand, the introduction of a sortyard into a limited and relatively stable market area could have an adverse effect on all participants. If the existing mills are using locally the majority of the logs they purchase, running below optimal capacity, and/or operating on a thin margin, then a yard which encourages the entrance into the market of competing firms may be counterproductive. Increasing competition will drive up the price of logs when the supply is limited, and unpredictable material shortages (due to failures to win critical sale bids) may impair a company's productivity and its ability to meet customer needs. One or two healthy businesses are almost always preferable to five or six weak ones.

**Improved Raw Material Utilization**

One of the chief arguments for sortyards is that they enable each log to be marketed for its highest and best use, while minimizing waste. A report on the Lumby, B.C., sortyard noted that:

The logs are measured by diameter at each end as well as by length. The measurements are fed into a hand held computer that calculates the exact volume. Hand scales like this are labour-intensive, but the higher labour costs required in
the scaling are more than made up for in the price paid for the logs....

The logs are sorted into fir that will be peeled by veneer manufacturers, fir and larch logs that will be converted into lumber, pine peelers, fir logs for log home building, white pine logs for flooring and siding and other sorts.

"All the wood here gets sold for its best potential price and potential products," [contract employee Laurie] Stubbs says, "I think every piece of wood in the province should go through a sort yard like this because we're running out of the resource.... There's no waste this way."\(^{15}\)

The Lumby yard maintains 44 sorts, including such items as "spruce (acoustic)," "bridge stringers," "character logs," and "all (green & dry) (firewood)." Sorts are designed to meet the specific needs of identified customers -- including a guitar manufacturer, construction companies, wood craftspeople, and architects (who use the character logs for accents in rustic-style buildings). A local small business buys firewood logs and collects other scrap, then cuts and remarkets it to individual household customers.

A sortyard in Takamori, Japan, reports similar utilization levels, although using fewer sorts. Buyers from throughout Kyushu Island come to the yard for items such as curved Japanese cedar, curved cypress, and various species in straight lengths. Oddly shaped logs not otherwise marketable are cut into short, straight logs for specialty uses. Scrap materials go for firewood, and the only waste remaining is a small amount of bark.\(^{16}\)

By improving utilization of forest resources, sortyards can facilitate implementation of public policies promoting greater economic and environmental sustainability. They can also help reduce wood exports and/or increase import substitutions by providing the supply necessary to support smaller, local value-added manufacturing operations.

Some critics, however, believe that using sortyards to encourage the "separation of the logger from the logs" could actually result in less efficient wood utilization.

...[Log] values are greatly influenced by how the logs are cut in the woods, because mills have widely differing requirements. This is a particular problem in areas with a variety of mills and a mix of timber species, sizes, and grades, such as Washington, Oregon, Idaho, and northern California. Without feedback from mills or log yard operators, harvest contractors' cutting might lose a substantial portion of the wood's market value; however, if the feedback were too strong, the ecological benefits of the harvesters' independence could be compromised.\(^{17}\)

Industry officials in Montana have expressed similar concerns, arguing that introducing a sortyard as a "middleman" between the logger and the mill will increase costs (to cover
transportation, sorting, and marketing through the yard) and still might not produce logs cut to the purchasing mills' particular specifications. If the logs are cut too short, they cannot be used for their optimal purpose, and if they are cut too long, they must be re-cut, thus generating more waste as the excess is removed.18

**Improving the Stewardship of Forest Ecosystems**

One element of the demand for greater use of stewardship contracting on public lands is the belief that the most frequently used management tool (the timber sale) is too narrowly focused on a single component of the ecosystem and provides little or no positive incentive for the exercise of careful stewardship.

One of the most widely discussed advantages of harvest contracting is the potential to further implementation of ecosystem management. Basing harvest contracts on the work performed and the resulting conditions of the forest (and ecosystem) could eliminate the existing incentives for inappropriate harvesting that have contributed to the forest health problems of the interior West. Furthermore, ecosystem management and forest health improvement could be done regardless of the existence of harvestable timber on the site; this is particularly important in areas with young, dense stands. The use of salvage or commercial thinning in the current system requires having merchantable timber, often with desirable and relatively undesirable timber combined in one sale to assure that it can be sold.19

If using sortyards in combination with stewardship service contracts helped generate some revenues from very small diameter (pre-commercial) thinnings and removals of other usually-unmerchantable trees, it would eliminate the perceived need for cross-subsidization (designing sales so that enough larger merchantable timber is included in salvage and thinning projects to make it profitable for mills to bid on them).

There is, however, an inherent danger in coupling the discussion of forest stewardship contracting with that of sortyard sales of logs. Stewardship contracts intentionally "separate the logger from the logs" -- to direct the contractor's focus away from commodity production and toward the overall health of the forest ecosystem. Timber removal may be a part of the stewardship activity, but it is not its primary purpose.

Unfortunately, because of the very limited funding available to public land managers (especially the U.S. Forest Service) to implement stand-alone stewardship projects, most of the community-based stewardship programs have been forced to use some version of existing timber sale contracting mechanisms to carry out their work. This reinforces skeptics' beliefs that advocates of such efforts are merely timber "wolves" in steardsheep's clothing.
So, it is important to make clear that:

1. Stewardship work does not have to generate saleable products. It is, quite simply, work that is done over time to maintain, restore, and/or enhance various ecosystem components, structures, flows, and processes. This includes (but is not limited to) such activities as stream or streambank restoration, wildlife habitat improvement, noxious weed eradication, and tree planting and thinning to encourage reforestation and/or species diversification.

2. Some stewardship projects, however, may generate saleable materials as a byproduct of the work. To ensure that the contractor has no incentive to increase the amount of material harvested or manipulate ("sweeten") its composition, s/he should have no ownership of it and few or no salvage rights. The material should be sold in a completely separate, arm's length transaction -- hence the roadside sale or sortyard mechanisms.

3. The existence of a roadside sale program or sortyard in any given market area may make it easier to implement stewardship programs in that area by providing a collection and marketing facility and system to handle a relatively unpredictable flow of products of varying size, quality, and quantity.

Furthering Economic Development Objectives

Adversely impacted by declining harvest levels on nearby public lands and/or by increasing imports of lower-cost foreign wood products, many rural forest communities have crafted revitalization strategies that rely heavily on "value adding" and "diversification."

The former aims at capturing more value from the same or lesser amounts of timber volume through secondary or tertiary processing which creates products that can be sold for more than logs alone would bring. For example, the milling of logs or grinding of chips are primary processing activities. Secondary processing would convert the boards into components parts for cabinets or the chips into fiberboard. Tertiary processing further manufactures those products into finished cabinets or specialized moldings ready for installation in homes or businesses. At each stage of development, additional materials and labor are added to the original raw wood product, and its value in the marketplace is increased substantially. More workers also are needed for production, marketing, transportation, and related activities.

A sortyard contributes to this process by ensuring that each log is marketed to produce the most value for the seller and for the community -- so that, for instance, wood of a certain type and grain is sorted for sale to a musical instrument producer in the area, rather than being chipped for a linerboard mill.
The effective use of a sortyard to support value-adding efforts requires good research into potential market opportunities, an aggressive marketing strategy to ensure that customers are aware of the yard's products and services, user-friendly sale and transportation arrangements, and flexibility on the part of yard managers to change or add sorts and lot sizes as market conditions and needs change.

The sortyard itself can be a self-supporting value-adding business, but the community (either through public or private non-profit efforts) may also choose to subsidize sortyard operation in order to ensure the raw material availability and affordability necessary to attract new wood products manufacturers or to encourage existing ones to expand. In Libby, MT, for instance, the local economic development corporation has covered its yard's $25,000 operating deficit because the yard's services are a necessary part of the community's economic development efforts, and also to give the yard an opportunity to become profitable and (hopefully) be spun off as an independent private business. 20

Unlike value-adding strategies, economic diversification plans encourage the development or expansion of industries that are not timber-dependent -- tourism, business services, light manufacturing, health and retirement services, etc. Some communities' economic development programs include retraining displaced workers, and they may try to create new jobs for former loggers or millworkers in watershed restoration and other environmental service occupations.

In that case a sortyard is a vehicle to sell the by-products of the restoration or improvement work, and a possible way to generate funds which can be "recycled" to fund more such work. The collection (concentration), merchandising, and selling capabilities of a yard in that scenario are likely to be more important than any sorting it does. The material received will be made up of smaller, generally less valuable, stock. Finding markets for it and amassing sufficient quantities to sell by the truckload will be important. Chipping, sawing to length, post or pole processing, etc. can be done to add some value in-yard prior to sale.

**Increasing Timber Available from Private Woodlands**

In 1964, Lewis observed that

...large forest ownerships alone cannot meet the demands of the wood-using industries. The loss of the timber supply from small woodlands must be considered. The small, scattered forest lands are of little importance individually, but in the aggregate they are a very important part of the wood supply and cannot be ignored. It is necessary that the marketing system be adjusted to insure that timber on these lands can be harvested.

Today, small woodlands are recognized as having significant importance in addition to their
value as timber producers. They provide wildlife habitat and travel corridors, create recreational opportunities, offer open space and other scenic advantages to landscapes, and so forth. Yet there is no question that, with the reduction in timber harvests on federal lands, there is increased interest in tapping the timber resources of non-industrial private forests.

A log sortyard affords landowners considerable flexibility in planning the timing and size of their harvest and also reduces some of the elements of economic and technical risk for them.

Interestingly enough, in Japan the yard is seen as reducing the risk for timber buyers.

At one time timber still on the owner's land was sold directly to the buyers and removed by the buyers, but this method caused buyers to have a lot of risk and liability, so they changed to the log sorting and sale yard method to avoid those risks.²¹
Market and Financial

If policy considerations seem conducive to the creation of a log sortyard, final decisions should rest on a thorough analysis of the market and financial feasibility of the project.

Because the sortyard feasibility studies reviewed for this report were carried out over the course of two decades and in three different countries, it is difficult (and sometimes misleading) to make comparisons and draw conclusions. Therefore, this section draws almost entirely from the experience of sortyards operating in the 1990's or from feasibility studies done within the past five years. Doing side-by-side comparisons of costs in US$, Canadian$, and Japanese¥ leads to additional problems. Still, certain key elements appear relatively constant from country to country and year to year. A look at similarities and differences follows.

Goals

The primary reasons to create a sortyard are to: (a) improve the utilization of natural resources; (b) provide a competitive marketplace to serve buyers and sellers with a variety of needs; and (c) facilitate forest health and/or land management objectives. Depending upon the time or place, the order of importance of these goals may change. From the 1960s through the mid-1980s, utilization and market maximization were more important. In recent years, however, the emphasis has shifted to forest health and stewardship considerations.

Secondary objectives can (but do not always) include job creation, attraction or expansion of value-adding businesses, increased access to the market for non-industrial forest landowners, or supply stability for manufacturers.

Government involvement in and subsidization of sortyards either directly (as owner or operator) or indirectly (through grants or below-market loans made to private for-profit or non-profit yards) is justified by the perceived public good to be obtained -- job creation, economic diversification, environmental restoration, etc.

Ownership and Initial Capitalization

In Japan, Canada, and (to a lesser extent) the United States, government has played an active role in sortyard creation. The Takamori yard, for instance, was initially financed by the Japanese federal government (40%), the Kumamoto Prefectural government (9%), Takamori Town (10%) and the Takamori Timber Association, made up of lumber-related private businesses (41%).

The Lumby yard was created by the Ministry of Forests (MOF) of the Province of British Columbia as one of two pilot projects "to explore new ways of harvesting timber, other than
conventional clear-cutting, and to increase the knowledge of log marketing. All costs of harvest, transport, marketing, yard operation, and administration are paid by the Province.

In North Vancouver, B.C., the Greater Vancouver Regional Development District (GVRD), a consortium of local governments, owned a sortyard to process timber harvested on their public lands, but contracted with the private sector for the yard's operation. The sortyard was phased out in the mid-1990's, however. Increasing public opposition to logging led the GVRD to abandon its sustained yield management program on the forests in the communities' watersheds. Trees are harvested now only as part of specific water management projects, and those harvests are minimal.

The federal government (through various grant programs) has subsidized several sortyard feasibility studies in the United States, and some state and federal grant and loan programs are available to private for-profit and non-profit entities which create sortyards for economic development purposes.

The Libby (MT) Log Yard was started in 1996 by the non-profit Lincoln County Economic Development Corporation (LCEDC) using "impact funds," money given to the community by Champion International and Stimson Lumber when industrial forest lands in the area were sold and major mill facilities closed. Low-cost rental space for the yard is provided in the City of Libby's industrial park, and a Forest Service grant has been awarded to enable the yard to purchase a small drying kiln. The LCEDC has been covering the yard's financial losses to date.

Of course, both in the United States and Canada numerous forest product companies (generally larger ones, such as Weyerhaeuser and Crown Zellerbach) set up and operate their own sortyards without government assistance.

**Costs**

The supply of various products in the concentration yard's procurement area is the major controlling factor. Available products and their proportion of the sustained supply will provide guides to yard size, equipment needed, and markets that must be sought. Because the yard will be buying primarily roundwood products, transportation costs will determine the procurement area, but the sustained production of the woodlands will determine the amount of investment in the yard.

A second consideration is the markets to be supplied. Here again transportation costs would be one of the controlling factors, but there would be more flexibility than in the case of supply, because small amounts of manufacturing at the yard would greatly enlarge the market area and the presence of the yard could very well attract other wood-using industries into the region, either as separate industries or
as part of the yard itself.24

Land

At Lumby, which receives a wide variety of products and maintains a large number of sorts, a 160,000 square meter (39.54 acre) yard was used to handle 53,000m³ of product. For Takamori, with a much narrower sort range, an 18,210 square meter (4.5 acre) site was sufficient to handle 18,000m³. In Libby, which has more of a collection yard than a sortyard, 2,790 square meters (.69 acre) was all that was required for a start-up of approximately 2,465m³.

Of course, the cost of land is a consideration. In the United States and Canada, open land is plentiful and relatively inexpensive. The Lumby and Libby yards were affordably able to lease their sites (C$1,108/acre annually for Lumby, and US$1,739/acre annually in Libby). In Japan, however, land is scarce and expensive, and purchasing unimproved ground for the Takamori yard cost ¥40,000,000 (roughly $89,000 per acre), one-third of the total cost of developing and equipping the yard.

Other factors which bear on sortyard size and cost include inventory turnover rates, utility availability, proximity to highway and rail transportation, security considerations, and local zoning regulations.

Yard location and duration are important considerations. The Lumby yard has minimal permanent improvements (as would the proposed Oregon yard), and the Price Waterhouse auditors recommended that the operation be moved to different locations within the region, depending upon where harvests are occurring. They note that this also "would ensure that local purchasers do not always have the same freight advantage."25 The Takamori yard is a permanent facility, but the relatively small size of the island of Kyushu makes haul distance a much less significant issue there. GVRD had a well developed physical facility designed specifically to handle product from local municipal watersheds.

Site Improvements

The 1995 Oregon feasibility study proposed to use federal land ("a rock pit or other low impact site")26, do no subgrade or surfacing work, and have "negligible establishment and rehabilitation costs." On that basis, the researchers estimated that their sell location cost would be $3.09 per ccf (approx. US$1.09/m³). Lumby and Libby leased existing industrial sites. Takamori spent ¥27,000,000 (approx. US$270,000) to prepare and completely pave its sortyard, but can amortize that cost over 20 years or more. Assuming a constant volume of 18,000m³ per year for 20 years, the amortized cost would be US$0.75/m³.

Pinchot Institute for Conservation

16
Paving has several advantages. It makes it easier to move equipment around a yard, greatly reduces dust levels, and facilitates maintenance and yard waste handling activities. Other desirable options for a yard are security fencing and lighting, useful both to combat theft and to reduce potential liability problems. The GVRD sortyard, which processed about 175,000m$^3$ annually calculated an amortized cost (in 1991) of C$0.04/m$^3$ for fencing, lighting, and pavement together.

**Buildings**

The structures on the sortyards studied varied from a trailer serving as an office in Lumby to a permanent administrative building in Takamori that not only houses the sortyard office staff, but also is the headquarters for the Takamori Timber Association. GVRD’s amortized cost for office rent/depreciation was C$0.04/m$^3$, while Takamori’s is roughly US$0.43.

In addition to offices, sortyards frequently have buildings to house equipment, scales, and log sort machinery (if any). Some yards, such as Libby, carry out their administrative activities in off-site facilities (in Libby’s case, the offices of the LCEDC).

**Machinery and Equipment**

The Libby logyard (which ran below capacity at 2,465m$^3$) bought one forklift, and it contracts with private companies to provide outbound transportation for some buyers. Takamori (with an annual volume of 18,000m$^3$) spent ¥5,000,000 for yard equipment (four forklifts, one crane truck, and one log roller truck) and another ¥52,000,000 for log sorting machinery (an approximate total of US$570,000).

Lumby handled a first-year volume of 53,000m$^3$ with three front end loaders. The auditor’s report recommended improving loader capability (because of the special handling required to load out cedar poles) and adding a butt and top loader (which was acquired the next year). GVRD processed 175,000m$^3$ with two wheel loaders.

Some yards purchase equipment to scale by weight. The Libby yard uses the scale of the nearby Stimson Lumber mill to weigh its loads and determine payment levels to producers. The LCEDC plans to buy a kiln to do custom drying for local value-added wood products manufacturers. Some yards acquire other equipment (such as chippers and debarkers) to do secondary processing and so increase the sale value of their products.

Yards with on-site administrative facilities will need office furniture and equipment (telephone, calculator, computer, and copier), as appropriate for the level of office activity.
Personnel

The number of people employed and the training and experience required are determined by (i) the volume the yard processes, (ii) the number and types of sorts performed, and (iii) the level of secondary processing done (if any).

Libby employs a fulltime yard foreman during the months its sortyard is operational. Other LCEDC staff handle outreach and marketing activities. Takamori has four sortyard employees, primarily engaged in sorting and arranging logs by diameter and by owner. They work for the Takamori Timber Association. Other TTA office staff handle the twice-monthly log sales.

Lumby has a project manager from the Ministry of Forestry (MOF), but hires a private contractor to run the sortyard (for C$4.94/m³). The contractor employs three operators to work with him to do the unloading, sorting, and reloading. The MOF provides a fulltime scaler, and he has two assistant scalers who are contract employees. Recordkeeping and other administrative functions are performed by the Vernon MOF office.

GVRC's sortyard contractor hired a grader/scaler, two utility workers (wheel loader operators), and an office manager. Other administrative functions were handled by the GVRD itself.

Supplies

In addition to scales, sorting machinery, and mobile equipment, sortyards require a variety of supplies and smaller equipment. Typically these include one or more chainsaws, chains, paint, hand-held scaling computers, boring augers, equipment repair tools and supplies, cleaning and maintenance materials, safety supplies, and office supplies.

Utilities

The type and capacity of utilities required depend upon the sortyard's size, types of improvements, and machinery and equipment used. At a minimum, water and electricity (commercial/industrial service or an on-site propane generator) are needed, with either a sewer connection or septic system installation. Those yards which incorporate a drying kiln or other processing equipment may also benefit from the availability of natural gas.

Maintenance and Repair

Maintenance of the yard's surface (pavement repair and/or yard grading) will be periodically necessary, and equipment and buildings will require regular maintenance and occasional repair.
GVRD calculated its paving maintenance costs at C$0.02/m³. Other miscellaneous repairs ran C$0.14/m³. The Oregon feasibility study estimated that "clean up and rehabilitation" would run US$0.10/m³.

**Waste Disposal**

The yards studied reported very little waste, primarily bark. In Takamori, the bark is piled and burned. "Waste material and pollutants are collected and treated in a septic tank, but there is no specific equipment for storm water runoff." Vernon sells its debris piles. GVRD budgeted C$0.21/c³ for "debris removal."

Solvents, motor oil, and other potentially hazardous materials will require storage, use, transportation, and disposal in accordance with applicable environmental and zoning laws.

**Marketing/Advertising**

Most sortyards (except those owned by a mill) market their products through a competitive bid process, although occasional negotiated sales (usually based on prevailing market prices) occur.

Libby is an exception to the rule, but that seems to be a function of the way it was established. The LCEDC was seeking both a source of supply for the local value-added wood products manufacturers it hoped to create and/or help expand through its Woodnet project, as well as a way to provide work for individuals who needed little more than a chainsaw and a pickup to be operational. There had been a small collection yard in the community previously, started by Louisiana-Pacific to buy logs for its local studmill. When L-P closed the mill in 1994, the yard was shut down.

The LCEDC started a new yard because no private entrepreneur could be found to do so. The yard's primary function was to collect short (100") logs cut by individuals. No specific buyers were identified prior to start-up, nor were volume needs quantified. The expected sales to small local manufacturers did not initially appear. Instead, an independent lumber mill in Eureka agreed to purchase the logs and transport them to its facility when truckload amounts were collected.

Subsequently, through the efforts of LCEDC staff, other clients for the yard's products have been found. Sales to a post and pole plant in northern Idaho were facilitated by the LCEDC agreeing to arrange and pay for trucking to the plant. The Stimson plywood plant takes the big Douglas-fir and lodgepole pine peelers, which it buys and pays for based on its own yard scale at a price which is negotiated with LCEDC. Another independent mill in nearby Sanders County may soon become a customer. Although the yard sells almost all of its volume to its three or four customer...
mills, some individuals have purchased small numbers of logs on occasion.

The Libby yard pays the logger exactly what it receives from the mill for the logs, less a $25 per cord ($6.90/m³) shipping and handling fee. At present, the logger is not paid until the yard receives payment from the mill, but the LCEDC plans to change that procedure in 1997, advancing immediate payment to the logger. The change is intended to provide an incentive to loggers to bring more product to the yard, and also will put operating capital back into the logger's pocket as soon as possible.

The Takamori sortyard sells logs on the 14th and 28th of each month. Sale invitation cards are sent to lumber businesses throughout Kyushu Island. Under Japanese law, timber produced on government lands can be sold directly to buyers on a bid basis or can be sent through a sortyard. Most private timberland owners use the yard to market their products, but some private owners also sell directly to buyers in order to get paid more quickly. If they sell through the yard, the logs must be transported there, and then can be sold only on two assigned days each month.

In Lumby, bins from each log sort are closed off once a week (Thursday a.m., to include logs scaled up to Wednesday night). The volume (sort bin) is sold through sealed tender, lump sum auction. No upset price is set. Sales are held each Thursday and are heavily advertised, including required advertisements twice in each of two local papers at least 14 days prior to the sale. In addition, sale notice is distributed to buyers on a bidders list approved by the MOF district manager.

In the first year of the project, sales were conducted from mid-August to late March. There were no restrictions on the eligibility of bidders. Several bids were tendered for each bin, and all bins were sold. Some sortyard customers felt that eligible bidders should be restricted on some or all sorts. Many of the small manufacturers and brokers observed that major licensees can afford to bid higher prices due to the incremental nature of their log supply. Restricting certain sorts or bins would improve the likelihood of small manufacturers tendering some of the winning bids, although (the auditors noted) this might not maximize revenue to the Crown. The largest single purchaser bought 37% of the yard's volume in the first year, and five other purchasers bought a total of 50%.

GVRD also sold its logs on the open market by sealed bid.

Depending upon the marketing techniques used and the intensity of the marketing efforts, expenses might include postage, printing, purchase of advertising space, contracted or staff marketing services, travel, and per diem.
Transportation

If a sortyard operator markets timber harvested from its own lands or under leases or contracts it holds, then the costs of transportation from the woods to the sortyard must be accounted for as part of either the harvest or marketing activity. Lumby, GVRD, and the Oregon project all fall into that category.

Transportation of logs from the yard to the purchaser's location is generally a cost assumed by the buyer. Libby was the only yard studied which provides transportation of logs after purchase, and the LCEDC would prefer not to continue that practice indefinitely. It offered hauling services to some early customers only in order to secure their business.

Takamori requires buyers to transport the logs they have purchased, as did GVRD. At Lumby, buyers have seven days after the sale to remove their timber from the sortyard.

The successful buyer is given an "authorization slip" for each load, signifying payment received. The truck driver produces this slip, which authorizes him to load and transport to the buyer's mill. A delivery slip is completed by yard personnel and a load number is assigned. A site designation letter for each load, signed by [an MOF officer is also given to the trucker. The driver signs the delivery slips and is given [two] copies to accompany the load. A load number tag is stapled to the load, [and] an outgoing site diary is maintained showing load number, truck name, destination, etc. This is kept on site for inspection and audit control.28

Other Costs

Other costs to be considered in analyzing sortyard feasibility and/or operations include: depreciation on buildings and equipment, interest, licenses, and taxes.

Revenues

Raw Materials Available

The source, volume, and composition of the products flowing into a sortyard are affected by several factors, including (but not limited to) public land management policies, yard owner/operator policies, land ownership or control, haul distances, supplier and customer needs, weather, fees or service charges levied, and competition from alternative marketing methods and facilities.

If the yard is being created to fill a perceived market gap or niche, then the product handled may be limited as a result of internal management decisions. The first Bitterroot analysis, for
instance, was based on the assumption that the yard "will pursue complementary rather than competitive policies in the supply sector.... It will not become a primary conversion facility or compete as a seller in the market for manufactured items." The proposers' decision not to handle sawlogs from sales on federal lands, and to concentrate instead on "roundwood residues" and on material produced on private lands by "farmer-loggers," limited their volume and revenue potential.

Product flow and competition may be a function of the amount and type of timber owned or managed by the yard's owner. In Lumby, the sortyard initially had a fixed source of supply (sixteen harvest areas held under license by the Vernon District of the MOF), and GVRD drew its products only from the watersheds owned and managed by its member municipalities. Similarly, the Oregon study based its financial analysis on revenues projected to be earned from the sale of timber from nearby federal (FS and BLM) lands.

Takamori draws some of its volume from land owned by government and private participants in the yard's creation. It also, however, seeks logs from other, non-member producers. The amount of logs it can expect to market is limited by the fact that the total land area of the Takamori region (as of Japan as a whole) is quite small and heavily populated. There simply is not a great deal of forest land. In addition, the characteristics of the timber available are a function of the loss of Japanese forests during World War II, their relatively recent re-growth, the preponderance of plantation-type woodlots instead of natural forests, and the management techniques which are used by Japanese foresters.

The Libby yard was intended to serve individual loggers who would cut "short" logs potentially useful to local value-added manufacturers. The small number of sales of federal timber available locally to such loggers has been a limiting factor, and has resulted in 80 percent of the yard's volume coming from private woodlots (a small component of the total forested land in Lincoln County). The number of loggers who will be available to cut such product is also a factor in future yard growth. Increasing volume by handling larger logs would necessitate LCEDC investment in additional sortyard equipment.

**Product and Service Revenues**

Sortyards which handle only logs from harvests on their owned or leased lands (for instance, Lumby and GVRD) retain the entire amount of the log sale, but that revenue needs to cover all the costs of harvesting and hauling to the yard, as well as of sorting and marketing.

Sortyards which market logs owned by others draw their revenues from fixed or variable fees charged. Takamori charges consignors ¥900/m³ (approximately US$9) for sorting, and an additional six percent of the sale price of the logs.
Libby charges loggers US$25 ($6.90/m³) a cord for wood handled through the yard and has no "percentage of sale" fee on most transactions. (This may change in the future.) Libby also will earn service revenues from its custom kiln drying.

Additional sortyard processing of materials (making chips, posts and poles, log facings, component building materials, etc.) can increase revenues, but it requires greater expenditures for equipment, personnel, and other costs. This value-adding can be done on a fee basis for the owner of the logs, or the sortyard can purchase the logs, process them, and retain the incremental value.

If sortyard sales are made primarily through regularly scheduled auctions, the cost of selling can be kept quite low. If, however, the yard engages in a broader range of activities (customized processing, sale of semi-manufactured products, etc.), then marketing efforts will have to be more extensive, and cost accounting and quality control systems should be put in place.
Profitability

Sortyards which receive logs of a broad range of species, sizes, and quality appear to have the best opportunity to optimize raw material utilization, maximize log values at sale, and turn a profit. As the Takamori report notes, its sortyard

...can save money and time because sellers, buyers, and other related people get together at the same time and in the same place. Takamori Timber Association benefits from income from timber sales fees. Most of the Association members are timber producers, and the yard system is convenient for them. It is very important to support the forestry industry, since 70% of Takamori Town is forests, and the forestry industry is as an important industry as well as agriculture in Takamori Town. Using the yard system helps to cut time and procedure for the timber producers. They can attract a large number of buyers, because a large amount of timber is able to be sold at once. In addition, they can sell their timber at higher prices.\textsuperscript{30}

Higher prices for timber translate into higher revenues for the sortyard itself.

At Lumby, according to the auditors:

The Project achieved a net profit of $2.0 million after paying stumpage of $947,000 to the MOF...[This] amount excludes some administrative costs relating to certain Regional and District staff that were involved in the Project. In addition, the project costs exclude planning and other pre-harvest costs that were incurred prior to April 1, 1993.\textsuperscript{31}

The accompanying charts\textsuperscript{32} of sorts, volumes and average prices paid at Lumby provide an indication of the range of opportunities for both buyers and sellers to benefit from sorted sales.
What is unfortunately lacking from all of the studies reviewed is a good comparison of revenues and profits derived from two comparable harvests (similar in location, volume, and product composition) -- one sold on the stump and another through a sortyard. The Price Waterhouse report on Lumby includes the auditors' projections of how such a comparison might have looked.

Had these blocks been harvested under the regular SBFEP [Small Business Forest Enterprise Program], the equivalent bonus bid revenue that could have been realized by the MOF is estimated at approximately $1.9 million, or $0.1 million less than the net profit of the [sortyard] Project. However, due to the lack of accurate cost tracking systems and potential variability in the net revenue calculation, it may be concluded that the net revenue to the Crown would have been similar under either sales mechanism.33

When the logs for sale are of a narrower range of species, sizes, etc., the potential profitability of a sortyard becomes more questionable. Researchers using GVRD's yard as the basis of a simulation designed to analyze the operating and financial characteristics of small capacity (<175,000m³) sortyards concluded:

Processing costs for smaller sized logs, particularly those with a volume of less than 1m³, were three to four times the average processing cost of $3.90 per m³. Comparison of these costs with an average 6-month log market value suggests that small sized pulpwood and chip-n-saw material may generate a net loss when processed through conventional sortyard facilities.34

Thus, if the majority of the volume handled by a sortyard consists of small diameter logs (as may result from many stewardship projects), the yard could fall below breakeven financially. This was the issue addressed in the feasibility study for the proposed Oregon sortyard. Among the objectives of the yard were to "facilitate thinning of small diameter, overstocked stands, historically considered precommercial on Forest Service and BLM [Bureau of Land Management] lands" and to "accomplish thinning where [the] value of [the] material is marginally commercial and subject to fluctuating markets."

The researchers considered the costs of four means of implementing the work and selling the trees harvested:

* Traditional timber sale;
* Sale of stumpage, and a separate service contract for logging and hauling;
* Service contract for logging and roadside decking, and a separate sale of logs from the deck; and
* Service contract for logging and hauling, and log sale from a central "sell location."

Pinchot Institute for Conservation 26
They based their conclusions on an examination of the relative costs of sale preparation, harvest, and sale of logs from 200 acres (four units of 50 acres each), removing 15-20 cubic units per acre by thinning from below with a cut-to-length harvest system, assuming the haul to the sortyard would be 5-10 miles. All costs were on a cubic (ccf) basis, with an estimated 2.8 tons/ccf and a delivered log value of US$45 per ton (or US$128 per ccf). The projected relative net value of the product per ccf for each of the four methods was:

<table>
<thead>
<tr>
<th>Method</th>
<th>Value (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber sale</td>
<td>5.32</td>
</tr>
<tr>
<td>Stumpage sale/service contract</td>
<td>9.15</td>
</tr>
<tr>
<td>Service contract logging/roadside sale</td>
<td>7.14</td>
</tr>
<tr>
<td>Service contract logging/sale from yard</td>
<td>20.61</td>
</tr>
</tbody>
</table>

Although one could argue about the assumptions underlying the various estimated costs (road maintenance, equipment use, contract administration, etc.) used in computing these values, the key factor is that the researchers did not project any increase in total value received for the logs as a result of the use of alternative marketing methods. While it is not surprising that both roadside and sortyard sales showed a loss under that scenario, the figures do point to three important considerations.

First, if a sortyard receives only one type of material, and that material is has a low value in conventional log markets, then it will be necessary to find or create more lucrative, alternative markets and/or uses for that material to, at a minimum, cover the additional costs of hauling to and marketing from the yard. (Note: In this instance, it would probably be more correct to call the facility a "concentration yard" or, as the researchers do, a "sell yard," since the product being received is relatively homogeneous, and little actual sorting occurs.)

Proponents of a proposed yard in Hayfork, CA, plan to address the issue of marketing predominantly small diameter, low value material by creatively using specialized equipment to turn the small logs receive into a semi-processed form which can then, they believe, be sold profitably to secondary or tertiary manufacturers.

Secondly, even sortyards which receive materials of various species, sizes, and conditions will only be as cost-effective as their market area and marketing activities make them. Normally high value products may not command top prices if the haul distance to customers' plants is too long or if there is a glutted market. While a sortyard's operators have some flexibility in being able to hold logs on site until markets improve, that additional time also has its costs.

Finally, no analysis could be found which factored in the value of an improved and/or restored ecosystem as an offset against sortyard operational costs. This is a benefit to the public which needs to be carefully and realistically appraised, especially if potentially "below cost" sortyards are proposed to facilitate ecosystem management objectives.
Roadside Sales

The Oregon study was the only one reviewed which specifically analyzed the benefits and cost effectiveness of both a log sortyard and a roadside sale as alternatives to the traditional timber sale in accomplishing stewardship objectives. While the roadside sale scenario did not show a profit, it generated a much smaller loss than that projected for a sortyard.

One of the advantages of using roadside sales for logs removed as part of stewardship projects on federal lands is that the Forest Service already uses this marketing tool on occasion. Its increased use would require less organizational and procedural innovation or change, and could probably be implemented fairly easily.

The major disadvantage is that using roadside decks provides very limited opportunity for sorting and value maximization. Also, sales in the deck favor purchasers buying large quantities; security may be a problem; and the haul distances for purchasers may be longer than from a yard.

A demonstration project now in the early planning stages near Kalispell, MT, will be using roadside sales as part of a series of stewardship projects jointly funded by the Flathead National Forest, National Forest Foundation, and private sources. Current plans call for four project units within a larger (approximately 3,000 acre) planning area. Three units will be treated for ecosystem management objectives by contractors working under stewardship service contracts, and any logs removed will be sold at roadside. The fourth unit, with similar objectives, will be accomplished through the traditional timber sale process, and the ecological and financial results of the two methodologies compared.
The British System

While the marketing system used in Great Britain probably would run afoul of current United States anti-trust laws, it has some very attractive elements.36

The British Forestry Commission (akin to the U. S. Forest Service) develops long-range management plans for each of the country's national forests, addressing not only silviculture, but also wildlife, water, fisheries, and other ecosystem components. As part of the planning process, the Commission projects the number, type, and sizes of trees that will be removed from various parts of the forest throughout a plan's implementation term.

With that information, the Commission is able to offer buyers a relatively consistent, predictable supply schedule. Sales of timber can be accomplished as much as three years in advance of the actual harvest. Harvesting itself is done by the Commission's own logging crews and contractors, who are highly trained both in stewardship concepts and in "manufacturing in the woods" -- cutting and sorting the trees to maximize product utilization and to meet purchasers' needs. After logging is completed, secondary operators come into the area and clean up the tailings (firewood, etc.). Downed woody material left for ecological purposes rots quickly in Britain's moist climate, and no slash burning is necessary.

The sales are offered by the type of product available, rather than by specific location. Different parts of a single tree may be included in different sale offerings; for example, a 10" dbh pine might have its lower 33 feet sold for sawlogs, and the remaining upper portion offered in a different sale lot for pulpwood, fencing, etc.

Commission officials meet quarterly with industry representatives and other concerned parties to discuss current technologies, supply needs, and other topics. These meetings help forest managers to develop treatment prescriptions ensuring that, when trees are cut, the resulting products are offered in their most useable form.

A typical lot offering might include a specified amount of "industrial groundwood" (thinnings, pulpwood trees, etc.) to be made available over a three-year period. The successful purchaser can lock in a three-year supply at a constant price. Not all the wood, however, is likely to come from the same area of the forest. Over the course of the three years, the buyer may have to haul from a number of locations, depending upon where long-range management plans provide for harvests.

Given the long-term supply predictability achieved through their lot purchases, mills are freed from having to overload their yards with logs. They can bring logs to the mill as they need them, minimizing storage and handling costs.

The two principal disadvantages of the British System both fall on the Forestry Commission.
The first is the possibility that because of the close working relationship with industry implicit in the system, Commission officials may be inclined to favor industrial interests over others.

The second is that once timber is offered and sold, the product must be provided, even though weather, insect infestations, or other factors or events occurring between the time of the sale and the time of the harvest may have made it impossible to provide the timber from the areas originally planned. This could cause negative ecological and/or financial consequences.
Endnotes


12. Lewis, op. cit.


14. Lewis, op. cit.


22. Price Waterhouse, op. cit., p.3.


24. Lewis, op. cit.


26. Hayward, et. al., p. 3.

27. Goto, op. cit.


29. Adair, op. cit., p. 3.


32. Ibid., p. 31.

33. Ibid., p.2.

34. McNeel, op. cit.


36. Heffernan, Patrick, personal communication, October, 1996. Heffernan is a British-trained forester, now working for the Montana Logging Association, Kalispell, MT.
About the Pinchot Institute

The Pinchot Institute for Conservation is an independent, non-profit organization dedicated to leadership in conservation thought, policy, and action. The Pinchot Institute was dedicated in 1963 by President John F. Kennedy at Grey Towers National Historic Landmark in Milford, Pennsylvania, historic home of conservation leader Gifford Pinchot, to facilitate communication and closer cooperation among resource managers, scientists, policymakers, and the American public. The Institute continues Pinchot’s legacy of conservation leadership as a center for policy development in support of sustainable forest management.

Programs and activities

- **Policy research and analysis.** The Pinchot Institute serves as a bridge between the scientific and policymaking communities in forest resource management. The Institute provides independent policy research and timely, objective analysis targeted to the current information needs of policymakers and resource managers.

- **Convening and facilitation.** The Institute serves as a convenor and facilitator, fostering collaborative approaches to resolving key issues in forest policy. The Institute brings together leaders in forest management, research, and education from federal and state agencies, universities, industry, and conservation organizations to address new challenges and discover new solutions for advancing sustainable forest management.

- **Leadership development.** Through its program on leadership in natural resource conservation, the Institute conducts research and provides training for resource management professionals and community leaders in participatory decision making and conservation leadership.

Current programs

**Institutional and policy changes to implement sustainable forest management.** Much of the effort to date in sustainable forestry has focused on policy development, with far less attention devoted to the mechanisms by which these policies will be implemented, or potentially thwarted. Policies for integrated approaches to resource management will make little difference on the ground until the appropriate organizational structures and administrative processes are developed. These include the development of processes for conservation-oriented strategic goal setting and performance measurement, and integrated resource management planning, budgeting and fiscal accountability. These considerations are complex and intensely politicized, and the Pinchot Institute can play a critical, constructive role through both independent analysis and facilitation.

**Forest stewardship and sustainable rural development.** The restoration and maintenance of forest ecosystems for multiple objectives requires a variety of continuing land treatments that can be the basis of stable employment and income in rural communities. There is a need for policies aimed specifically at facilitating the development of local capacity to carry out such land treatments through the kind of small entrepreneurial firms that characterize rural communities. The Pinchot Institute is working with policymakers, federal and state land management agencies and with a network of community-based rural development practitioners to identify and address key policy issues such as contracting, bonding requirements, capital financing, and training in the development of specific strategies to advance both forest stewardship and sustainable rural development.

**Developing collaborative models of conservation leadership.** The Pinchot Institute is committed to the development of effective natural resource conservation leadership among both beginning and mid-career professionals, in public agencies, private organizations, and conservation NGOs. The Pinchot Institute offers leadership workshops and executive development seminars in participatory decision models that are beginning to redefine the relationship between land management agencies and the communities they serve. The Institute’s leadership development program is integrated with the training and conservation fellowship programs held at Grey Towers National Historic Landmark, primarily for mid-level managers in federal natural resource management agencies.
Board of Directors

Dr. Dennis Le Master, Chair
Professor and Head, Department of Forestry
Purdue University
West Lafayette, Indiana

Peter Pinchot, Vice Chair
Environmental Consultant
Guilford, Connecticut

Hugh Miller, Treasurer
Chief Historical Architect, retired National Park Service
Richmond, Virginia

Ann Hanus, Secretary
Assistant State Forester
Oregon Department of Forestry
Salem, Oregon

William H. Banzhaf
Executive Vice President
Society of American Foresters
Bethesda, Maryland

Mary J. Coulombe
Director, Timber Access and Supply American Forest and Paper Association
Washington, DC

Rolf Diamant
Marsh-Billings-Rockefeller National Historical Park, National Park Service
Woodstock, VT

Jane A. Difley
President/Forester
Society for the Protection of New Hampshire Forests
Concord, New Hampshire

James R. Grace
State Forester
Pennsylvania Bureau of Forestry
Harrisburg, PA

Gerald F. Grosz
Founder & Retired President
Winter Park Sports
Winter Park, Colorado

John P. Guttenberg, Jr.
President, Guttenberg & Company
Alexandria, Virginia

John Heissenbuttel
Vice President of Forestry & Wood Products
American Forest and Paper Association
Washington, DC

John P. McMahon
Vice President for Timberlands, External & Regulatory Affairs Weyerhaeuser Company
Tacoma, Washington

John C. Oliver
Secretary
Pennsylvania Department of Conservation and Natural Resources
Harrisburg, Pennsylvania

Richard L. Snyder
Retired Business Executive
Milford, PA

J. Gustave Speth
Dean, Yale School of Forestry and Environmental Studies
New Haven, CT

Eeryl P. Wentworth
Director, The Octagon
Washington, DC

Ex officio:
Dr. V. Alaric Sample
President
Pinchot Institute for Conservation
Washington, DC

Edgar B. Brannon
Director, Grey Towers National Historic Landmark
Milford, Pennsylvania

Emeritus:
Dr. John C. Barber
Warsaw, Virginia

Dr. John Gray
Little Rock, Arkansas

Thomas Schenarts
Kennett Square, Pennsylvania

Staff

Dr. V. Alaric Sample
President

Nadine E. Block
Research Associate

Robert Breazeale
Senior Fellow

James W. Gilmrier
Senior Associate

Andrea Bedell Loucks
Research Fellow

Dr. Catherine M. Mater
Senior Fellow

Dr. Char Miller
Senior Fellow

Mary K. Mitsos
Director, Community-Based Forest Stewardship

Kimberly C. Monahan
Staff Assistant

William C. Price
Research Fellow

Jeff M. Sirmon
Senior Fellow

Susan M. Stedfast
Director of Operations and Legal Affairs

Dr. Harold K. Steen
Senior Fellow

Dr. Terence J. Tipple
Senior Fellow
PUBLICATIONS

Grey Towers Press is an activity of the Pinchot Institute for Conservation.
It carries out one part of the Institute’s mission:
to publish materials through research, conferences, and programs for the conservation community.

Publications available from Grey Towers Press include:

**Books**

[ ] Land Stewardship in the Next Era of Conservation,
  by V. Alaric Sample. $8.95.

[ ] Gifford Pinchot, The Evolution of an American Conservationist; Two Essays,
  by Char Miller. $8.95.

[ ] Adventure in Reform:
  Gifford Pinchot, Amos Pinchot, Theodore Roosevelt and the Progressive Party,
  by John Allen Gable. $4.95.

[ ] Population Change, Natural Resources and Regionalism,
  edited by Ann Christine Reid, $4.95.

[ ] Federal Income Tax Change and the Private Forest Sector,
  edited by Dr. Hugh O. Canham and Dr. John Gray. $4.95.

[ ] From New Perspectives to Ecosystem Management;
  The Report of an Assessment of New Perspectives,
  by Shands, Black, Giltmier. $5.95.

[ ] Gifford Pinchot with Rod and Reel/ Trading Places:
  From Historian to Environmental Activist, Two Essays in Conservation History,
  by John F. Reiger. $8.95.
PUBLICATIONS

Discussion Papers

[ ] 99-04
Forest Certification Handbook for Public Land Managers
by Catherine M. Mater

[ ] 99-03
Understanding Forest Certification: Answers to Key Questions
by Catherine M. Mater

[ ] 99-02
The Evolution of American Forest Policy: An Appraisal of the Past Century and a View to
the Next
by V. Alaric Sample

[ ] 99-01
Improving Performance and Accountability at the Forest Service: Overcoming the Politics
of the Budgetary Process and Improving Budget Execution,
by V. Alaric Sample and Terence J. Tipple

[ ] 98-02
Third Party, Performance-Based Certification of Public Forests: What Public Forestland
Managers Should Know,
by Catherine M. Mater, V. Alaric Sample, James R. Grace, and Gerald A. Rose

[ ] 98-01
Principles of Sustainable Forest Management:
Examples from Recent U.S. and International Efforts,
by V. Alaric Sample.

[ ] 97-02
Evolving Toward Sustainable Forestry: Assessing Change in U.S. Forestry Organizations,
edited by V. Alaric Sample, Rick Weyerhaeuser, and James W. Gilmieri ($10.00 charge)

[ ] 97-01
Log Sortyards and Other Marketing Systems,
by Carol Daly

[ ] 96-01
Building Partnerships for Sustainable Forestry Research,
by James W. Gilmieri and Mary Mitsos.

Pinchot Distinguished Lecture Series

[ ] The New Face of Forestry: Exploring a Discontinuity and the Need for a Vision,
by Dr. John C. Gordon, 1996
Policy Reports

[ ] The Evolution of Forestry Education in the United States: Adapting to the Changing Demands of Professional Forestry
by V. Alaric Sample; Nadine E. Block; Paul C. Ringgold; and James W. Giltmier, 2000 ($20.00 charge)

[ ] Land Stewardship Contracting in the National Forests: A Community Guide to Existing Authorities,
by Paul C. Ringgold, 1998 ($10.00 charge)

[ ] Regulatory Takings:
A Historical Overview and Legal Analysis for Natural Resource Management,
by Susan M. Stedfast, 1997

[ ] A Federal Commitment to Forest Conservation on Private Lands:
The Story of State and Private Forestry,
by James W. Giltmier, 1997

[ ] Toward Integrated Resource Management on the National Forests:
Understanding Forest Service Budget Reform,
by V. Alaric Sample, 1997

[ ] Natural Resources Strategic Planning: Components and Processes,
by V. Alaric Sample and Dennis Le Master, 1995

Publications may be requested by calling 202-797-6580, or mailing this form to:
Pinchot Institute for Conservation
1616 P Street, NW
Suite 100
Washington, DC 20036

******************************************************************************

Name

Street            City/State            Zip Code

Phone             Fax                   E-mail

Please select on or more of the following if you would like to receive information on making a tax-
deductible contribution to:

[ ] Grey Towers Fund
[ ] 101 Scholarship Fund
[ ] Planned Giving
[ ] Pinchot Institute Working Capital Fund
[ ] Pinchot Institute Legacy Fund

Thank you!