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ASPEN RECYCLING

A Pilot Program

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A Report to the Minnesota Legislature
June 1986



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Minnesota Department of Natural Resources
Division of Forestry
St Paul, Minnesota 55146

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ASPEN RECYCLING
PILOT PROGRAM

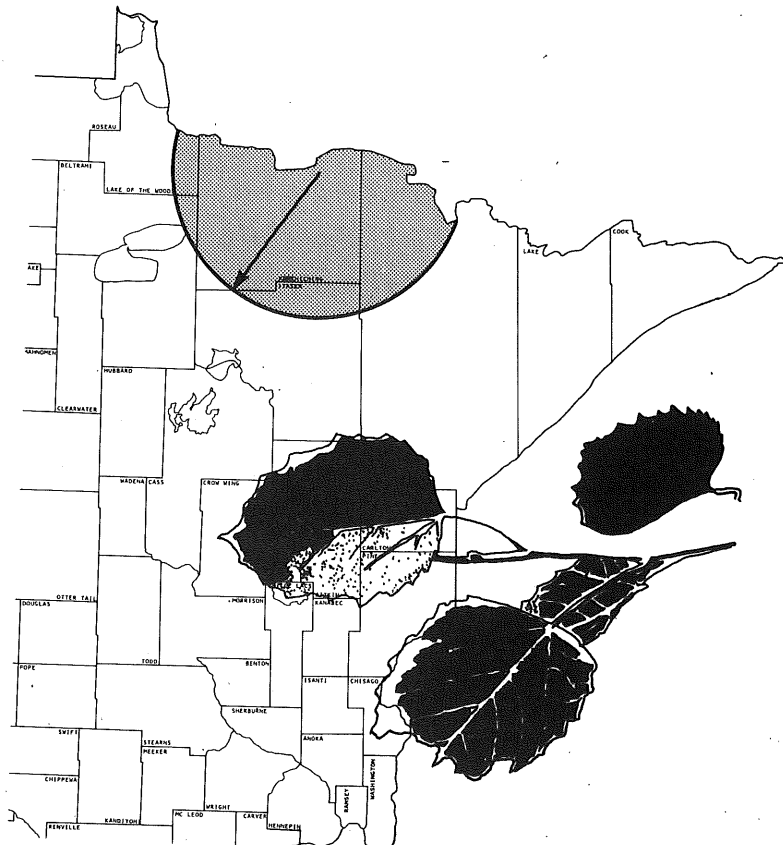
Prepared Pursuant to the Aspen Recycling Pilot
Program Bill of 1985
1985 Minnesota Laws,
Chapter 13, Section 218 (1st Spec. Sess.)

June 30, 1986

Minnesota Department of Natural Resources
Division of Forestry
St. Paul, Minnesota

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INTRODUCTION

Minnesota's abundance of aspen timber has been a key ingredient in the expansion of its forest industries. This abundance is misleading, however, since nearly one-half the aspen resource is mature and overmature and in danger of not replacing itself unless harvested. This is referred to as the aspen age class imbalance and is illustrated by the bar graph on Page 3.

Aspen left undisturbed slowly dies, enabling other species to take over sites through natural succession. If cut, however, aspen has the unique ability to sprout back vigorously. Regenerating aspen by clearcutting to promote natural sprouting enables an age class balance to be maintained.

The Aspen Recycling Pilot Program addresses three problems: 1) aspen age class imbalance, 2) deteriorating wildlife habitat, and, 3) logger unemployment due to the closing of the Boise Cascade insulation board and siding plant in International Falls.

The large "wall of wood" that needs to be harvested exceeds the forest industry's capacity to utilize it before it deteriorates. The problem has been compounded by the closing of a plant that used a considerable amount of aspen. On the other hand, there is a shortage of younger aged trees for future harvests. Recycling can put more acres into the younger age classes.

The age class imbalance can have a negative impact on wildlife. A well-balanced mixture of young and old aspen is necessary to provide quality habitat for white-tailed deer and ruffed grouse. Recycling can maintain this needed age class mixture.

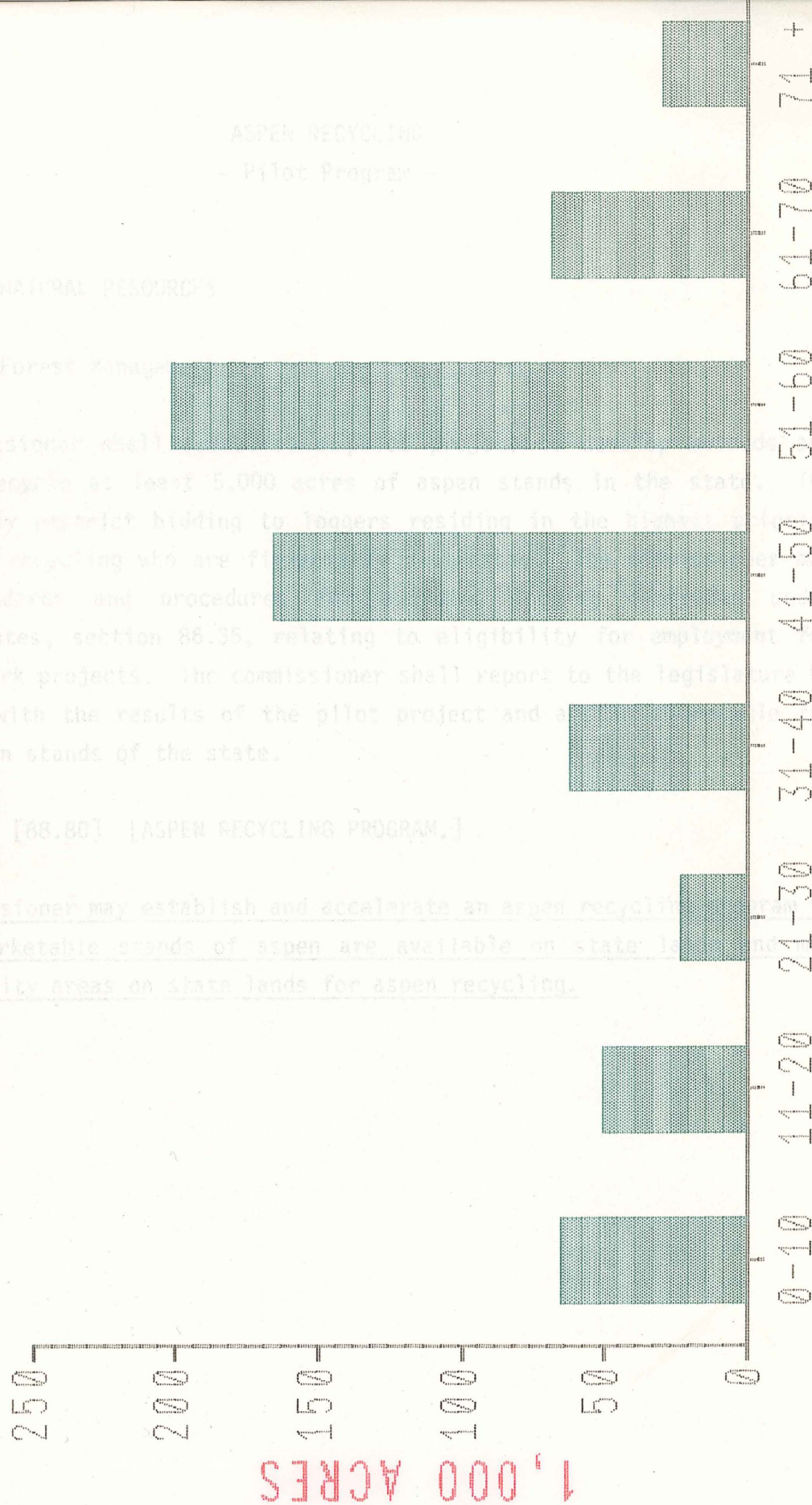
Loggers, some recently unemployed, could recycle much of the overmature aspen stands with the equipment they already own. Their knowledge of wood products and marketing could allow them to salvage some useable products when markets are available. Only selected products such as aspen bolts that are in short supply and softwoods should be salvaged. It would be undesirable at this time to push additional aspen pulpwood on the market since there is already an oversupply.

The Division of Forestry, with considerable support from the Minnesota Deer Hunter's Association, forest industry, and local loggers, approached the legis-

lature to fund an aspen recycling pilot program. In 1985, a program was authorized but no funds were appropriated (the enabling language is shown on Page 4). With this authorization, the Division established procedures and criteria, selected stands, and conducted a limited recycling program during the winter of 1985-86.

STATE ASPEN ACRES by UPDATE AGE CLASS (Forestry Admin. Land Excluding Park, Reserved & Shoreline)

4/1986



UPDATE AGE CLASS

ASPEN RECYCLING
- Pilot Program -

Sec. 23. NATURAL RESOURCES

Subd. 7. Forest Management

The commissioner shall establish a pilot project to develop methods and practices to recycle at least 5,000 acres of aspen stands in the state. The commissioner may restrict bidding to loggers residing in the highest priority area for aspen recycling who are financially distressed. The commissioner may establish standards and procedures for awarding logging contracts under Minnesota Statutes, section 86.35, relating to eligibility for employment for conservation work projects. The commissioner shall report to the legislature by July 1, 1986, with the results of the pilot project and a plan to recycle the overmature aspen stands of the state.

Sec. 218. [88.80] [ASPEN RECYCLING PROGRAM.]

The commissioner may establish and accelerate an aspen recycling program to assure that marketable stands of aspen are available on state lands and may designate priority areas on state lands for aspen recycling.

ESTABLISHMENT OF PROCEDURES

A task force comprised of central staff and field foresters from the pilot project area was appointed by the Director of the Division of Forestry (Appendix 1). This task force was to establish procedures for stand selection, appraisal methods, eligibility of contractors, competitive bidding, and performance requirements. Consideration was given to silviculture, wildlife, and the needs of the people in the pilot project area.

The first set of procedures was used until January, 1986. At that time, some minor adjustments were made and the following are the procedures now used.

1-15-86

ASPEN RECYCLING PROGRAM -PROCEDURES-

1. Stand Selection Criteria

Stands of mature aspen should be selected according to forest/wildlife habitat management plans and where

- a. aspen regeneration is the preferred species;
- b. at least 20 square feet of basal area (or 50 trees) of well-distributed aspen is at or beyond rotation age;
- c. an adequate stocking of desirable reproduction is lacking, and;
- d. the volume per acre (as determined by the Area Forest Supervisor) cannot be economically harvested. Selected stands cannot exceed 16 cords per acre (in total for all species) except when 80% or more of the aspen is affected by a serious pest problem.

2. Appraisals

Prepare an informal sale appraisal of the merchantable species or products (excluding aspen pulpwood) found on each site according to the following guidelines.

- a. Estimate the volume of merchantable products by inspecting each stand to confirm the accuracy of the inventory data.
- b. Mark the stand boundaries during the inspection.
- c. List the volume and value of each merchantable product as optional timber using base stumpage prices.
- d. Specify that all aspen stems must be cut between August 15 and March 31 (shorter periods between those dates may be specified by the forester).

- e. Require that felled material be skidded to a central location to avoid inhibiting aspen regeneration or permit the salvage of cut material (forester's option). If skidding is necessary, it shall be done only during those periods when the soil will not be compacted.

3. Applications

Eligibility to bid on aspen recycling projects shall be limited to loggers or employees of loggers who have been directly affected by the closing of the Boise Cascade insulation board and siding plant and to the following:

- a. Applications that have been filed and approved by the DNR Area Forester Supervisor in Baudette, Blackduck, Littlefork, Orr, or Deer River. Applicants who are not approved may appeal to the DNR Regional Forest Supervisor.
- b. Application for no more than three¹ contracts at a time.
- c. An applicant, or an employee of an applicant, who has not been awarded more than \$25,000¹ for project work to be completed during the current August 15 - March 31 period.

4. Bid Procedures

Sealed bid proposals should be prepared for each site (or number of sites where the total value of the optional timber does not exceed \$3,000) and sent to eligible loggers along with the following information at least two weeks before the date of the bid opening.

- a. A copy of the F-121 appraisal (which also serves as the project map).
- b. A provision in the bid that allows the successful bidder, by his/her choice, to purchase optional timber on the tract at appraised prices in the event there is an economic opportunity to market or utilize the optional timber.
- c. Notification that bidding shall be done on the basis of a lump sum for the entire project if the project size is only estimated or on a per acre basis if the project size has been measured.
- d. A schedule of bid openings. No more than one Area office should be awarding bids on a particular day. Before bids are awarded, the Area Forest Supervisor shall check with other Area Forest Supervisors to ensure that successful bidders and scheduled bid openings are in compliance with items 3.b. and 3.c. above.

5. Performance

Payment for completed work shall be approved when every contract provision has been fulfilled.

- a. Partial payments for work in progress may be approved for up to 90% of that proportion of the project where all provisions of the contract have been met (i.e. 10 acres completed of a 50 acre project would result in a payment not to exceed 18% of the total project cost).

¹Revised January 10, 1986

- b. In the event of a timber sale for some of the optional timber, final payment should not be paid until all stems have been felled.
- c. Failure to complete all contract provisions can result in an individual being eliminated from bidding on future work unless that individual agrees to accept a reduced payment for the project as negotiated with the Area Forest Supervisor.

STAND SELECTION FOR ASPEN RECYCLING

Following the development of procedures and criteria, actual stand selection by District forestry personnel took place. Using Phase II forest inventory data, aspen stand lists were printed for each District showing only those stands that met the pre-determined criteria.



Overmature aspen stand with balsam fir understory

Local wildlife managers also used the Phase II inventory information to do an analysis that helped them develop a list of four square-mile habitat compartments needing recycling for habitat improvement purposes. The foresters used this wildlife information to prioritize the stands selected for field examination.

Foresters put in a considerable amount of field work when examining and selecting stands for recycling. Only one out of four stands visited was selected. A stand was not recycled if it had soil moisture problems, adequate regeneration was present, or a harvestable volume of aspen was present.

Once a stand was selected for recycling, an appraisal was done to determine if the site would require skidding of felled trees. Skidding can result in significantly higher recycling costs. Sometimes it is necessary, however, to remove trees and limbs and flatten the brush in higher volume stands to allow more sunlight and heat to reach the ground surface and promote the desired regeneration of aspen. Stand conditions that determine the need for skidding are site specific and require a forester's evaluation.



Phellinus conk on diseased, overmature aspen

From a timber management standpoint, \$120 - \$125 per acre is the most that should be invested in recycling. From a wildlife habitat standpoint, however, the dollar value placed on recycling has not been determined. A procedure to identify this dollar value is needed.

This past year, stands were recycled without skidding, with full skidding of trees over 5" in diameter (DBH), and with partial skidding. Aspen regeneration and wildlife use will be monitored to determine which treatments are the most successful.

Prescribed burning was done on two sites following the recycling. The stands had a component of balsam fir that, after being felled, covered and shaded the ground enough to inhibit aspen regeneration. Stands with 5-6 cords per acre of balsam fir will require burning after recycling. Salvage of some products from recycling sites can reduce the need for skidding or burning, thus reducing the cost on some projects. However, loggers have shown little interest in salvage work due to the limited amount of merchantable products on the tracts offered.



Recycled stand

ACCOMPLISHMENTS AND EXPENDITURES

The program procedures and stand selection process were in place by the fall of 1985. Bids were advertised and let throughout the fall and winter of 1985 and 1986. All contracts were to expire by March 31, 1986. Accomplishments and expenditures for the season are as follows:

	<u>Littlefork</u>	<u>Orr</u>	<u>Deer River</u>	<u>Baudette</u>	<u>Blackduck</u>	<u>Total</u>
Logger applications number accepted	28	5	4	12	6	55
Successful bidders	18	5	1	2	1	27
Sites offered	58	24	7	3	6	98
Acres offered	1,022	525	294	73	113	2,027
Sites awarded	51	12	2	3	3	71
Acres awarded	933	299	131	73	48	1,444
Acres completed	854	299	0	73	36	1,262
						Average of All Areas
Average project size/acre	18	25	65	24	16	
Average cost/acre (no skidding)	\$78	\$87	\$80	\$59	\$72	
Average cost/acre (skidding required)	\$137	\$139	-	-	-	
Average cost/acre (all sites)	\$86	\$133	\$80	\$59	\$72	\$95
Value of salvaged timber products	\$1,636	\$2,728	0	\$480	0	\$4,844
Misc. expenses (photos, road improvement & prescribed burning)	\$1,950	\$1,200	0	0	0	\$3,150
Total funds expended on recycling	\$73,586	\$39,752	0	\$4,325	\$2,520	\$120,183

The pilot program's accomplishments varied considerably, as shown above. This was not unexpected, however. Littlefork and Orr are in the area most affected by the closing of the Boise Cascade insulation board and siding plant, so it was there that the greatest effort by field foresters was made. The acres

of aspen age imbalance are also the greatest in this area. Blandin Paper Company purchases aspen from the Deer River area, thus creating a better age structure. Blackduck and Baudette are on the fringe of the area from which the Boise Cascade plant draws its supply of aspen and were not funded at the same level as the areas closer to the Boise operation.



Logger recycling aspen with a chainsaw

WILDLIFE BENEFITS FROM ASPEN RECYCLING

One of the primary objectives of aspen recycling is to improve the wildlife habitat for deer and grouse by creating age diversity. The aspen age imbalance reflects an overmature, deteriorating habitat condition. To prioritize the areas where recycling could be done to improve habitat, foresters requested input from wildlife managers. Using Phase II forest inventory data, wildlife managers analyzed habitat condition in four square-mile compartments to determine where recycling was needed. Foresters then used this information to help select and prioritize stands for recycling.



Aerial view showing recycled site and
edge effect benefiting deer and grouse

An assessment of how wildlife has benefited from aspen recycling can be obtained by reviewing wildlife managers' objectives and how the recycling projects in the Division of Forestry's Littlefork Area met those objectives. The first objective was to have 25% of the aspen type in the 1-10 year age class. This was of major importance for deer and ruffed grouse management. Evaluation of the existing inventory data determined that 4,156 acres of aspen needed to be cut. The second objective was to distribute the young aspen throughout the area so as to benefit the most animals. This was accomplished by evaluating the habitat in four square-mile blocks and determining how many acres of aspen in the 1-10 year age class were needed. The 198 four square-mile compartments reviewed in the Littlefork Area showed that individual compartments needed from 0 to 121 acres of cutting. Cutting was carried out in the 32 compartments where recycling was most needed. The third objective was to distribute individual cuts within a four square-mile area to create the most age diversity as possible. This was accomplished by keeping project cuts between 20 and 40 acres in size. Forty-seven cuts were made, the average size being 18 acres. None was over 40 acres in size and few were over 30, resulting in excellent distribution.



Recycling immediately benefited deer by providing browse during the harsh winter of 1985 - 86

The Aspen Recycling Program was a success from a wildlife point of view. Progress was made toward reaching identified aspen management goals that could not have been made using other means available in the current timber market. Deer, ruffed grouse, and many non-game wildlife species that use the younger forest have benefited and will continue to benefit, tremendously from this program.

LOGGER COMMENTS

The following are written comments received from loggers involved in the aspen recycling program.

April 15, 1986

Robin Nelson:

As a former logger for Boise, I feel financially the aspen recycling project was a life saver.

As a project for reforesting of aspen, it is a project that has been needed for many years. The stands of aspen that I cut were stands over mature timber with little or no commercial value, low number of cords per acre, where I or other loggers would not have bought because of poor wood and would not have been profitable to log. Thirty to fifty years from now, these areas should have a very harvestable stand. Without this recycling, this land would have no value.

It is a low cost project per acre for regeneration. I think it is a good project in all aspects and definitely should be continued.

Respectfully,

Sgd. Julian Brozoznowski

May 19, 1986

Dear Mr. Spoden:

I would like to thank the DNR for implementing the aspen recycling program. The economic impact to me personally was substantial. I had approximately 10% of my usual logging contract for the winter. Without the recycle program, I would have had to leave the area to seek other employment. I know of several other loggers that were in the same situation.

The program made a tremendous impact on the white tailed deer population. Several of the projects that I worked on had a substantial amount of deer move in to feed on the felled aspen, birch and cedar. Due to the heavy accumulations of snow this past winter, I am sure that many deer were saved from starvation as a direct result of this program.

I have some suggestions about the project sites. Some had too many species of wood other than aspen making up too much of the sales. I am doubtful that aspen will regenerate in a few of these sites. I would like to stress that most of the sites that I felled were mostly aspen and that this problem was minor but correctable.

Since most of the sites put up for letting were sold, it would be a good idea to ribbon the site prior to bid letting. This would let the bidders look at the site without the foresters always being along.

I like the bidding process that allows only three sites to each individual at one time, as long as there are several bid letting dates within 30 or more projects per letting. I believe that only full-time loggers should be able to bid on these projects as it makes the most economic impact to those of us who depend on the program to keep living here. I don't think that anyone should be able to bid on these programs for the purpose of a supplemental weekend job.

To sum up, I would like to see this program continue and even expand in the near future. It is a tremendous program and I would again like to say thanks for implementing it.

Sincerely,

Sgd. Roe Treat

PLAN FOR FUTURE ASPEN RECYCLING

The Reinvest in Minnesota Resources Act of 1986 (RIM) opened the door for the state's forests and wildlife. The \$1 million funding provided by RIM will accelerate and expand aspen recycling in northern Minnesota. The wood-using industry will be ensured of a continuing resource and much needed wildlife habitat will be provided in maturing northern forests.

During the first year, aspen recycling was concentrated in the low volume stands. However, more opportunity and need exists in the high volume, overmature stands. They also present more salvage opportunities.

Based on a review of the pilot program, representatives from the original task force met and revised the aspen recycling procedures for use under the RIM Program. The procedures to be used in the coming year are as follows:

REINVEST IN MINNESOTA RESOURCES ASPEN RECYCLING PROGRAM

PURPOSE:

Minnesota's abundance of aspen timber has been a key ingredient in the expansion of its forest industries. This abundance is misleading, however, since nearly one-half the aspen resource is mature and in danger of not replacing itself unless harvested. Aspen left undisturbed slowly dies, enabling other species to take over sites through natural succession. If cut, however, aspen has the unique ability to sprout back vigorously.

The large amount of aspen that needs to be harvested exceeds the forest industry's capacity to utilize it before it deteriorates. On the other hand, there is a shortage of younger aged trees for future harvests. This age class imbalance can have a negative impact on wildlife. A well-balanced mixture of young and old aspen is necessary to provide quality habitat for white-tailed deer and ruffed grouse.

DNR foresters recognize the problem of "here today, gone tomorrow". On state-owned lands they have identified over 70,000 acres of aspen that will not be available for future commercial harvests and wildlife habitat unless it is recycled. The following procedures were developed and evaluated in an aspen recycling pilot project.

PROCEDURES:

1. Stand Selection Criteria

Stands of mature aspen should be selected according to forest/wildlife habitat management plans and where

- a. aspen regeneration is the preferred species;

- b. at least 20 square feet of basal area (or 50 trees) of well-distributed aspen is at or beyond rotation age;
- c. an adequate stocking of desirable reproduction is lacking, and;
- D. the volume per acre (as determined by the Area Forest Supervisor) cannot be economically harvested.

2. Appraisals

Prepare an informal sale appraisal of the merchantable species or products (excluding aspen pulpwood) found on each site according to the following guidelines.

- a. Determine in each stand the number of stems per acre by species and size class to be removed and estimate the volume of merchantable products.
- b. Mark the stand boundaries during the inspection.
- c. List the volume and value of each merchantable product as optional timber using base stumpage prices.
- d. Specify that all aspen stems must be cut between August 15 and April 30 (shorter periods between those dates may be specified by the forester).
- e. Require that felled material be skidded to a central location or windrowed to avoid inhibiting aspen regeneration or permit the salvage of cut material (forester's option). If skidding or windrowing is necessary, it shall be done only during those periods when the soil will not be compacted.
- f. Prices for wood sold for salvage on site or at a landing shall be average base price per cord plus \$4.00 for felling and \$5.00 for skidding.

3. Prospective Bidders

Eligibility to bid on aspen recycling projects shall be open to loggers or residents of DNR - Forestry Regions I, II, and III.

- a. A bidder shall be limited to no more than three contracts at a time.
- b. An individual shall be ineligible to bid on aspen recycling projects if that individual has been awarded more than \$25,000 for project work to be completed during the current August 15 - April 30 period.

4. Bid Procedures

Sealed bid proposals should be prepared for each site (or number of sites where the total value of the optional timber does not exceed \$3,000) and sent to eligible bidders along with the following information at least two weeks before the date of the bid opening.

- a. A copy of the F-121 appraisal (which also serves as the project map).

- b. A provision in the bid that allows the successful bidder, by his/her choice, to purchase optional timber on the tract at appraised prices in the event there is an economic opportunity to market or utilize the optional timber.
- c. Notification that bidding shall be done on the basis of a lump sum for the entire project if the project size is only estimated or on a per acre basis if the project size has been measured.
- d. A schedule of bid openings. No more than one Area office should be awarding bids on a particular day. Before bids are awarded, the Area Forest Supervisor shall check with other Area Forest Supervisors to ensure that successful bidders and scheduled bid openings are in compliance with items 3.a. and 3.b. above.

5. Performance

Payment for completed work shall be approved only when every contract provision has been fulfilled.

- a. In the event of a sale for optional timber, the permit shall not extend beyond the term of the recycling contract.
- b. Failure to complete all contract provisions can result in an individual being eliminated from bidding on future work unless that individual agrees to accept a reduced payment for the project as negotiated with the Area Forest Supervisor.
- c. Extensions may be granted by the Area Forest Supervisor as long as sound silvicultural practices are followed.

APPENDIX 1

Division of Forestry central and field staff comprising the Aspen Recycling Pilot Program Task Force is as follows:

Jim Brooks, Assistant Director
Bruce ZumBahlen, Assistant to the Director, Resource Management Section
C. Barry Morse, Forest Management Specialist
Charles Spoden, Area Forest Supervisor, Littlefork
Nate Frame, Assistant Regional Forest Supervisor, Grand Rapids
Jim Tarbell, Area Forest Supervisor, Deer River
Robin Nelson, Area Forest Supervisor, Orr
George Miller, Regional Staff Forester, Forest Management, Bemidji
Ramon Tarchinski, Area Forest Supervisor, Baudette