Forest

~~FIRE~~ MANAGEMENT PLAN

RICE LAKE NATIONAL WILDLIFE REFUGE

McGregor, Minnesota

Submitted by /s/ David E. Heffernan Date 6-6-84
Project Leader

Concurrence Calvin R. Dale Date 7/20/84
Regional Forester

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Division Supervisor

Approval George J. Jackson Date 7/31/84
Acting Asst. Regional Director

RICE LAKE

NATIONAL WILDLIFE

REFUGE

FOREST MANAGEMENT CHAPTER

of the

REFUGE MANAGEMENT PLAN

1984

FOREST MANAGEMENT CHAPTER

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INTRODUCTION

This chapter consists of two sections. Section 1 pertains to the general management of the forest and will be updated as new inventory data is obtained. Section 2 deals with the specific prescription or cultural treatment planned for each compartment on the refuge and portions of it will be updated each year by the Area Forester. Other appendices to this document will also be included in this section.

SECTION I. MANAGEMENT CHAPTER

A. Refuge and Forest Objectives. The Rice Lake National Wildlife Refuge (Map A) was authorized by Executive Order 7221 on October 31, 1935. The original purpose for it's establishment was to provide a resting and feeding area for waterfowl and habitat for all other species of wildlife native to the area. The drought conditions of the 1930's made wetland areas such as Rice Lake extremely important to nesting and migrant waterfowl, and the preservation and proper management of such areas remains a critical need today.

The original intent for the refuge remains the primary goal of the present management objectives. In general, these are:

1. Provide migration habitat for waterfowl, including undisturbed water areas, natural feeding areas, and croplands;

2. Provide habitat for waterfowl nesting, including persistent emergent vegetation, adequate cover in grassland/brushland areas, and sufficient cavity prone tree species in timber areas;

3. Protect, manage and develop areas used by endangered species of wildlife, such as the bald eagle, peregrine falcon, gray wolf and others;

4. Provide habitat for a variety of wildlife species, both migratory and resident, emphasizing habitat diversity as a primary goal;

5. Provide for compatible public uses, with emphasis on wildlife-oriented interpretation and recreation opportunities; and,

6. Preserve and enhance the natural beauty of the biosystem.

In some form or another, refuge forest management practices impact on each of these objectives, but those practices affecting waterfowl nesting and wildlife diversity are of primary concern. Forest lands total more than 5,000 acres of the refuge's 18,056 acres, and the benefits realized from the proper management of this large a forested area can be many and varied.

The objectives of the Rice Lake Forest Management Chapter are, therefore, as follows:

1. Provide improved wildlife habitat conditions for a variety of species, utilizing the sustained yield principles of the timber management profession;

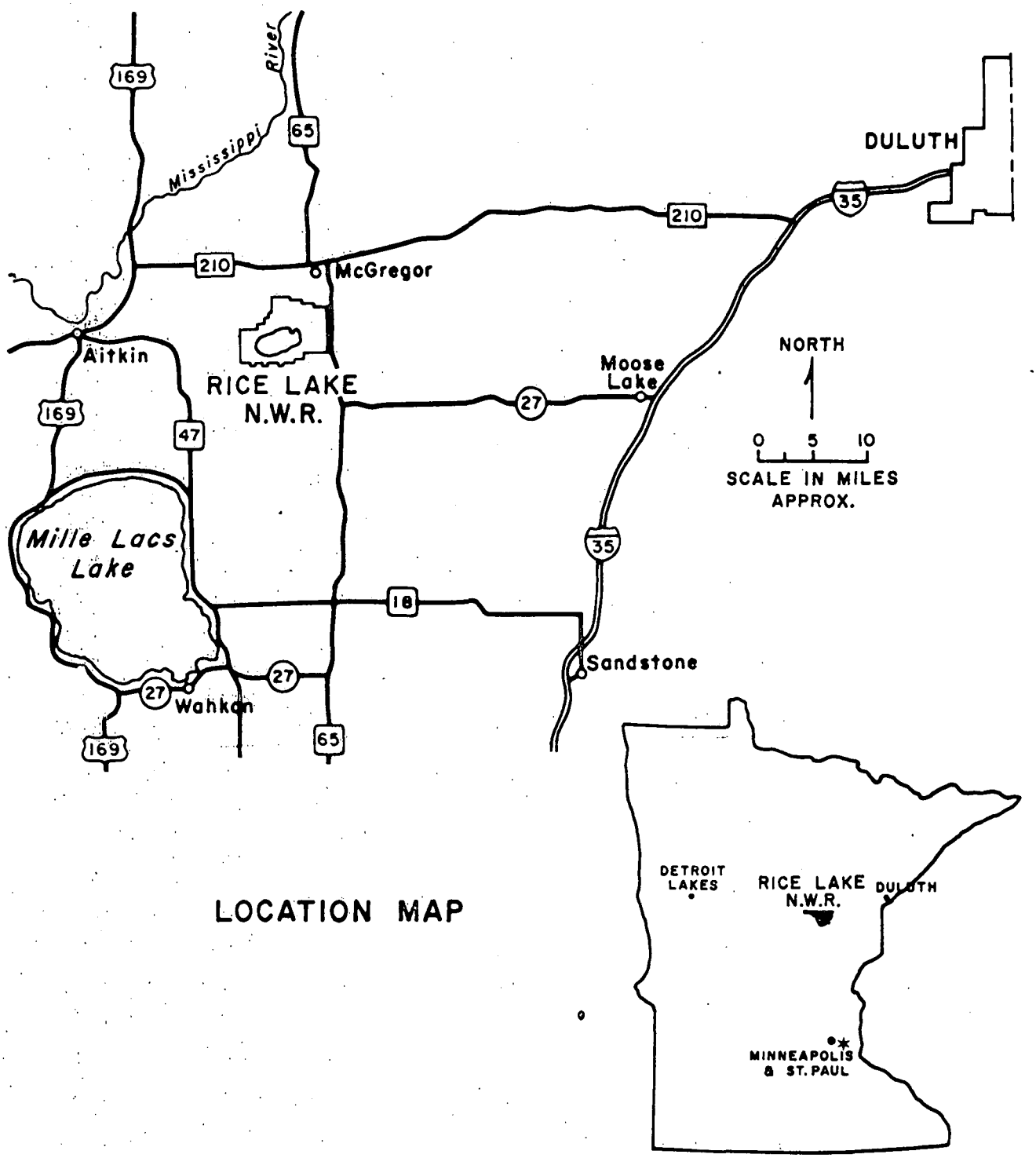
2. Encourage an abundance of cavity prone trees for waterfowl nesting and other wildlife uses;

3. Provide protection for areas frequently used by endangered species (bald eagle nesting and perch sites, etc.);

MAP A

RICE LAKE

NATIONAL WILDLIFE REFUGE



LOCATION MAP

APRIL 1973

MINNESOTA

4. Encourage the development of an open-crown canopy to create additional browse for deer, and adequate ground cover for a variety of species;

5. Encourage an increase of northern hardwoods and northern white cedar (Thuja occidentalis) to benefit deer and other resident species; and,

6. Protect and manage areas of balsam fir (Abies balsamea) and white spruce (Picea glauca) to benefit ruffed grouse, deer and other resident species.

Achievement of these objectives can be met through a variety of management practices:

1. Management of upland and lowland hardwoods will be directed toward mixed, uneven aged stands. All ages will be represented to insure the continuous existence of natural cavities. Cavity prone species, including basswood (Tilia americana), aspen (Populus spp.), and elm (Ulmus spp.) will be encouraged, and trees containing safe natural cavities will be preserved. Red oak (Quercus rubra) will be encouraged if none of the above cavity prone trees are present in a given area. Harvest techniques used will include patch, clear, select and shelterwood cuts;

2. Most of the remaining forest area will be managed on a sustained yield basis. All-age management will prevail. Harvesting techniques will include patch, clear, select and shelterwood cuts; and,

3. In an effort to insure that the needs of all wildlife species are being considered, representative areas of all timber types will be allowed to develop into over-mature stands with little or no treatment. The specific areas are shown on Map A.3. (Reserve Stands).

As a general rule, trees will not be planted in any existing openings and will be discouraged from invading and taking over present grassland areas. These openings are essential if waterfowl management and wildlife diversity objectives are to be met.

B. Land and Forest Description. The land classification at Rice Lake is shown in Table B-1 (Refuge Land Classification). A pictorial of the land and forest classification is shown in Diagram B (Refuge Land and Forest Classification). Map B-2 (Forest Type Map) shows the location of the tree species throughout the refuge. The long range forest management goal is to provide diverse patterns of vegetation and openings throughout the entire refuge. Symbols for the forest type map are listed in Legend B (Symbols Used in Mapping).

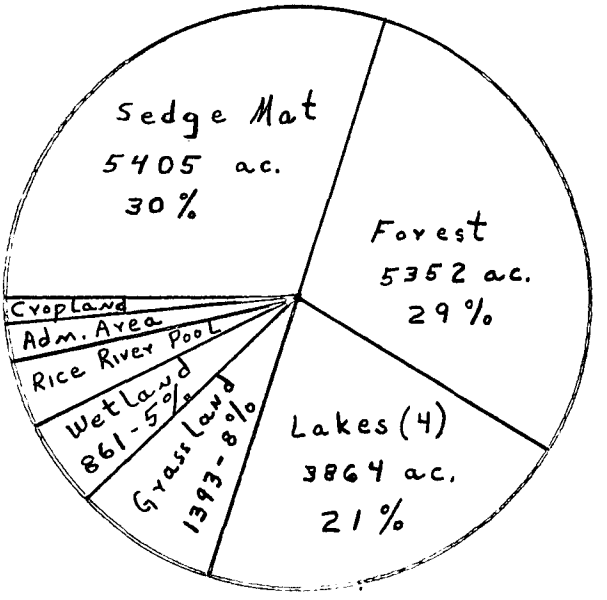
RESERVE STANDS MAP A.3.

TABLE B-1 REFUGE LAND CLASSIFICATION

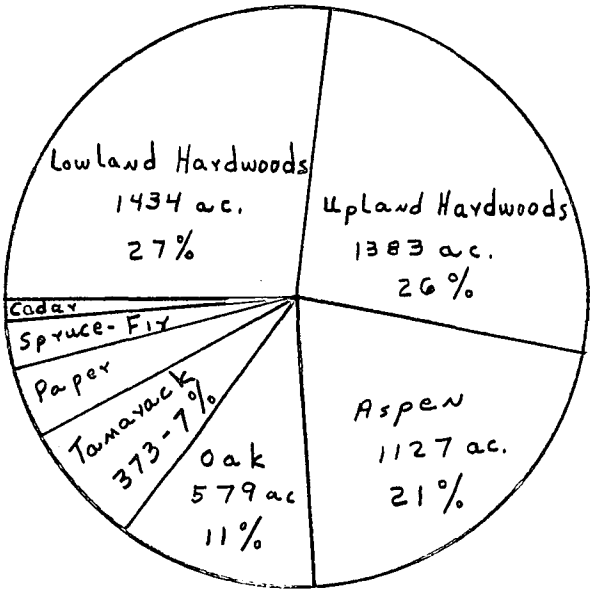
	Acres Per Species	Acres	% of Refuge
Lakes (four)		3864	21
Rice River and Pool		648	4
Sedge mat or floating bog		5405	30
Wetlands (Types 1-6)			
1 - Numerous but small in upland hardwood. Lowland hardwood area is one large type 1.			
3 - Twenty-five areas, average size is 0.6 acres.			
5 - Two areas, average size is 1.0 acre.			
6 - One hundred forty-two, average size is 5.6 acres.			
Wetland Subtotal		861	5
Grassland		1393	8
Cropland		250	1
Forest			
Lowland Hardwoods	1434		(8)
Upland Hardwoods	1383		(8)
Aspen	1127		(6)
Oak	579		(3)
Tamarack	373		(2)
Paper Birch	244		(1)
Spruce-Fir	155		(1)
Cedar	46		(<1)
Red and White Pine	11		(<1)
Subtotal		5352	29
Administrative Areas (Road, Headquarters, etc.)		283	2
		18056	100

DIAGRAM B. REFUGE LAND AND FOREST CLASSIFICATION

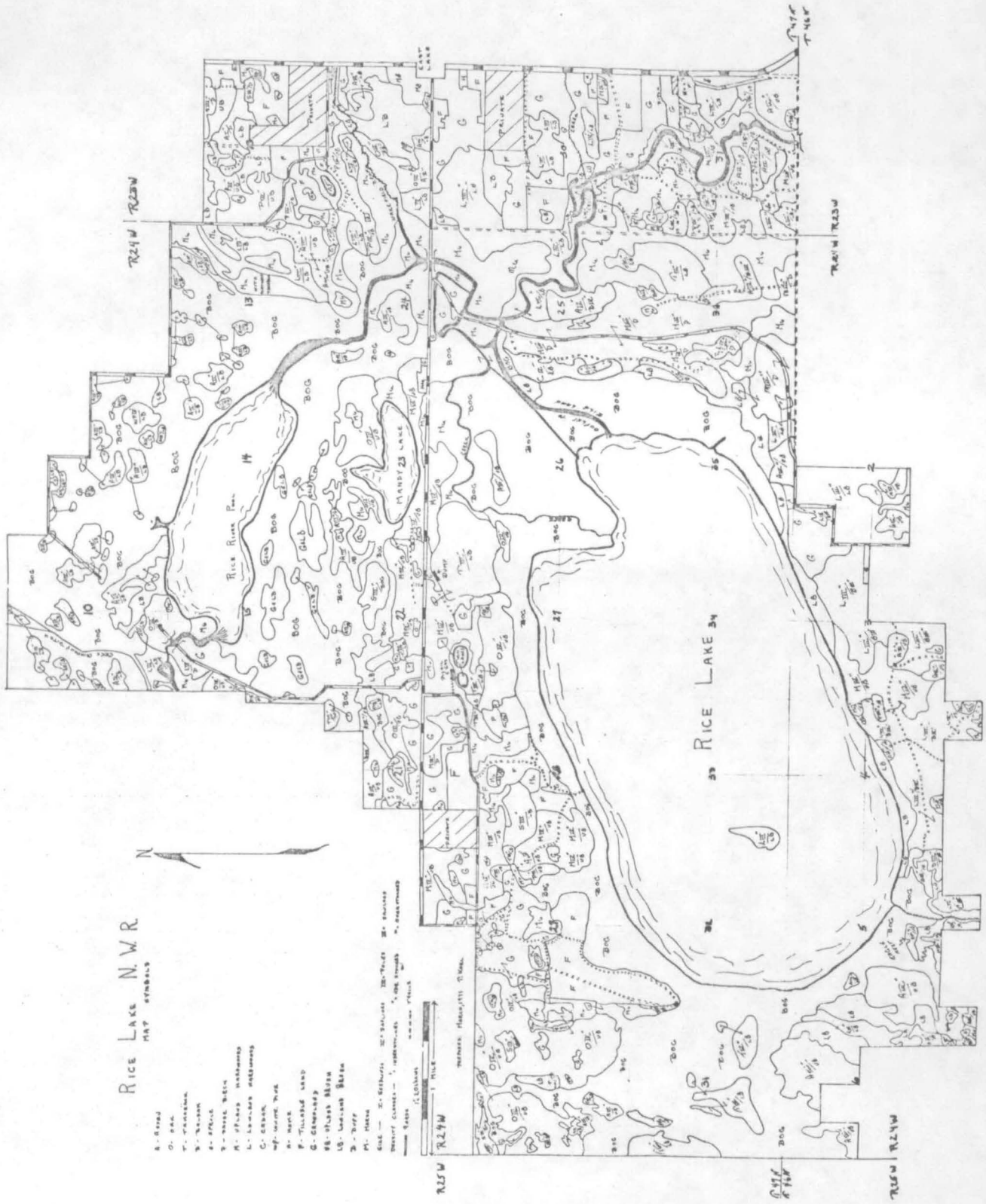
Land Classification
(Percent of Refuge Land)



Forest Classification
(Percent of Forested Land)



MAP B-2 FOREST TYPE MAP



LEGEND B - SYMBOLS USED IN MAPPING

Type Symbols	Forest Types	Type Symbols	Non-Forest Types
A	Aspen	F	Farm Field
M	Upland Hardwoods	G	Grass
L	Lowland Hardwoods	UB	Upland Brush
O	Oak	LB	Lowland Brush
S	Spruce	D	Duff
P	Birch	Mh	Marsh (1,3,5,6,8)
B	Balsam Fir	Rd	Road
T	Tamarack		
R	Red Pine		
C	Cedar		

Size Classes			Density Classes	
I	Seedling	0-1" DBH	'	Understocked
II	Saplings	1-5" DBH	''	Adequately Stocked
III	Poles	5-11" DBH	'''	Overstocked
IV	Sawlogs	12" +		

C. Tree Species and Parameters. The following is the main groupings of tree species on the refuge.

1. Upland Hardwoods (1383 acres)

a. Species. Species composition includes sugar maple (Acer saccarum), basswood (Tilia americana), northern red oak (Quercus rubra), American elm (Ulnus americana), white birch (Betula paperifera), aspen and an occasional shagbark hickory (Caraya ovata).

b. Site - Medium to good sites. Site indexes range from 55 to 70.*

c. Size and Age Class. All ages and size classes are represented. Pole and saw timber trees are most abundant. There is a high occurance of sugar maple seedlings and saplings. Primary waterfowl use is by cavity nesting ducks. Areas having an understory have considerable use by ruffed grouse, whitetail deer and squirrels.

d. Management Strategy. Forest management within the upland hardwoods will be in accordance with wood duck and upland game habitat development. Cavity prone species will be encouraged; that is basswood, aspen, red oak and elm. Trees with cavities will be left. The patch cut system will be used to harvest timber. This harvesting technique is designed to create small openings or clear cuts adjacent to acceptable and potential nesting sites. Another beneficial result of this type of cut is the growth of herbaceous and woody shrubs for upland game. The selective cut method, where only a portion of the trees are removed, can change the composition of the stand to shade tolerant species, such as sugar maple and basswood. If some of the maple is removed during the selective cut, basswood, a cavity prone tree, would be favored.

2. Aspen and Paper Birch (1127 + 244 = 1371 acres)

a. Species. Species composition includes quaking aspen (Populus trenuloides), big toothed aspen (Populus grandidentata) and paper birch (Betula paperifera) which are found in pure stands and in mixture with upland hardwoods and balsam fir.

b. Site. Site indexes range from 40 to 55.

c. Size and Age Class. An unbalanced age structure exists with pole and saw timber sizes predominating.

d. Wildlife uses. Species receives extensive use by ruffed grouse and whitetail deer. The mature timber has reduced much of the desired wildlife vegetation.

e. Management Strategy. Harvest aspen and birch with site indices of 40 to 60 at 30 to 35 years of age and with site index above 60 at 40 to 50 years of age. Harvest method will be clear cutting. The management objective is to balance the age structure, thus increasing the amount of desired wildlife vegetation. Adjacent clear cuts, separated by ten year cutting intervals, are desirable.

*Site index is a measure of the quality of the aggregate of all environmental conditions affecting the survival and growth of specific tree species.

3. Lowland Hardwoods (1434 acres)

a. Species. Species composition includes green ash (Fraxinus lanceloate), black ash (Fraxinus nigra), and American elm.

b. Site. Medium sites. Site indices range from 45 to 60.

c. Size and Age Class. An unbalanced age structure exists with pole and then sawlog sizes predominating.

d. Management Strategy. Refer to text under upland hardwoods.

4. Oak (579 acres)

a. Species. Of the oak species (Quercus spp.), northern red oak predominates, while some white oak (Quercus abla) and burr oak (Quercus narcrocarpa) are present.

b. Site. Medium to good sites. Site indices range from 45 to 65.

c. Size and Age Class. An unbalanced age structure exists with pole and saw timber sizes predominating.

d. Wildlife Uses. Mast production is very important and supplements squirrel, deer, wood duck and black bear diets. Oaks cavities provide excellent sites for nesting wood ducks and other wildlife species. Ruffed grouse also use those areas having a dense understory.

e. Management Strategy. Management will be similar to upland hardwood management. An open crown canopy will be developed to improve mast production.

5. Spruce - Fir (155 acres)

a. Species. Species composition in upland sites is mostly balsam fir with a mixture of white spruce and aspen. Lowland sites comprise mostly black spruce (Picea mariana) with a mixture of northern white cedar and tamarack (Larix laricina).

b. Site. Upland sites are medium to good with site indices ranging from 45 to 60. Lowland sites range from poor to medium with site indices ranging from 20 to 50.

c. Size and Age Class. The sites contain pole size trees with ages varying between 30 and 60 years.

d. Wildlife Use. The sites are used for winter cover for most upland and big game species. A balsam, aspen mixture appears to provide much of required ruffed grouse habitat.

e. Management Strategy - Upland Sites. Even age management will be used on upland sites. Rotation age will be 45 to 55 years depending on site and wildlife demands. The objective of management is two fold: to supply

winter food and cover for wildlife and to develop well stocked stands and improve species composition by increasing the proportion of white spruce and balsam fir.

Lowland Sites. Recommended rotation age for black spruce varies between 80 to 140 years depending on site quality. Poor sites tend to be all aged, while good to medium sites are essentially even aged. The productivity of the stands vary greatly even within the same swamp. Harvest procedure will be seed tree cutting in strips or patches. There will be no intermediate cuts or opening in the canopy prior to the harvest cut since black spruce is subject to windthrow.

Objective of management is to provide winter cover for upland wildlife species and to increase the proportion of northern white cedar.

6. Tamarack (373 acres)

a. Species. Tamarack occurs primarily in pure stands with only an occasional mixture of black spruce or northern white cedar.

b. Site. Sites are mostly medium to good with site indices ranging from 35 to 55.

c. Size and Age Class. The sites contain pole size trees with ages varying between 30 and 85 years.

d. Management Strategy. Rotation age on tamarack is 60 to 70 years for pulpwood and 80 to 100 years for saw timber. Harvest will be by seed tree cut. One or more intermediate cuts can be made at ages 30 to 50. Approximately one hundred acres of tamarack are excluded from management since they are located in a designated natural area.

7. Cedar (46 acres)

a. Management Strategy. A small acreage of cedar is being managed as a wintering area for whitetail deer. Harvesting will be done to sustain, improve and possibly enlarge the cedar wintering area.

8. Red and White Pine (11 acres)

a. Management Strategy. The refuge contains very little pine. There is only one island to the north of headquarters with any quantity. All pine will be preserved for aesthetic and historic value as well as for bald eagle nesting and roosting sites.

D. Forest Inventory Data. Forest inventory data, such as volume and growth information by species, will be determined from continuous forest inventory data taken from permanent sample plots. The goal is to plan the sampling method, place permanent plots, collect and analyze data and place the resulting data in the Appendix of this document.

D.1. Continuous Forest Inventory. The Continuous Forest Inventory (CFI) is a system of randomly selected plots, permanently established that can be relocated and remeasured on a ten year basis to provide general volume and trend information for the entire refuge. Data collected will be computer processed and the summaries placed in the Appendix of this document.

The CFI plots were distributed proportionally by the acreage of each forest type. Approximately 500 acres of type is represented by one plot. Using a grid, random numbers and type map, plot locations were established. The locations were transferred to aerial photographs. Plot centers were located on the ground and referenced for future relocation.

Sample trees on CFI plots are selected by using 10 factor angle gauge or prism beginning north of the plot center and working clockwise around that point. "In" trees are then marked as to number beginning with one on each plot and the DBH, merchantable height, total height, species and tree class are recorded. The tree class indicates that a tree is sapling, pole, saw timber or cull and whether it is in the hardwood or softwood group. All measured trees will be marked with a numbered tag to facilitate remeasurement.

CFI plots will not receive special protection from forest management operations. Part of the value of this system is the operation of both man's and nature's disturbance on the habitat.

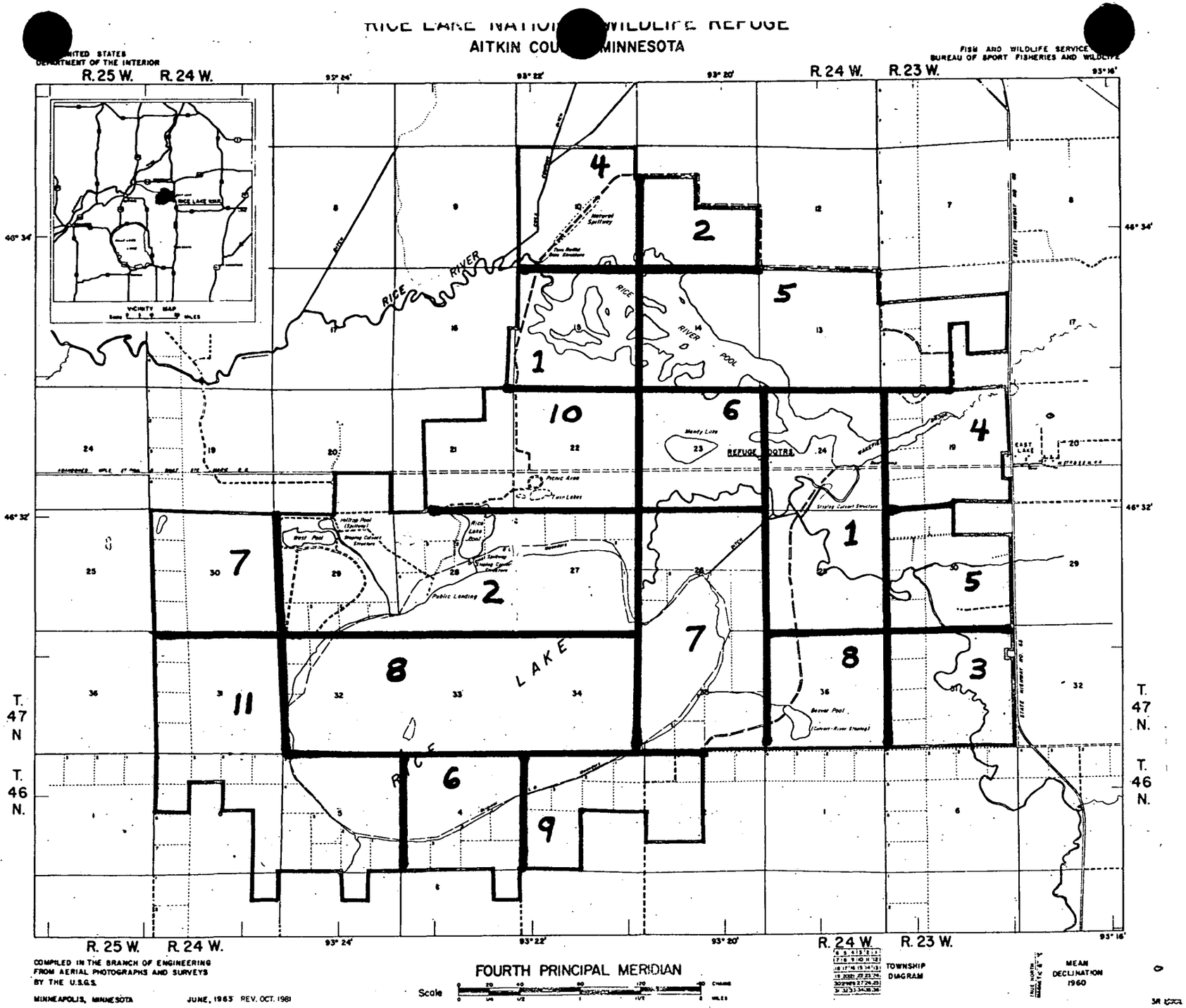
D.2. Forest Compartments. The refuge will be divided into eleven forest compartments as shown in Map D.2. (Compartment Map). One compartment (Compartment 11) will consist of the proposed wilderness area, which will be placed in a reserve status where no cutting will take place, while remaining compartments will receive normal forestry treatments (see also Section 1.A. and Map A.3. regarding "reserve or over-mature stands").

One compartment will be reviewed each year, preferably in winter or spring, to prepare the prescription (proposed forestry activities) for that compartment for the coming fiscal year. This procedure will be followed until all cutting compartments have been analyzed. At this point the cycle will be repeated so that each compartment will be analyzed once every ten years. The compartment to be analyzed during FY-1985 will be all portions of compartment six. This compartment will then receive a cultural treatment during FY-1986.

The prescription will be prepared by the Area Forester in conjunction with a refuge staff member. In general, sales will be set up during the treatment year for that compartment.

The compartment review will be conducted by taking line sample plots in each timber type in a given compartment. Sufficient data (volume, basal area, stem condition) will be collected so that the prescription can be written.

MAP D.2. COMPARTMENT MAP



Compartment No.	Forested Acres
1	521
2	496
3	497
4	507
5	494
6	486
7	487
8	441
9	518
10	477
11	428
	5,352

This data will then be placed in Section 2, Appendix B. The prescription is to specify what should be done to which portion of the compartment for the coming year. Data needed to update the compartment type map will be collected at the same time.

E. Timber Sales. The demand for stumpage within the Rice Lake area fluctuates widely from year to year. Stumpage prices used on refuge sales are correlated to the State of Minnesota Stumpage Price Guide and the County Price Guide. Even though there is wide fluctuation in stumpage demand, all timber sales are designed to accomplish specific refuge objectives in wildlife/forestry habitat management.

A Special Use Permit (sample in Appendix A) will be prepared in accordance with 6 RM 3 by the Area Forester for approval by the Refuge Manager, based on the data collected during the annual compartment analysis/review and some additional data collected at that time. The permit will clearly indicate the cutting area and amount of timber to be cut, species involved, type of harvest, harvest objectives, stumpage prices, scaling provisions and any other special requirements. One copy will be given to the permittee, another copy sent to the Regional Forester and the remaining copy retained for refuge records.

The Area Forester and refuge staff, jointly, will actively pursue prospective permittees to accomplish the cultural treatments specified for that fiscal year.

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FORM 3-1383
(REV. 11/75)

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service

Rice Lake National Wildlife Refuge

SPECIAL USE PERMIT

Permit number	Sta. No. to be credited
83-3	32540

Contract number

Date December 14, 1982

Permittee *(Name and address)*

Mr. William Berg
Route 4, Box 312
Aitkin, MN 56431

Period of use *(inclusive)*
From December 27, 1982
To December 27, 1983

Purpose *(Specify in detail privilege requested, or units of products involved)* To harvest the following timber in accordance with the Forest Management Plan:

Species	Volume	Unit Price	Total Price
Birch&Maple - woodsrun	217 cds.	$2.25/cd.	$488.25
Basswood - sawlogs	2,640 MBF	30.00/MBF	79.20
Oak - sawlogs	3,220 MBF	35.00/MBF	112.70
Ash - sawlogs	660 MBF	30.00/MBF	19.80

Description *(Specify unit numbers; metes and bounds; or other recognizable designations)* $699.95 Total

Part of NW, Sec. 28, T47N, R24W, 4th P.M., Aitkin County, MN.

Amount of fee $ 699.95 If not a fixed fee payment, specify rate and unit of charge: _____

[X] Full payment

[ ] Partial payment-Balance of payments to be made as follows:

Record of Payments

Full payment of $699.95 to be paid at time of permit issuance.

Special Conditions

1. The permittee must comply with applicable State and Federal Occupational Safety and Health Administration requirements.

2. Additional permit regulations to be followed are noted in the following attachments:
   a. Timber Sale Appraisal Report & Prospectus;
   b. Conditions Applicable to Timber Harvesting Permits; and
   c. Special Permit REgulations

This permit is issued by the U.S. Fish and Wildlife Service, and accepted by the undersigned, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the conditions and requirements appearing on the reverse side.

Permittee *(Signature)* William Berg

Issuing Officer *(Signature and title)* David E. Heffernan; REfuge Manager

SPECIAL USE PERMIT

Timber Sale Appraisal Report & Prospectus

Permit No. 83-3, T #

Refuge: Rice Lake NWR

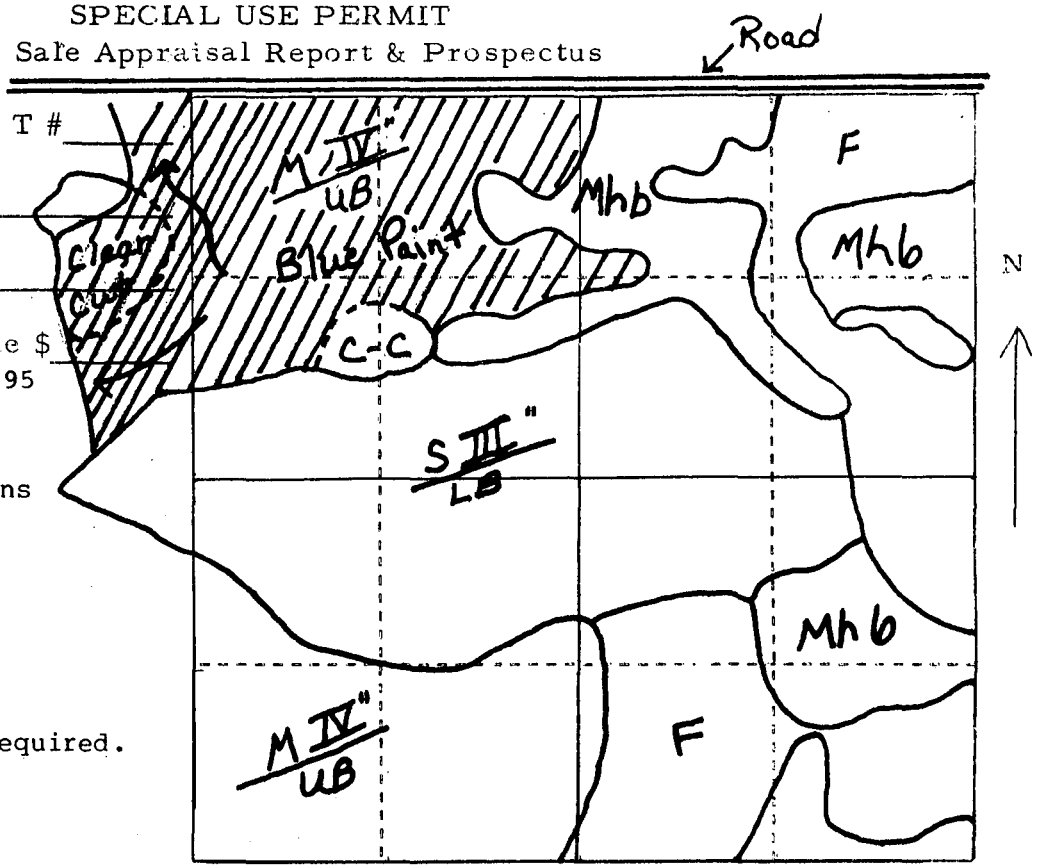
Appraiser:

Date: Total Value $ $699.95

*Cutting Regulations:

See cutting instructions next page.

Scaling Provisions:
Lump sum sale, so scaling required.



O/O - NW SEC. 28 T 47N R 24W
Compartment No. 2
Scale: 8" = 1 mile

Objectives: Create forest openings and increase diversity for upland wildlife.
FLUP Prescription:
Remove 20% of vegetative cover.

Species	MBF	Unit Price	Pulp Cords	Unit Price	Woods Run Cords	Unit Price		Unit Price		Unit Price		Unit Price	Value
Birch&Maple					217	2.25							488.25
Basswood	2.64	30.00											79.20
Oak	3.22	35.00											112.70
Ash	0.66	30.00											19.80
												Total Value	$ 699.95

Approved By [signature] Date December 14, 19 82

*Explanation of Cutting Regulation on Back of Page

SPECIAL PERMIT REGULATIONS
Rice Lake NWR
Permit No. 83-3

Area:	Approximately 28 acres total - 24 acres selective cut and 4 acres clear cut.
Boundary:	Area is bounded on north by gravel road; south by lowlands; and east and west by blue paint lines, grass field and small pothole. One area to be clear cut is bounded by blue paint, red paint and pothole; other area to be clear cut is bounded by lowland and red paint line.
Special Cutting Requirements:	North and Southeast areas to clear cut. - Cut all trees inside designated area except those marked with red or blue paint. Large cutting site - Cut trees marked with yellow paint and all maple and birch trees.
Roads and Trails:	Road construction and maintenance are the responsibility of the permittee. Haul roads will be cleared no wider than necessary. Location of roads and landings must be approved by the Refuge Manager. Trail shall be kept free from all limbs and logs resulting from the logging operation.
Litter:	All litter (cans, bottles, etc.) created by the permittee shall be removed by him from the logging site and refuge.
Potholes:	No tree tops are to be left in potholes or marshes on the sale area.
Environmental Assessment:	The performance of this sale will result in added sunlight penetration to the forest floor. No significant adverse environmental impact is expected.

RICE LAKE NATIONAL WILDLIFE REFUGE
MC GREGOR, MINNESOTA

CONDITIONS APPLICABLE TO TIMBER HARVESTING PERMITS

1. If requested, satisfactory scale tickets for timber products shall be submitted by the permittee to the refuge officer-in-charge.

2. Trees shall be cut so as to leave a stump not more than 12 inches high for sawtimber and 6 inches high for pulpwood, on the side adjacent to the highest ground. Ground level paint spot must be visible after the tree has been cut, where applicable. Liquidated damages for high stumps will be charged at the rate of $0.25 per stump.

3. Trees and tops cut shall not be left hanging or supported by any other living or dead tree or brush and shall be removed immediately after felling operations. Slash shall be lopped so that it's maximum height will be 36 inches.

4. Tops and logging debris shall be pulled back 50 feet from roads.

5. All roads, road right-of-ways, fields, openings, and streams must be kept clear of tops and debris. The permittee shall pay the United States for any unnecessary damage to roads, fields, openings, and ditches resulting from operations conducted by himself or employees.

6. Additional trees marked for road or mill site or loading site will be paid for at bid price. Unmarked trees which are cut or injured through carelessness shall be paid for at double the stumpage price bid in the contract.

7. The permittee and his employees will do all in their power to prevent and suppress forest fires. The Refuge Manager or his agent shall have authority to temporarily close down all or any part of the operation during a period of high fire danger, inclement weather, safety reasons or any other reason granted to the permittee for completion of operations.

8. Road construction and maintenance are the responsibility of the permittee. Location of roads and landings must be approved by the Refuge Manager.

9. All tops and portions of trees marked for sale and left in the woods, upon completion of operations in each logging unit and/or entire sale area, will revert to the U.S. Government.

10. No loading or stacking of wood products is permitted within a regeneration area.

SAMPLE TOTALS BY PLOT NUMBER FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
1	001/001	1	SFM	7.7	24	60	4	0.068	0	8.1	0.323
2	001/002	1	SFM	8.0	0	50	7	0.000	0	7.3	0.349
3	001/003	1	BSW	13.0	22	65	6	0.000	59	25.2	0.922
4	001/004	1	SFM	6.8	16	51	4	0.038	0	5.4	0.252
5	001/005	1	BUT	14.2	12	64	6	0.000	40	29.6	1.100
6	001/006	1	BSW	10.5	40	62	4	0.190	0	15.7	0.601
7	001/007	1	SFM	2.4	0	19	2	0.000	0	0.3	0.031
8	001/008	1	BUT	12.6	25	61	6	0.000	81	22.2	0.866
9	001/009	1	ASP	16.2	37	61	4	0.367	0	36.7	1.431
10	001/010	1	ASP	11.8	36	46	4	0.198	0	14.7	0.759

PLOT TOTAL

CORDS	0.86
BOARD FEET	180.00
CUBIC FEET	165.05
BASAL AREA	6.64

11	002/001	3	WHB	7.0	17	46	4	0.038	0	5.2	0.267
12	002/002	3	WHB	6.4	17	46	4	0.028	0	4.3	0.223
13	002/003	3	WHB	7.3	21	46	4	0.038	0	5.6	0.291
14	002/004	3	WHB	7.2	17	46	4	0.038	0	5.5	0.283
15	002/005	3	SFM	8.0	18	42	4	0.050	0	6.2	0.349
16	002/006	3	WHO	9.9	23	42	4	0.082	0	9.4	0.535
17	002/007	3	RDO	12.8	27	47	4	0.197	0	17.6	0.894
18	002/008	3	WHO	8.4	16	40	4	0.050	0	6.5	0.385

PLOT TOTAL

CORDS	0.52
BOARD FEET	0.00
CUBIC FEET	60.25
BASAL AREA	3.23

19	003/001	2	ASP	13.6	50	58	4	0.353	0	24.6	1.009
20	003/002	2	ASP	14.2	46	58	4	0.311	0	26.8	1.100
21	003/003	2	ASP	13.9	56	66	4	0.400	0	29.2	1.054
22	003/004	2	ASP	15.0	52	60	4	0.410	0	30.9	1.227
23	003/005	2	ASP	11.4	52	64	4	0.221	0	19.1	0.709
24	003/006	2	ASP	13.2	48	60	4	0.305	0	23.9	0.950
25	003/007	2	ASP	13.2	54	64	4	0.305	0	25.5	0.950
26	003/008	2	ASP	18.5	54	66	4	0.680	0	51.7	1.867
27	003/009	2	ASP	15.5	52	64	4	0.470	0	35.2	1.310
28	003/010	2	WHA	4.1	0	26	2	0.000	0	1.0	0.092
29	003/011	2	ASP	14.9	56	66	4	0.460	0	33.6	1.211

SAMPLE TOTALS BY PLOT NUMBER FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
30	003/012	2	ASP	15.7	56	66	4	0.530	0	37.3	1.344
31	003/013	2	ELM	4.2	0	34	2	0.000	0	1.4	0.096
32	003/014	2	ASP	14.1	58	70	4	0.400	0	31.9	1.084
33	003/015	2	WHO	3.5	0	20	2	0.000	0	0.6	0.067
34	003/016	2	ASP	18.5	54	62	4	0.680	0	48.6	1.867
35	003/017	2	ASP	18.2	56	66	4	0.650	0	50.1	1.807
36	003/018	2	ASP	17.0	56	64	4	0.590	0	42.4	1.576
37	003/019	2	ASP	19.7	42	64	4	0.680	0	56.9	2.117

PLOT TOTAL

CORDS	7.45
BOARD FEET	0.00
CUBIC FEET	570.62
BASAL AREA	21.44

38	004/001	2	ELM	6.0	14	34	4	0.017	0	2.8	0.196
39	004/002	2	CED	12.0	14	32	5	0.000	28	10.6	0.785
40	004/003	2	BLA	9.8	40	62	4	0.160	0	13.6	0.524
41	004/004	2	BLA	14.9	0	24	7	0.000	0	12.2	1.211
42	004/005	2	BLA	6.7	30	54	4	0.053	0	5.6	0.245
43	004/006	2	BLA	11.5	30	42	4	0.165	0	12.7	0.721
44	004/007	2	BLA	7.1	30	54	4	0.053	0	6.2	0.275
45	004/008	2	BLA	6.3	30	54	4	0.040	0	4.9	0.216
46	004/009	2	BLA	11.6	20	62	6	0.000	48	19.1	0.734

PLOT TOTAL

CORDS	0.49
BOARD FEET	76.00
CUBIC FEET	87.74
BASAL AREA	4.91

47	005/001	4	ASP	11.9	39	50	4	0.198	0	16.2	0.772
48	005/002	4	ASP	10.9	39	50	4	0.165	0	13.6	0.648
49	005/003	4	ASP	1.8	0	16	2	0.000	0	0.1	0.018
50	005/004	4	WHA	5.9	14	34	4	0.017	0	2.7	0.190

PLOT TOTAL

CORDS	0.38
BOARD FEET	0.00
CUBIC FEET	32.66
BASAL AREA	1.63

SAMPLE TOTALS BY PLOT NUMBER FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
51	006/001	1	WHA	3.8	0	22	2	0.000	0	0.7	0.079
52	006/002	1	WHO	4.7	0	24	2	0.000	0	1.2	0.120
53	006/003	1	WHO	8.5	22	40	4	0.065	0	6.6	0.394
54	006/004	1	WHA	5.7	20	36	4	0.028	0	2.7	0.177
55	006/005	1	WHA	7.4	20	42	4	0.038	0	5.3	0.299
56	006/006	1	ASP	6.3	20	42	4	0.028	0	3.8	0.216
57	006/007	1	WHA	7.3	18	50	4	0.038	0	6.1	0.291
58	006/008	1	WHO	5.6	10	24	4	0.017	0	1.7	0.171
59	006/009	1	WHO	8.0	34	46	4	0.087	0	6.7	0.349

PLOT TOTAL

CORDS	0.30
BOARD FEET	0.00
CUBIC FEET	34.90
BASAL AREA	2.10

60	007/001	1	SGM	10.0	40	65	4	0.160	0	14.9	0.545
61	007/002	1	SGM	9.1	26	52	4	0.088	0	9.9	0.452
62	007/003	1	SGM	10.8	38	56	4	0.165	0	15.0	0.636
63	007/004	1	BSW	11.8	26	60	6	0.000	66	19.1	0.759
64	007/005	1	WHB	11.1	46	66	4	0.190	0	18.6	0.672
65	007/006	1	SGM	4.5	0	42	2	0.000	0	1.9	0.110
66	007/007	1	BSW	8.2	40	54	4	0.106	0	8.3	0.367
67	007/008	1	SGM	6.1	22	47	4	0.028	0	4.0	0.203
68	007/009	1	SGM	11.3	40	57	4	0.190	0	16.7	0.696
69	007/010	1	SGM	16.0	36	70	6	0.000	158	41.1	1.396
70	007/011	1	SGM	15.9	36	72	6	0.000	158	41.7	1.379

PLOT TOTAL

CORDS	0.93
BOARD FEET	382.00
CUBIC FEET	191.17
BASAL AREA	7.22

71	008/001	7	SGM	5.0	0	40	2	0.000	0	2.3	0.136
72	008/002	7	BSW	8.9	30	66	4	0.088	0	12.0	0.432
73	008/003	7	BSW	7.5	14	48	4	0.031	0	6.2	0.307
74	008/004	7	WHB	13.2	24	66	6	0.000	81	26.3	0.950
75	008/005	7	WHB	10.8	44	60	4	0.190	0	16.0	0.636
76	008/006	7	BSW	10.6	46	72	4	0.190	0	18.5	0.613
77	008/007	7	BSW	14.0	24	63	6	0.000	96	28.3	1.069
78	008/008	7	SGM	4.6	0	42	2	0.000	0	2.0	0.115
79	008/009	7	WHB	14.6	32	75	6	0.000	137	36.6	1.163

SAMPLE TOTALS BY PLOT NUMBER FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
80	008/010	7	SGM	8.2	24	46	4	0.068	0	7.1	0.367
81	008/011	7	SGM	3.8	0	38	2	0.000	0	1.3	0.079
82	008/012	7	SGM	5.6	16	44	4	0.028	0	3.2	0.171
83	008/013	7	RDO	18.4	32	68	6	0.000	207	52.7	1.847

PLOT TOTAL

CORDS	0.60
BOARD FEET	521.00
CUBIC FEET	212.54
BASAL AREA	7.88

84	009/001	5	BKS	3.1	0	24	1	0.000	0	0.5	0.052
85	009/002	5	BKS	3.9	0	28	1	0.000	0	1.0	0.083
86	009/003	5	BKS	2.5	0	20	1	0.000	0	0.3	0.034
87	009/004	5	TAM	3.6	0	32	1	0.000	0	1.0	0.071

PLOT TOTAL

CORDS	0.00
BOARD FEET	0.00
CUBIC FEET	2.74
BASAL AREA	0.24

88	010/001	4	BSW	9.1	30	52	4	0.088	0	9.9	0.452
89	010/002	4	SGM	2.2	0	16	2	0.000	0	0.2	0.026
90	010/003	4	SGM	6.2	10	26	4	0.017	0	2.3	0.210
91	010/004	4	BSW	17.1	30	66	6	0.000	148	44.2	1.595
92	010/005	4	WHO	13.9	32	64	6	0.000	116	28.3	1.054
93	010/006	4	ASP	15.4	56	78	4	0.460	0	42.4	1.294
94	010/007	4	SFM	13.8	24	48	4	0.228	0	20.9	1.039
95	010/008	4	SGM	20.1	26	76	6	0.000	212	70.3	2.204

PLOT TOTAL

CORDS	0.79
BOARD FEET	476.00
CUBIC FEET	218.52
BASAL AREA	7.87

96	011/001	6	BKS	1.8	0	16	1	0.000	0	0.1	0.018
97	011/002	6	BKS	5.4	14	28	3	0.011	0	1.9	0.159
98	011/003	6	BKS	2.8	0	20	1	0.000	0	0.4	0.043

SAMPLE TOTALS BY PLOT NUMBER FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
99	011/004	6	BKS		2.1	0	16	1	0.000	0	0.2	0.024
100	011/005	6	BKS		2.7	0	22	1	0.000	0	0.4	0.040

PLOT TOTAL

CORDS	0.01
BOARD FEET	0.00
CUBIC FEET	2.88
BASAL AREA	0.28

101	012/001	3	RDO	16.0	22	80	6	0.000	93	46.9	1.396
102	012/002	3	BSW	9.1	24	54	4	0.088	0	10.2	0.452
103	012/003	3	RDO	17.3	22	66	6	0.000	106	45.2	1.632
104	012/004	3	SGM	16.4	16	60	6	0.000	93	37.0	1.467
105	012/005	3	RDO	9.9	18	57	4	0.082	0	12.8	0.535
106	012/006	3	RDO	18.0	22	65	6	0.000	122	48.2	1.767
107	012/007	3	RDO	17.9	26	60	6	0.000	168	44.0	1.748

PLOT TOTAL

CORDS	0.17
BOARD FEET	582.00
CUBIC FEET	244.45
BASAL AREA	9.00

SAMPLE TOTAL

CORDS	12.49
BOARD FEET	2,217.00
CUBIC FEET	1,823.52
BASAL AREA	72.42

SAMPLE TOTALS BY FOREST TYPE FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT:TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
1	001/001	1	SFM	7.7	24	60	4	0.068	0	8.1	0.323
2	001/002	1	SFM	8.0	0	50	7	0.000	0	7.3	0.349
3	001/003	1	BSW	13.0	22	65	6	0.000	59	25.2	0.922
4	001/004	1	SFM	6.8	16	51	4	0.038	0	5.4	0.252
5	001/005	1	BUT	14.2	12	64	6	0.000	40	29.6	1.100
6	001/006	1	BSW	10.5	40	62	4	0.190	0	15.7	0.601
7	001/007	1	SFM	2.4	0	19	2	0.000	0	0.3	0.031
8	001/008	1	BUT	12.6	25	61	6	0.000	81	22.2	0.866
9	001/009	1	ASP	16.2	37	61	4	0.367	0	36.7	1.431
10	001/010	1	ASP	11.8	36	46	4	0.198	0	14.7	0.759
51	006/001	1	WHA	3.8	0	22	2	0.000	0	0.7	0.079
52	006/002	1	WHO	4.7	0	24	2	0.000	0	1.2	0.120
53	006/003	1	WHO	8.5	22	40	4	0.065	0	6.6	0.394
54	006/004	1	WHA	5.7	20	36	4	0.028	0	2.7	0.177
55	006/005	1	WHA	7.4	20	42	4	0.038	0	5.3	0.299
56	006/006	1	ASP	6.3	20	42	4	0.028	0	3.8	0.216
57	006/007	1	WHA	7.3	18	50	4	0.038	0	6.1	0.291
58	006/008	1	WHO	5.6	10	24	4	0.017	0	1.7	0.171
59	006/009	1	WHO	8.0	34	46	4	0.087	0	6.7	0.349
60	007/001	1	SGM	10.0	40	65	4	0.160	0	14.9	0.545
61	007/002	1	SGM	9.1	26	52	4	0.088	0	9.9	0.452
62	007/003	1	SGM	10.8	38	56	4	0.165	0	15.0	0.636
63	007/004	1	BSW	11.8	26	60	6	0.000	66	19.1	0.759
64	007/005	1	WHB	11.1	46	66	4	0.190	0	18.6	0.672
65	007/006	1	SGM	4.5	0	42	2	0.000	0	1.9	0.110
66	007/007	1	BSW	8.2	40	54	4	0.106	0	8.3	0.367
67	007/008	1	SGM	6.1	22	47	4	0.028	0	4.0	0.203
68	007/009	1	SGM	11.3	40	57	4	0.190	0	16.7	0.696
69	007/010	1	SGM	16.0	36	70	6	0.000	158	41.1	1.396
70	007/011	1	SGM	15.9	36	72	6	0.000	158	41.7	1.379

TYPE TOTAL

CORDS	2.09
BOARD FEET	562.00
CUBIC FEET	391.12
BASAL AREA	15.95

11	002/001	3	WHB	7.0	17	46	4	0.038	0	5.2	0.267
12	002/002	3	WHB	6.4	17	46	4	0.028	0	4.3	0.223
13	002/003	3	WHB	7.3	21	46	4	0.038	0	5.6	0.291
14	002/004	3	WHB	7.2	17	46	4	0.038	0	5.5	0.283
15	002/005	3	SFM	8.0	18	42	4	0.050	0	6.2	0.349
16	002/006	3	WHO	9.9	23	42	4	0.082	0	9.4	0.535
17	002/007	3	RDO	12.8	27	47	4	0.197	0	17.6	0.894
18	002/008	3	WHO	8.4	16	40	4	0.050	0	6.5	0.385
101	012/001	3	RDO	16.0	22	80	6	0.000	93	46.9	1.396

SAMPLE TOTALS BY FOREST TYPE FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT:TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
102	012/002	3	BSW	9.1	24	54	4	0.088	0	10.2	0.452
103	012/003	3	RDO	17.3	22	66	6	0.000	106	45.2	1.632
104	012/004	3	SGM	16.4	16	60	6	0.000	93	37.0	1.467
105	012/005	3	RDO	9.9	18	57	4	0.082	0	12.8	0.535
106	012/006	3	RDO	18.0	22	65	6	0.000	122	48.2	1.767
107	012/007	3	RDO	17.9	26	60	6	0.000	168	44.0	1.748

TYPE TOTAL

CORDS	0.69
BOARD FEET	582.00
CUBIC FEET	304.70
BASAL AREA	12.22

19	003/001	2	ASP	13.6	50	58	4	0.353	0	24.6	1.009
20	003/002	2	ASP	14.2	46	58	4	0.311	0	26.8	1.100
21	003/003	2	ASP	13.9	56	66	4	0.400	0	29.2	1.054
22	003/004	2	ASP	15.0	52	60	4	0.410	0	30.9	1.227
23	003/005	2	ASP	11.4	52	64	4	0.221	0	19.1	0.709
24	003/006	2	ASP	13.2	48	60	4	0.305	0	23.9	0.950
25	003/007	2	ASP	13.2	54	64	4	0.305	0	25.5	0.950
26	003/008	2	ASP	18.5	54	66	4	0.680	0	51.7	1.867
27	003/009	2	ASP	15.5	52	64	4	0.470	0	35.2	1.310
28	003/010	2	WHA	4.1	0	26	2	0.000	0	1.0	0.092
29	003/011	2	ASP	14.9	56	66	4	0.460	0	33.6	1.211
30	003/012	2	ASP	15.7	56	66	4	0.530	0	37.3	1.344
31	003/013	2	ELM	4.2	0	34	2	0.000	0	1.4	0.096
32	003/014	2	ASP	14.1	58	70	4	0.400	0	31.9	1.084
33	003/015	2	WHO	3.5	0	20	2	0.000	0	0.6	0.067
34	003/016	2	ASP	18.5	54	62	4	0.680	0	48.6	1.867
35	003/017	2	ASP	18.2	56	66	4	0.650	0	50.1	1.807
36	003/018	2	ASP	17.0	56	64	4	0.590	0	42.4	1.576
37	003/019	2	ASP	19.7	42	64	4	0.680	0	56.9	2.117
38	004/001	2	ELM	6.0	14	34	4	0.017	0	2.8	0.196
39	004/002	2	CED	12.0	14	32	5	0.000	28	10.6	0.785
40	004/003	2	BLA	9.8	40	62	4	0.160	0	13.6	0.524
41	004/004	2	BLA	14.9	0	24	7	0.000	0	12.2	1.211
42	004/005	2	BLA	6.7	30	54	4	0.053	0	5.6	0.245
43	004/006	2	BLA	11.5	30	42	4	0.165	0	12.7	0.721
44	004/007	2	BLA	7.1	30	54	4	0.053	0	6.2	0.275
45	004/008	2	BLA	6.3	30	54	4	0.040	0	4.9	0.216
46	004/009	2	BLA	11.6	20	62	6	0.000	48	19.1	0.734

SAMPLE TOTALS BY FOREST TYPE FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
TYPE TOTAL											
CORDS				7.93							
BOARD FEET				76.00							
CUBIC FEET				658.36							
BASAL AREA				26.34							
47	005/001	4	ASP	11.9	39	50	4	0.198	0	16.2	0.772
48	005/002	4	ASP	10.9	39	50	4	0.165	0	13.6	0.648
49	005/003	4	ASP	1.8	0	16	2	0.000	0	0.1	0.018
50	005/004	4	WHA	5.9	14	34	4	0.017	0	2.7	0.190
88	010/001	4	BSW	9.1	30	52	4	0.088	0	9.9	0.452
89	010/002	4	SGM	2.2	0	16	2	0.000	0	0.2	0.026
90	010/003	4	SGM	6.2	10	26	4	0.017	0	2.3	0.210
91	010/004	4	BSW	17.1	30	66	6	0.000	148	44.2	1.595
92	010/005	4	WHO	13.9	32	64	6	0.000	116	28.3	1.054
93	010/006	4	ASP	15.4	56	78	4	0.460	0	42.4	1.294
94	010/007	4	SFM	13.8	24	48	4	0.228	0	20.9	1.039
95	010/008	4	SGM	20.1	26	76	6	0.000	212	70.3	2.204
TYPE TOTAL											
CORDS				1.17							
BOARD FEET				476.00							
CUBIC FEET				251.18							
BASAL AREA				9.50							
71	008/001	7	SGM	5.0	0	40	2	0.000	0	2.3	0.136
72	008/002	7	BSW	8.9	30	66	4	0.088	0	12.0	0.432
73	008/003	7	BSW	7.5	14	48	4	0.031	0	6.2	0.307
74	008/004	7	WHB	13.2	24	66	6	0.000	81	26.3	0.950
75	008/005	7	WHB	10.8	44	60	4	0.190	0	16.0	0.636
76	008/006	7	BSW	10.6	46	72	4	0.190	0	18.5	0.613
77	008/007	7	BSW	14.0	24	63	6	0.000	96	28.3	1.069
78	008/008	7	SGM	4.6	0	42	2	0.000	0	2.0	0.115
79	008/009	7	WHB	14.6	32	75	6	0.000	137	36.6	1.163
80	008/010	7	SGM	8.2	24	46	4	0.068	0	7.1	0.367
81	008/011	7	SGM	3.8	0	38	2	0.000	0	1.3	0.079
82	008/012	7	SGM	5.6	16	44	4	0.028	0	3.2	0.171
83	008/013	7	RDO	18.4	32	68	6	0.000	207	52.7	1.847

SAMPLE TOTALS BY FOREST TYPE FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
TYPE TOTAL											
CORDS				0.60							
BOARD FEET				521.00							
CUBIC FEET				212.54							
BASAL AREA				7.88							
84	009/001	5	BKS	3.1	0	24	1	0.000	0	0.5	0.052
85	009/002	5	BKS	3.9	0	28	1	0.000	0	1.0	0.083
86	009/003	5	BKS	2.5	0	20	1	0.000	0	0.3	0.034
87	009/004	5	TAM	3.6	0	32	1	0.000	0	1.0	0.071
TYPE TOTAL											
CORDS				0.00							
BOARD FEET				0.00							
CUBIC FEET				2.74							
BASAL AREA				0.24							
96	011/001	6	BKS	1.8	0	16	1	0.000	0	0.1	0.018
97	011/002	6	BKS	5.4	14	28	3	0.011	0	1.9	0.159
98	011/003	6	BKS	2.8	0	20	1	0.000	0	0.4	0.043
99	011/004	6	BKS	2.1	0	16	1	0.000	0	0.2	0.024
100	011/005	6	BKS	2.7	0	22	1	0.000	0	0.4	0.040
TYPE TOTAL											
CORDS				0.01							
BOARD FEET				0.00							
CUBIC FEET				2.88							
BASAL AREA				0.28							

SAMPLE TOTAL

CORDS	12.49
BOARD FEET	2,217.00
CUBIC FEET	1,823.52
BASAL AREA	72.42

SAMPLE TOTALS BY TREE CLASS FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT:TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
1	001/001	1	SFM	7.7	24	60	4	0.068	0	8.1	0.323
4	001/004	1	SFM	6.8	16	51	4	0.038	0	5.4	0.252
6	001/006	1	BSW	10.5	40	62	4	0.190	0	15.7	0.601
9	001/009	1	ASP	16.2	37	61	4	0.367	0	36.7	1.431
10	001/010	1	ASP	11.8	36	46	4	0.198	0	14.7	0.759
11	002/001	3	WHB	7.0	17	46	4	0.038	0	5.2	0.267
12	002/002	3	WHB	6.4	17	46	4	0.028	0	4.3	0.223
13	002/003	3	WHB	7.3	21	46	4	0.038	0	5.6	0.291
14	002/004	3	WHB	7.2	17	46	4	0.038	0	5.5	0.283
15	002/005	3	SFM	8.0	18	42	4	0.050	0	6.2	0.349
16	002/006	3	WHO	9.9	23	42	4	0.082	0	9.4	0.535
17	002/007	3	RDO	12.8	27	47	4	0.197	0	17.6	0.894
18	002/008	3	WHO	8.4	16	40	4	0.050	0	6.5	0.385
19	003/001	2	ASP	13.6	50	58	4	0.353	0	24.6	1.009
20	003/002	2	ASP	14.2	46	58	4	0.311	0	26.8	1.100
21	003/003	2	ASP	13.9	56	66	4	0.400	0	29.2	1.054
22	003/004	2	ASP	15.0	52	60	4	0.410	0	30.9	1.227
23	003/005	2	ASP	11.4	52	64	4	0.221	0	19.1	0.709
24	003/006	2	ASP	13.2	48	60	4	0.305	0	23.9	0.950
25	003/007	2	ASP	13.2	54	64	4	0.305	0	25.5	0.950
26	003/008	2	ASP	18.5	54	66	4	0.680	0	51.7	1.867
27	003/009	2	ASP	15.5	52	64	4	0.470	0	35.2	1.310
29	003/011	2	ASP	14.9	56	66	4	0.460	0	33.6	1.211
30	003/012	2	ASP	15.7	56	66	4	0.530	0	37.3	1.344
32	003/014	2	ASP	14.1	58	70	4	0.400	0	31.9	1.084
34	003/016	2	ASP	18.5	54	62	4	0.680	0	48.6	1.867
35	003/017	2	ASP	18.2	56	66	4	0.650	0	50.1	1.807
36	003/018	2	ASP	17.0	56	64	4	0.590	0	42.4	1.576
37	003/019	2	ASP	19.7	42	64	4	0.680	0	56.9	2.117
38	004/001	2	ELM	6.0	14	34	4	0.017	0	2.8	0.196
40	004/003	2	BLA	9.8	40	62	4	0.160	0	13.6	0.524
42	004/005	2	BLA	6.7	30	54	4	0.053	0	5.6	0.245
43	004/006	2	BLA	11.5	30	42	4	0.165	0	12.7	0.721
44	004/007	2	BLA	7.1	30	54	4	0.053	0	6.2	0.275
45	004/008	2	BLA	6.3	30	54	4	0.040	0	4.9	0.216
47	005/001	4	ASP	11.9	39	50	4	0.198	0	16.2	0.772
48	005/002	4	ASP	10.9	39	50	4	0.165	0	13.6	0.648
50	005/004	4	WHA	5.9	14	34	4	0.017	0	2.7	0.190
53	006/003	1	WHO	8.5	22	40	4	0.065	0	6.6	0.394
54	006/004	1	WHA	5.7	20	36	4	0.028	0	2.7	0.177
55	006/005	1	WHA	7.4	20	42	4	0.038	0	5.3	0.299
56	006/006	1	ASP	6.3	20	42	4	0.028	0	3.8	0.216
57	006/007	1	WHA	7.3	18	50	4	0.038	0	6.1	0.291
58	006/008	1	WHO	5.6	10	24	4	0.017	0	1.7	0.171
59	006/009	1	WHO	8.0	34	46	4	0.087	0	6.7	0.349
60	007/001	1	SGM	10.0	40	65	4	0.160	0	14.9	0.545
61	007/002	1	SGM	9.1	26	52	4	0.088	0	9.9	0.452
62	007/003	1	SGM	10.8	38	56	4	0.165	0	15.0	0.636
64	007/005	1	WHB	11.1	46	66	4	0.190	0	18.6	0.672

SAMPLE TOTALS BY TREE CLASS FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
66	007/007	1	BSW		8.2	40	54	4	0.106	0	8.3	0.367
67	007/008	1	SGM		6.1	22	47	4	0.028	0	4.0	0.203
68	007/009	1	SGM		11.3	40	57	4	0.190	0	16.7	0.696
72	008/002	7	BSW		8.9	30	66	4	0.088	0	12.0	0.432
73	008/003	7	BSW		7.5	14	48	4	0.031	0	6.2	0.307
75	008/005	7	WHB		10.8	44	60	4	0.190	0	16.0	0.636
76	008/006	7	BSW		10.6	46	72	4	0.190	0	18.5	0.613
80	008/010	7	SGM		8.2	24	46	4	0.068	0	7.1	0.367
82	008/012	7	SGM		5.6	16	44	4	0.028	0	3.2	0.171
88	010/001	4	BSW		9.1	30	52	4	0.088	0	9.9	0.452
90	010/003	4	SGM		6.2	10	26	4	0.017	0	2.3	0.210
93	010/006	4	ASP		15.4	56	78	4	0.460	0	42.4	1.294
94	010/007	4	SFM		13.8	24	48	4	0.228	0	20.9	1.039
102	012/002	3	BSW		9.1	24	54	4	0.088	0	10.2	0.452
105	012/005	3	RDO		9.9	18	57	4	0.082	0	12.8	0.535

TREE CLASS TOTAL

CORDS	12.48
BOARD FEET	0.00
CUBIC FEET	1,068.67
BASAL AREA	43.54

2	001/002	1	SFM		8.0	0	50	7	0.000	0	7.3	0.349
41	004/004	2	BLA		14.9	0	24	7	0.000	0	12.2	1.211

TREE CLASS TOTAL

CORDS	0.00
BOARD FEET	0.00
CUBIC FEET	19.54
BASAL AREA	1.56

3	001/003	1	BSW		13.0	22	65	6	0.000	59	25.2	0.922
5	001/005	1	BUT		14.2	12	64	6	0.000	40	29.6	1.100
8	001/008	1	BUT		12.6	25	61	6	0.000	81	22.2	0.866
46	004/009	2	BLA		11.6	20	62	6	0.000	48	19.1	0.734
63	007/004	1	BSW		11.8	26	60	6	0.000	66	19.1	0.759
69	007/010	1	SGM		16.0	36	70	6	0.000	158	41.1	1.396
70	007/011	1	SGM		15.9	36	72	6	0.000	158	41.7	1.379
74	008/004	7	WHB		13.2	24	66	6	0.000	81	26.3	0.950
77	008/007	7	BSW		14.0	24	63	6	0.000	96	28.3	1.069
79	008/009	7	WHB		14.6	32	75	6	0.000	137	36.6	1.163
83	008/013	7	RDO		18.4	32	68	6	0.000	207	52.7	1.847
91	010/004	4	BSW		17.1	30	66	6	0.000	148	44.2	1.595

SAMPLE TOTALS BY TREE CLASS FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT:TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
92	010/005	4	WHO	13.9	32	64	6	0.000	116	28.3	1.054
95	010/008	4	SGM	20.1	26	76	6	0.000	212	70.3	2.204
101	012/001	3	RDO	16.0	22	80	6	0.000	93	46.9	1.396
103	012/003	3	RDO	17.3	22	66	6	0.000	106	45.2	1.632
104	012/004	3	SGM	16.4	16	60	6	0.000	93	37.0	1.467
106	012/006	3	RDO	18.0	22	65	6	0.000	122	48.2	1.767
107	012/007	3	RDO	17.9	26	60	6	0.000	168	44.0	1.748

TREE CLASS TOTAL

CORDS	0.00
BOARD FEET	2,189.00
CUBIC FEET	706.18
BASAL AREA	25.05

7	001/007	1	SFM	2.4	0	19	2	0.000	0	0.3	0.031
28	003/010	2	WHA	4.1	0	26	2	0.000	0	1.0	0.092
31	003/013	2	ELM	4.2	0	34	2	0.000	0	1.4	0.096
33	003/015	2	WHO	3.5	0	20	2	0.000	0	0.6	0.067
49	005/003	4	ASP	1.8	0	16	2	0.000	0	0.1	0.018
51	006/001	1	WHA	3.8	0	22	2	0.000	0	0.7	0.079
52	006/002	1	WHO	4.7	0	24	2	0.000	0	1.2	0.120
65	007/006	1	SGM	4.5	0	42	2	0.000	0	1.9	0.110
71	008/001	7	SGM	5.0	0	40	2	0.000	0	2.3	0.136
78	008/008	7	SGM	4.6	0	42	2	0.000	0	2.0	0.115
81	008/011	7	SGM	3.8	0	38	2	0.000	0	1.3	0.079
89	010/002	4	SGM	2.2	0	16	2	0.000	0	0.2	0.026

TREE CLASS TOTAL

CORDS	0.00
BOARD FEET	0.00
CUBIC FEET	12.96
BASAL AREA	0.97

39	004/002	2	CED	12.0	14	32	5	0.000	28	10.6	0.785

TREE CLASS TOTAL

CORDS	0.00
BOARD FEET	28.00
CUBIC FEET	10.56
BASAL AREA	0.79

SAMPLE TOTALS BY TREE CLASS FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
84	009/001	5	BKS	3.1	0	24	1	0.000	0	0.5	0.052
85	009/002	5	BKS	3.9	0	28	1	0.000	0	1.0	0.083
86	009/003	5	BKS	2.5	0	20	1	0.000	0	0.3	0.034
87	009/004	5	TAM	3.6	0	32	1	0.000	0	1.0	0.071
96	011/001	6	BKS	1.8	0	16	1	0.000	0	0.1	0.018
98	011/003	6	BKS	2.8	0	20	1	0.000	0	0.4	0.043
99	011/004	6	BKS	2.1	0	16	1	0.000	0	0.2	0.024
100	011/005	6	BKS	2.7	0	22	1	0.000	0	0.4	0.040

TREE CLASS TOTAL

CORDS	0.00
BOARD FEET	0.00
CUBIC FEET	3.75
BASAL AREA	0.36

97	011/002	6	BKS	5.4	14	28	3	0.011	0	1.9	0.159

TREE CLASS TOTAL

CORDS	0.01
BOARD FEET	0.00
CUBIC FEET	1.87
BASAL AREA	0.16

SAMPLE TOTAL

CORDS	12.49
BOARD FEET	2,217.00
CUBIC FEET	1,823.52
BASAL AREA	72.42

SAMPLE TOTALS BY SPECIES FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
1	001/001	1	SFM	7.7	24	60	4	0.068	0	8.1	0.323
2	001/002	1	SFM	8.0	0	50	7	0.000	0	7.3	0.349
4	001/004	1	SFM	6.8	16	51	4	0.038	0	5.4	0.252
7	001/007	1	SFM	2.4	0	19	2	0.000	0	0.3	0.031
15	002/005	3	SFM	8.0	18	42	4	0.050	0	6.2	0.349
94	010/007	4	SFM	13.8	24	48	4	0.228	0	20.9	1.039

SPECIES TOTAL

CORDS	0.38
BOARD FEET	0.00
CUBIC FEET	48.23
BASAL AREA	2.34

3	001/003	1	BSW	13.0	22	65	6	0.000	59	25.2	0.922
6	001/006	1	BSW	10.5	40	62	4	0.190	0	15.7	0.601
63	007/004	1	BSW	11.8	26	60	6	0.000	66	19.1	0.759
66	007/007	1	BSW	8.2	40	54	4	0.106	0	8.3	0.367
72	008/002	7	BSW	8.9	30	66	4	0.088	0	12.0	0.432
73	008/003	7	BSW	7.5	14	48	4	0.031	0	6.2	0.307
76	008/006	7	BSW	10.6	46	72	4	0.190	0	18.5	0.613
77	008/007	7	BSW	14.0	24	63	6	0.000	96	28.3	1.069
88	010/001	4	BSW	9.1	30	52	4	0.088	0	9.9	0.452
91	010/004	4	BSW	17.1	30	66	6	0.000	148	44.2	1.595
102	012/002	3	BSW	9.1	24	54	4	0.088	0	10.2	0.452

SPECIES TOTAL

CORDS	0.78
BOARD FEET	369.00
CUBIC FEET	197.57
BASAL AREA	7.57

5	001/005	1	BUT	14.2	12	64	6	0.000	40	29.6	1.100
8	001/008	1	BUT	12.6	25	61	6	0.000	81	22.2	0.866

SPECIES TOTAL

CORDS	0.00
BOARD FEET	121.00
CUBIC FEET	51.75
BASAL AREA	1.97

SAMPLE TOTALS BY SPECIES FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT:TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
9	001/009	1	ASP	16.2	37	61	4	0.367	0	36.7	1.431
10	001/010	1	ASP	11.8	36	46	4	0.198	0	14.7	0.759
19	003/001	2	ASP	13.6	50	58	4	0.353	0	24.6	1.009
20	003/002	2	ASP	14.2	46	58	4	0.311	0	26.8	1.100
21	003/003	2	ASP	13.9	56	66	4	0.400	0	29.2	1.054
22	003/004	2	ASP	15.0	52	60	4	0.410	0	30.9	1.227
23	003/005	2	ASP	11.4	52	64	4	0.221	0	19.1	0.709
24	003/006	2	ASP	13.2	48	60	4	0.305	0	23.9	0.950
25	003/007	2	ASP	13.2	54	64	4	0.305	0	25.5	0.950
26	003/008	2	ASP	18.5	54	66	4	0.680	0	51.7	1.867
27	003/009	2	ASP	15.5	52	64	4	0.470	0	35.2	1.310
29	003/011	2	ASP	14.9	56	66	4	0.460	0	33.6	1.211
30	003/012	2	ASP	15.7	56	66	4	0.530	0	37.3	1.344
32	003/014	2	ASP	14.1	58	70	4	0.400	0	31.9	1.084
34	003/016	2	ASP	18.5	54	62	4	0.680	0	48.6	1.867
35	003/017	2	ASP	18.2	56	66	4	0.650	0	50.1	1.807
36	003/018	2	ASP	17.0	56	64	4	0.590	0	42.4	1.576
37	003/019	2	ASP	19.7	42	64	4	0.680	0	56.9	2.117
47	005/001	4	ASP	11.9	39	50	4	0.198	0	16.2	0.772
48	005/002	4	ASP	10.9	39	50	4	0.165	0	13.6	0.648
49	005/003	4	ASP	1.8	0	16	2	0.000	0	0.1	0.018
56	006/006	1	ASP	6.3	20	42	4	0.028	0	3.8	0.216
93	010/006	4	ASP	15.4	56	78	4	0.460	0	42.4	1.294

SPECIES TOTAL

CORDS	8.86
BOARD FEET	0.00
CUBIC FEET	695.17
BASAL AREA	26.32

11	002/001	3	WHB	7.0	17	46	4	0.038	0	5.2	0.267
12	002/002	3	WHB	6.4	17	46	4	0.028	0	4.3	0.223
13	002/003	3	WHB	7.3	21	46	4	0.038	0	5.6	0.291
14	002/004	3	WHB	7.2	17	46	4	0.038	0	5.5	0.283
64	007/005	1	WHB	11.1	46	66	4	0.190	0	18.6	0.672
74	008/004	7	WHB	13.2	24	66	6	0.000	81	26.3	0.950
75	008/005	7	WHB	10.8	44	60	4	0.190	0	16.0	0.636
79	008/009	7	WHB	14.6	32	75	6	0.000	137	36.6	1.163

SPECIES TOTAL

CORDS	0.52
BOARD FEET	218.00
CUBIC FEET	118.18
BASAL AREA	4.49

SAMPLE TOTALS BY SPECIES FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
16	002/006	3	WHO	9.9	23	42	4	0.082	0	9.4	0.535
18	002/008	3	WHO	8.4	16	40	4	0.050	0	6.5	0.385
33	003/015	2	WHO	3.5	0	20	2	0.000	0	0.6	0.067
52	006/002	1	WHO	4.7	0	24	2	0.000	0	1.2	0.120
53	006/003	1	WHO	8.5	22	40	4	0.065	0	6.6	0.394
58	006/008	1	WHO	5.6	10	24	4	0.017	0	1.7	0.171
59	006/009	1	WHO	8.0	34	46	4	0.087	0	6.7	0.349
92	010/005	4	WHO	13.9	32	64	6	0.000	116	28.3	1.054

SPECIES TOTAL

CORDS	0.30
BOARD FEET	116.00
CUBIC FEET	61.09
BASAL AREA	3.07

17	002/007	3	RDO	12.8	27	47	4	0.197	0	17.6	0.894
83	008/013	7	RDO	18.4	32	68	6	0.000	207	52.7	1.847
101	012/001	3	RDO	16.0	22	80	6	0.000	93	46.9	1.396
103	012/003	3	RDO	17.3	22	66	6	0.000	106	45.2	1.632
105	012/005	3	RDO	9.9	18	57	4	0.082	0	12.8	0.535
106	012/006	3	RDO	18.0	22	65	6	0.000	122	48.2	1.767
107	012/007	3	RDO	17.9	26	60	6	0.000	168	44.0	1.748

SPECIES TOTAL

CORDS	0.28
BOARD FEET	696.00
CUBIC FEET	267.62
BASAL AREA	9.82

28	003/010	2	WHA	4.1	0	26	2	0.000	0	1.0	0.092
50	005/004	4	WHA	5.9	14	34	4	0.017	0	2.7	0.190
51	006/001	1	WHA	3.8	0	22	2	0.000	0	0.7	0.079
54	006/004	1	WHA	5.7	20	36	4	0.028	0	2.7	0.177
55	006/005	1	WHA	7.4	20	42	4	0.038	0	5.3	0.299
57	006/007	1	WHA	7.3	18	50	4	0.038	0	6.1	0.291

SPECIES TOTAL

CORDS	0.12
BOARD FEET	0.00
CUBIC FEET	18.49
BASAL AREA	1.13

SAMPLE TOTALS BY SPECIES FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: NUMBER	TREE	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
31	003/013	2		ELM	4.2	0	34	2	0.000	0	1.4	0.096
38	004/001	2		ELM	6.0	14	34	4	0.017	0	2.8	0.196

SPECIES TOTAL

CORDS	0.02
BOARD FEET	0.00
CUBIC FEET	4.18
BASAL AREA	0.29

39	004/002	2		CED	12.0	14	32	5	0.000	28	10.6	0.785

SPECIES TOTAL

CORDS	0.00
BOARD FEET	28.00
CUBIC FEET	10.56
BASAL AREA	0.79

40	004/003	2		BLA	9.8	40	62	4	0.160	0	13.6	0.524
41	004/004	2		BLA	14.9	0	24	7	0.000	0	12.2	1.211
42	004/005	2		BLA	6.7	30	54	4	0.053	0	5.6	0.245
43	004/006	2		BLA	11.5	30	42	4	0.165	0	12.7	0.721
44	004/007	2		BLA	7.1	30	54	4	0.053	0	6.2	0.275
45	004/008	2		BLA	6.3	30	54	4	0.040	0	4.9	0.216
46	004/009	2		BLA	11.6	20	62	6	0.000	48	19.1	0.734

SPECIES TOTAL

CORDS	0.47
BOARD FEET	48.00
CUBIC FEET	74.38
BASAL AREA	3.93

60	007/001	1		SGM	10.0	40	65	4	0.160	0	14.9	0.545
61	007/002	1		SGM	9.1	26	52	4	0.088	0	9.9	0.452
62	007/003	1		SGM	10.8	38	56	4	0.165	0	15.0	0.636
65	007/006	1		SGM	4.5	0	42	2	0.000	0	1.9	0.110
67	007/008	1		SGM	6.1	22	47	4	0.028	0	4.0	0.203
68	007/009	1		SGM	11.3	40	57	4	0.190	0	16.7	0.696
69	007/010	1		SGM	16.0	36	70	6	0.000	158	41.1	1.396
70	007/011	1		SGM	15.9	36	72	6	0.000	158	41.7	1.379
71	008/001	7		SGM	5.0	0	40	2	0.000	0	2.3	0.136

SAMPLE TOTALS BY SPECIES FOR RICE LAKE NATIONAL WILDLIFE REFUGE

LINE NO	PLOT: TREE NUMBER	TYPE	SPP	DBH	MERCH HEIGHTS	TOTAL HEIGHTS	TREE TYPE	CORDS	TREE VOLUMES BD FT	CU FT	B A
78	008/008	7	SGM	4.6	0	42	2	0.000	0	2.0	0.115
80	008/010	7	SGM	8.2	24	46	4	0.068	0	7.1	0.367
81	008/011	7	SGM	3.8	0	38	2	0.000	0	1.3	0.079
82	008/012	7	SGM	5.6	16	44	4	0.028	0	3.2	0.171
89	010/002	4	SGM	2.2	0	16	2	0.000	0	0.2	0.026
90	010/003	4	SGM	6.2	10	26	4	0.017	0	2.3	0.210
95	010/008	4	SGM	20.1	26	76	6	0.000	212	70.3	2.204
104	012/004	3	SGM	16.4	16	60	6	0.000	93	37.0	1.467

SPECIES TOTAL

CORDS	0.74
BOARD FEET	621.00
CUBIC FEET	270.69
BASAL AREA	10.19

84	009/001	5	BKS	3.1	0	24	1	0.000	0	0.5	0.052
85	009/002	5	BKS	3.9	0	28	1	0.000	0	1.0	0.083
86	009/003	5	BKS	2.5	0	20	1	0.000	0	0.3	0.034
96	011/001	6	BKS	1.8	0	16	1	0.000	0	0.1	0.018
97	011/002	6	BKS	5.4	14	28	3	0.011	0	1.9	0.159
98	011/003	6	BKS	2.8	0	20	1	0.000	0	0.4	0.043
99	011/004	6	BKS	2.1	0	16	1	0.000	0	0.2	0.024
100	011/005	6	BKS	2.7	0	22	1	0.000	0	0.4	0.040

SPECIES TOTAL

CORDS	0.01
BOARD FEET	0.00
CUBIC FEET	4.67
BASAL AREA	0.45

87	009/004	5	TAM	3.6	0	32	1	0.000	0	1.0	0.071

SPECIES TOTAL

CORDS	0.00
BOARD FEET	0.00
CUBIC FEET	0.95
BASAL AREA	0.07

SAMPLE TOTAL

CORDS	12.49
BOARD FEET	2,217.00
CUBIC FEET	1,823.52
BASAL AREA	72.42

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
MIXED HARDWOODS

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
SFM	489	0	97,420	4,407
BSW	1,365	576,250	314,760	12,213
BUT	0	557,810	238,551	9,062
ASP	2,734	0	254,302	11,098
WHB	876	0	85,875	3,098
WHO	779	0	75,156	4,770
WHA	479	0	68,133	3,897
SGM	2,909	1,456,760	668,870	24,978

SAMPLE TOTALS	2.09	562	15.95	391.12
PER ACRE TOTALS	6.96	1,873	53.16	1,303.74
TYPE TOTALS	9,630	2,590,820	1,803,066	73,522

NUMBER OF PLOTS IN TYPE	3
ACRES OF TYPE	1,383

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
LOWLAND HARDWOODS

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
ASP	53,381	0	4,070,274	151,875
WHO	0	0	4,024	479
WHA	0	0	7,179	657
ELM	122	0	29,955	2,098
CED	0	200,760	75,685	5,631
BLA	3,377	344,160	533,298	28,151

SAMPLE TOTALS	7.93	76	26.34	658.36
PER ACRE TOTALS	39.67	380	131.72	3,291.78
TYPE TOTALS	56,880	544,920	4,720,415	188,891

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	1,434

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
OAK

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
SFM	145	0	17,826	1,011
BSW	255	0	29,655	1,308
WHB	411	0	59,514	3,080
WHO	382	0	46,016	2,662
RDO	808	1,415,655	622,086	23,078
SGM	0	269,235	107,020	4,247

SAMPLE TOTALS	0.69	582	12.22	304.70
PER ACRE TOTALS	3.46	2,910	61.11	1,523.52
TYPE TOTALS	2,000	1,684,890	882,117	35,385

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	579

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
ASPEN

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
SFM	1,285	0	117,997	5,853
BSW	496	833,980	304,704	11,532
ASP	4,638	0	407,534	15,392
WHO	0	653,660	159,617	5,938
WHA	96	0	15,278	1,070
SGM	96	1,194,620	410,248	13,747

SAMPLE TOTALS	1.17	476	9.50	251.18
PER ACRE TOTALS	5.87	2,380	47.50	1,255.88
TYPE TOTALS	6,610	2,682,260	1,415,377	53,532

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	1,127

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
BIRCH

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
BSW	754	234,240	158,548	5,906
WHB	464	531,920	192,752	6,708
RDO	0	505,080	128,680	4,506
SGM	234	0	38,625	2,119

SAMPLE TOTALS	0.60	521	7.88	212.54
PER ACRE TOTALS	5.95	5,210	78.85	2,125.43
TYPE TOTALS	1,452	1,271,240	518,605	19,239

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	244

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
TAMARAC

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
BKS	0	0	6,678	632
TAM	0	0	3,544	264
SAMPLE TOTALS	0.00	0	0.24	2.74
PER ACRE TOTALS	0.00	0	2.40	27.40
TYPE TOTALS	0	0	10,221	896

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	373

TYPE VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE
BLACK SPRUCE

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
BKS	17	0	4,460	439
SAMPLE TOTALS	0.01	0	0.28	2.88
PER ACRE TOTALS	0.11	0	2.83	28.77
TYPE TOTALS	17	0	4,460	439

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	155

GRAND TOTAL VOLUME SUMMARY

RICE LAKE NATIONAL WILDLIFE REFUGE

SPECIES	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
SFM	1,694	0	212,814	10,342
BSW	3,446	1,628,213	871,793	33,394
BUT	0	533,913	228,331	8,674
ASP	39,099	0	3,067,421	116,141
WHB	2,303	961,925	521,480	19,791
WHO	1,328	511,850	269,538	13,567
RDO	1,231	3,071,100	1,180,875	43,322
WHA	534	0	81,594	4,972
ELM	75	0	18,434	1,291
CED	0	123,550	46,577	3,466
BLA	2,078	211,800	328,198	17,324
SGM	3,283	2,740,163	1,194,427	44,977
BKS	49	0	20,596	1,998
TAM	0	0	4,192	312

SAMPLE TOTALS	12.49	2,217	72.42	1,823.52
PER ACRE TOTALS	10.41	1,848	60.35	1,519.60
GRAND TOTAL	55,121	9,782,512	8,046,271	319,570

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
RED MAPLE

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	1,106	139
6	168	0	23,837	1,113
8	521	0	95,473	4,507
14	1,006	0	92,398	4,583
SPECIES TOTALS	1,694	0	212,814	10,342

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BASSWOOD

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
8	993	0	116,836	4,878
10	2,453	0	239,591	9,343
12	0	551,563	195,481	7,418
14	0	423,600	124,812	4,717
18	0	653,050	195,073	7,037
SPECIES TOTALS	3,446	1,628,213	871,793	33,394

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BUTTERNUT

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
12	0	357,413	97,889	3,821
14	0	176,500	130,442	4,853
SPECIES TOTALS	0	533,913	228,331	8,674

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
ASPEN

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	524	78
6	124	0	16,850	955
10	728	0	60,046	2,859
12	2,723	0	220,383	9,887
14	12,990	0	999,165	37,883
16	10,665	0	855,611	30,693
18	8,869	0	663,785	24,445
20	3,001	0	251,058	9,340
SPECIES TOTALS	39,099	0	3,067,420	116,141

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
WHITE BIRCH

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
6	291	0	41,828	2,165
8	335	0	48,882	2,530
10	838	0	70,739	2,807
12	838	0	82,196	2,965
14	0	961,925	277,835	9,323
SPECIES TOTALS	2,303	961,925	521,480	19,791

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
WHITE OAK

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	7,835	826
6	75	0	7,608	755
8	891	0	87,498	4,977
10	362	0	41,608	2,359
14	0	511,850	124,989	4,650
SPECIES TOTALS	1,328	511,850	269,538	13,567

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
RED OAK

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
10	362	0	56,469	2,359
12	869	0	77,836	3,943
16	0	410,363	207,010	6,161
18	0	2,660,738	839,561	30,859
SPECIES TOTALS	1,231	3,071,100	1,180,875	43,322

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
WHITE ASH

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	7,629	752
6	199	0	23,786	1,620
8	335	0	50,180	2,600
SPECIES TOTALS	534	0	81,595	4,972

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
ELM

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	6,062	425
6	75	0	12,372	866
SPECIES TOTALS	75	0	18,434	1,291

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
CEDAR

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
12	0	123,550	46,577	3,466
SPECIES TOTALS	0	123,550	46,577	3,466

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BLACK ASH

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
6	410	0	46,166	2,036
8	234	0	27,515	1,213
10	706	0	60,187	2,311
12	728	211,800	140,472	6,421
14	0	0	53,857	5,343
SPECIES TOTALS	2,078	211,800	328,198	17,324

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
SUGAR MAPLE

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	783	116
4	0	0	33,234	1,946
6	322	0	41,727	2,575
8	300	0	31,264	1,618
10	1,822	0	175,251	7,207
12	838	0	73,569	3,073
16	0	1,804,712	528,239	18,718
20	0	935,450	310,361	9,723
SPECIES TOTALS	3,283	2,740,162	1,194,427	44,977

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BLACK SPRUCE

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	5,707	699
4	0	0	6,636	597
6	49	0	8,253	702
SPECIES TOTALS	49	0	20,596	1,998

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

SPECIES VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
TAMARAC

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	4,192	312
SPECIES TOTALS	0	0	4,192	312

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
MIXED HARDWOODS

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	1,156	145
4	0	0	17,935	1,428
6	641	0	81,276	4,702
8	1,853	0	223,739	10,933
10	2,780	0	255,280	10,301
12	2,665	949,660	536,877	21,552
14	0	184,400	136,281	5,070
16	1,692	1,456,760	550,522	19,392
TYPE TOTALS	9,630	2,590,820	1,803,066	73,522

NUMBER OF PLOTS IN TYPE	3
ACRES OF TYPE	1,383

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
LOWLAND HARDWOODS

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	21,053	1,826
6	789	0	95,120	4,715
8	380	0	44,710	1,971
10	1,147	0	97,800	3,756
12	2,768	544,920	440,552	21,148
14	21,108	0	1,711,086	70,240
16	11,400	0	823,537	30,336
18	14,412	0	1,078,604	39,722
20	4,876	0	407,951	15,177
TYPE TOTALS	56,880	544,920	4,720,415	188,891

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	1,434

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
OAK

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
6	191	0	27,443	1,420
8	510	0	68,614	3,785
10	730	0	94,003	4,403
12	570	0	51,067	2,587
16	0	538,470	242,837	8,289
18	0	1,146,420	398,153	14,901
TYPE TOTALS	2,000	1,684,890	882,117	35,385

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	579

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
ASPEN

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	1,669	248
6	192	0	28,179	2,251
10	1,426	0	132,267	6,197
12	1,116	0	91,398	4,352
14	1,285	653,660	277,614	11,791
16	2,592	0	238,785	7,289
18	0	833,980	249,119	8,987
20	0	1,194,620	396,348	12,417
TYPE TOTALS	6,610	2,682,260	1,415,377	53,532

NUMBER OF PLOTS IN TYPE	2
ACRES OF TYPE	1,127

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BIRCH

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
4	0	0	13,624	806
6	68	0	7,713	417
8	456	0	61,600	2,698
10	927	0	84,335	3,048
14	0	766,160	222,654	7,764
18	0	505,080	128,680	4,506
TYPE TOTALS	1,452	1,271,240	518,605	19,239

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	244

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
TAMARAC

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	1,068	127
4	0	0	9,153	769
TYPE TOTALS	0	0	10,221	896

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	373

TYPE VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE
BLACK SPRUCE

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	1,561	193
6	17	0	2,899	247
TYPE TOTALS	17	0	4,460	439

NUMBER OF PLOTS IN TYPE	1
ACRES OF TYPE	155

VOLUME SUMMARY
BY DIAMETER CLASSES

RICE LAKE NATIONAL WILDLIFE REFUGE

DIAMETER	CORDS	BOARD FEET	CUBIC FEET	BASAL AREA
2	0	0	8,120	1,032
4	0	0	65,589	4,858
6	1,712	0	222,426	12,787
8	3,609	0	457,648	22,325
10	7,272	0	703,891	29,245
12	5,997	1,244,325	934,402	40,994
14	13,996	2,073,875	1,803,498	71,352
16	10,665	2,215,075	1,590,859	55,572
18	8,869	3,313,788	1,698,419	62,342
20	3,001	935,450	561,419	19,063
GRAND TOTAL	55,121	9,782,512	8,046,269	319,570

TOTAL INVENTORY PLOTS	12
TOTAL INVENTORY ACRES	5,295