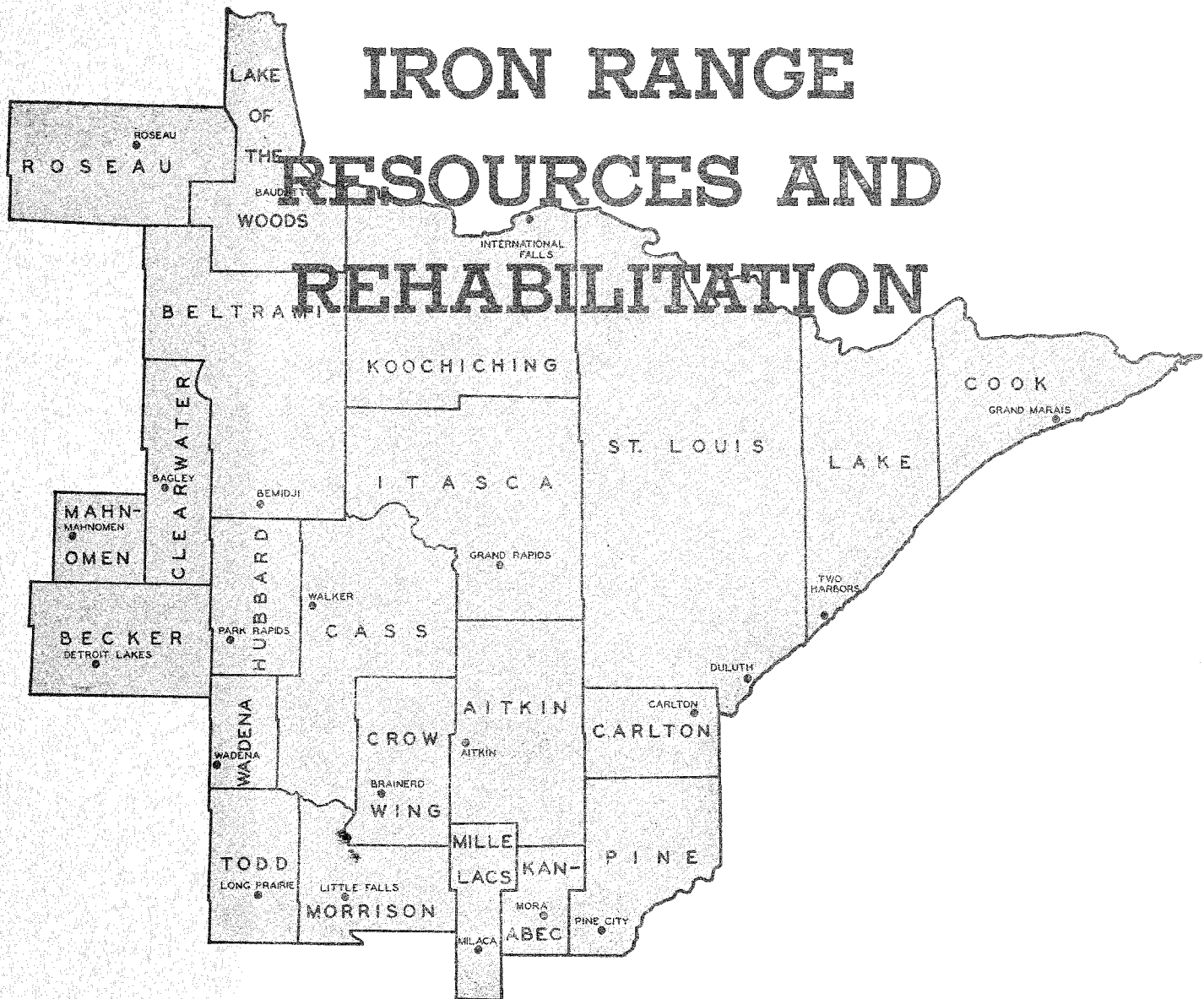


THE DEPARTMENT OF IRON RANGE RESOURCES AND REHABILITATION



STATE OF MINNESOTA



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1970/72

ENNIAL REPORT 1970-1972

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STATE OF MINNESOTA
DEPARTMENT OF
IRON RANGE RESOURCES AND REHABILITATION
206 MEA OFFICE BUILDING
55 SHERBURNE AVENUE
SAINT PAUL, MINNESOTA 55155

January 2, 1973

To the Governor and the Legislature
of the State of Minnesota:

By these presents, it is my pleasure to submit to the Governor of the State of Minnesota, the Honorable Wendell R. Anderson, and the Sixty-eighth Legislature of the State of Minnesota, this fifteenth Biennial Report of the Department of Iron Range Resources and Rehabilitation.

This report is prepared in compliance with Minnesota Statutes 1971, Section 298.22, Subdivision 2, for the period including the fiscal years of 1971 and 1972.

This report is made available to the members of the State Legislature, all State departments, and interested Federal, County and local agencies. Copies of the report are available upon request to schools, libraries, and the general public.

Respectfully submitted,

A handwritten signature in cursive script, reading "Robert J. Scuffy".

ROBERT J. SCUFFY, Commissioner

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FIFTEENTH BIENNIAL REPORT

DEPARTMENT OF IRON RANGE RESOURCES AND REHABILITATION

206 MEA Office Bldg., 55 Sherburne Ave., St. Paul, Minnesota 55155

St. Louis County Court House, Hibbing, Minnesota 55746

ROBERT J. SCUFFY, Commissioner

IRR&R COMMISSION MEMBERS

Sen. Carl A. Jensen, Chairman
Sleepy Eye, Minnesota

Sen. George F. Perpich
Chisholm, Minnesota

Rep. Howard E. Smith, Vice Chairman
Crosby, Minnesota

Rep. Sidney R. Mason
Duluth, Minnesota

Sen. Richard F. Palmer, Secretary
Duluth, Minnesota

Rep. Roger H. Scherer
Brooklyn Center, Minnesota

Commissioner Robert L. Herbst
Department of Natural Resources

IRR&R HISTORY AND ORGANIZATION

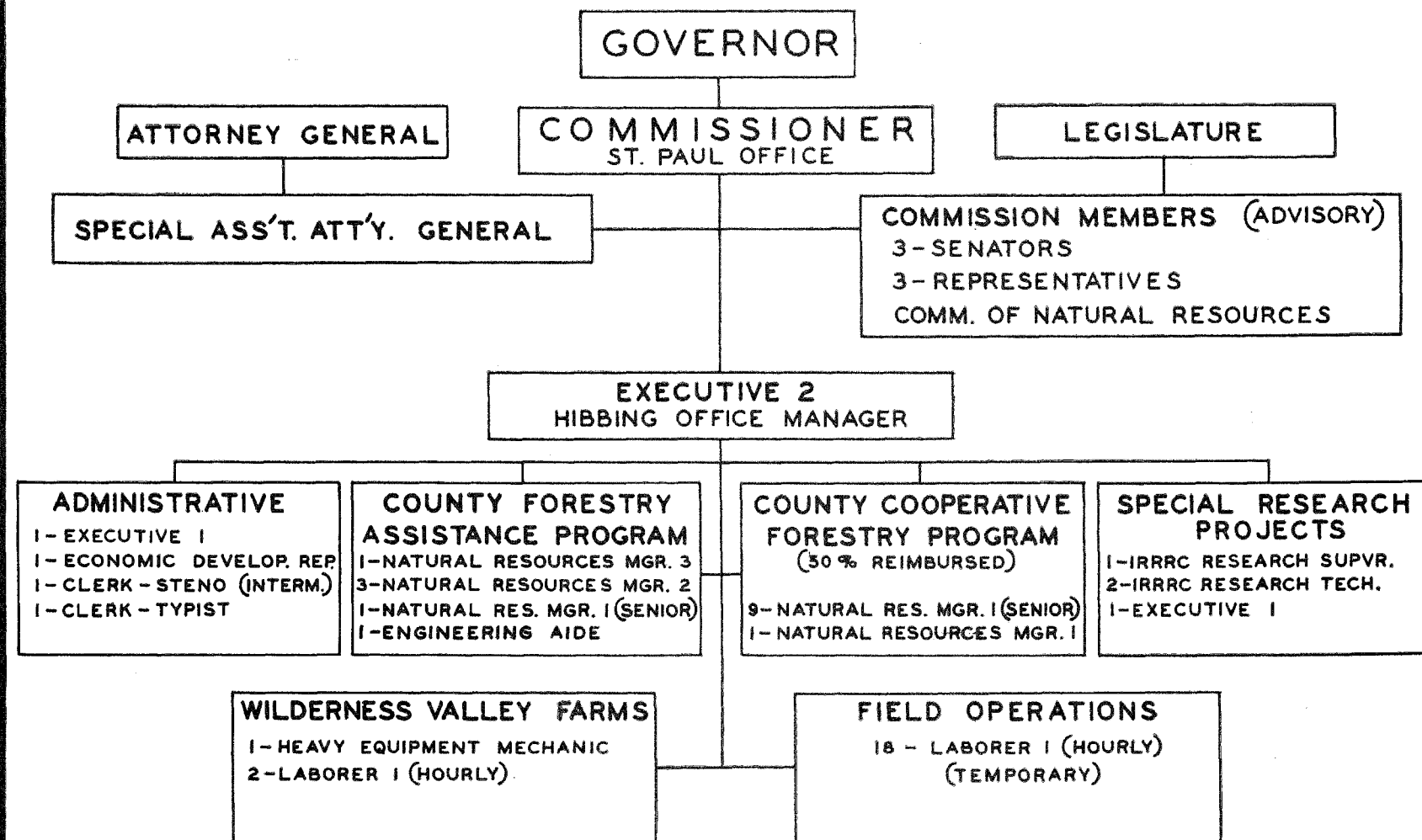
The history of the Department of Iron Range Resources and Rehabilitation has paralleled the dramatically changing social and economic history of the northern portion of the State. In 1941 the 52nd Legislature conceived a law which established the Office of the Commissioner of the Iron Range Resources and Rehabilitation. The law was enacted in recognition of the economically depressed conditions of the area which at that time was referred to as the "cut over" area. The reference "cut over", cited the condition of the forest.

Recognizing that the human and natural resources could be revitalized through systematic development, the Legislature charged the Department of Iron Range Resources and Rehabilitation with the responsibility of developing all the resources and to provide training and rehabilitation to the citizens of any county in which the natural resources had been depleted and unemployment and distress had resulted.

The original impetus to establish a rehabilitation program for Northern Minnesota, first came from a Rehabilitation Committee formed by the Junior Chambers of Commerce of the area and was later to be carried to the Legislature, resulting in the appropriate legislation.

We recognize that although no state in the union has a richer or more romantic heritage than Minnesota, no part of the State has been more richly endowed with the abundance of natural resources, rich soil, mineral deposits, forest water and wildlife, certain conditions set in which caused the economic distress. Virgin timber had almost completely disappeared and just a few lumber mills and wood processing plants remained active. Employment in the timber and lumber industry was severely limited. The mining of iron ore did not offer as many former opportunities of employment. Technical advancement in mining had diminished labor's chances. Agricultural pursuits were borderline efforts and the national change from "family farms" to "industrial farms" was slowly eroding the future of agriculture in the area.

ORGANIZATION CHART
DEPARTMENT OF IRON RANGE RESOURCES & REHABILITATION
MINNESOTA STATUTES. SECTION 298.22



PAST IRR&R COMMISSIONERS

Herbert J. Miller, Minneapolis*	July 1, 1941 to June 30, 1942
Robert E. Wilson, Minneapolis	July 1, 1942 to May 1, 1949
Ben P. Constantine, Eveleth	May 1, 1949 to November 20, 1950
Edward G. Bayuk, Eveleth	November 21, 1950 to April 30, 1955
Kaarlo J. Otava, Mountain Iron	May 1, 1955 to January 4, 1961
Hyrom S. Sorenson, Bagley**	January 5, 1961 to February 2, 1961
A. M. DeYoannes, Virginia	February 3, 1961 to May 1, 1971

*Director from July 1, 1941 to April 18, 1942.

**Acting Commissioner.

PAST IRR&R COMMISSION MEMBERS

Senator Robert O. Ashbach, St. Paul	July 1, 1967 to June 30, 1969
Senator C. A. Dahle, Duluth	May 1, 1943 to August, 1949
Senator M. J. Galvin, Winona	May 1, 1943 to February 4, 1947
Senator K. F. Grittner, St. Paul	April 21, 1955 to April 21, 1959
Senator Carl A. Jensen, Sleepy Eye	July 1, 1969 to January 4, 1971
Senator Leo J. Lauerman, Olivia	July 1, 1959 to January 30, 1963
Senator Michael E. McGuire, Montgomery	January 30, 1963 to June 30, 1965
Senator George O'Brien, Grand Rapids	May 1, 1943 to July, 1959
Senator Benjamin Patterson, Deer River	January 30, 1963 to June 30, 1967
Senator Elmer Peterson, Hibbing	April 19, 1951 to January 30, 1963
Senator Herbert Rogers, Duluth	April 19, 1951 to July 1, 1959
Senator Chas W. Root, Minneapolis	July 1, 1959 to June 8, 1961
Senator Thos. D. Vukelich, Gilbert	April 19, 1945 to April 19, 1951
Senator Arne Wanvick, Duluth	July 1, 1965 to January 4, 1971
Senator Donald O. Wright, Minneapolis	June 8, 1961 to January 4, 1971
Representative Elmer E. Berglund, Bemidji	April 21, 1959 to April 17, 1961
Representative Luke F. Burns, Virginia	May 1, 1943 to April 19, 1945
Representative Joseph J. Daun, St. Peter	May 1, 1943 to January, 1949
Representative Emil C. Ernst, Lester Prairie	April 21, 1949 to April 21, 1955
Representative Alfred France, Duluth	January 29, 1963 to June 30, 1965
Representative Art Frick, Sr., Grand Rapids	January 29, 1963 to June 30, 1969
Representative Peter X. Fugina, Virginia	April 21, 1955 to April 17, 1961
Representative Charles L. Halsted, Brainerd	April 21, 1955 to April 21, 1959
Representative Charles L. Halsted, Brainerd	April 17, 1961 to June 30, 1967
Representative Warrens S. Moore, Duluth	April 19, 1951 to April 21, 1955
Representative Willard M. Munger, Duluth	April 21, 1959 to April 17, 1961
Representative Duane Rappana, Duluth	July 1, 1965 to January 4, 1971
Representative Chas. W. Root, Minneapolis	April 24, 1947 to April 19, 1951
Representative Loren S. Rutter, Kinney	April 17, 1961 to January 29, 1963
Representative Howard E. Smith, Crosby	July 1, 1967 to January 4, 1971
Representative Fred Schwanke, Deerwood	May 1, 1943 to April, 1955
Representative Arne C. Wanvick, Duluth	April 17, 1961 to January 29, 1963
Representative Raymond O. Wolcott, Minneapolis	July 1, 1969 to January 4, 1971
Commissioner Robert L. Herbst, Conservation*	July 20, 1966 to January 20, 1967
Commissioner Jarle Leirfallom, Conservation*	January 20, 1967 to January 4, 1971
Commissioner Wayne Olson, Conservation*	July 1, 1963 to July 19, 1966
Commissioner Clarence Prout, Conservation*	January 4, 1961 to June 30, 1963
Commissioner George A. Selke, Conservation*	May 1, 1955 to January 4, 1961
Commissioner Chester S. Wilson, Conservation*	May 1, 1943 to May 1, 1955

*Now known as Department of Natural Resources.

The Legislation

In July of 1940 the Rehabilitation Committee of the Junior Chambers of Commerce of Northeastern Minnesota published a general statement of policies and objectives. This report was delivered to the Legislators and to the Governor with the intent that corrective legislation would be forthcoming. Apparently the Committee's report made an impression on the Legislators and the Governor since it resulted in the establishment of the Department of Iron Range Resource and Rehabilitation with funds available beginning in May of 1941. The Act allowed 10% of the 50% of the iron ore occupational taxes that went into the general revenue fund to be earmarked for the Department.

In the early beginning of the Department, a complete survey of natural and human resources of the area was undertaken. When the survey was completed a program of action was outlined. This work was accomplished under the direction of the Commissioner of the Department.

It was not until the 1943 session of the Legislature that an Advisory Committee was established by law. The law provided that three members of the Senate appointed by the Committee on Committees of the Senate, three members of the House of Representatives appointed by the Speaker of the House and the Conservation Commissioner should make up the Commission. They would serve two year terms commencing in January in the year when the Legislature is in session. The responsibility of the Committee was to assist the Commissioner in his work. The Committee approves or disapproves appropriations made by the Commissioner.

The basic law setting up the powers and duties of the Commissioner provides that: "When the Commissioner shall determine that distress and unemployment exists or may exist in the future in any county by reason of the removal of natural resources or a possible limited use thereof in the future and the decrease in employment resulting therefrom, now or hereafter, he may use such amounts of the appropriation made to him in this section as he may determine to be necessary and proper in the development of the remaining resources of said county and in the vocational training and rehabilitation of its residents."

The original law permitted a wide latitude for the function of the office of Iron Range Resources and Rehabilitation. Since 1943, Attorney General opinions have pinpointed the type of projects that the agency may initiate. Generally the projects

must be something new or in the form of research in the development of Minnesota's resources.

In 1957 the Legislature amended the original act by adding some new language which allowed the Commissioner to convey real estate. Prior to this legislation, conveyance of title was required by specific enactment of the Legislature. This permissive legislation resulted in more efficient development procedures.

In 1961 the Legislature established a revolving fund for the Department. The intent of this fund was to make available loan money to help promote business and industrial projects. However, at this time the budget of the Department was beginning to diminish. The slide downward in receipts continued to the low point which is presently true.

Paralleling the history of the IRR&R were the interesting changes that had taken place in the economic social conditions of the area which the Commission was dedicated to assist. Shortly after the formation of the Department, demand for iron ore during World War II caused mining employment to reach new heights. Several of the mines that had been closed were reopened and the demand for manpower became acute. The impact of this revitalized mining industry had a positive effect on the economy of the entire area.

With the economy rising, the reason for the existence of the Commission could have been brought to question. However, twenty years later, in the early 1960's, the dire economic conditions of the area were comparable, if not worse, than those experienced in the early 1940's. The boom period had lasted not only through the war years but also for the period up to the Korean War where the boom was renewed.

During the period from 1949 to 1960 receipts to IRR&R were over the million dollar mark. This allowed for good development and improvement of economic conditions. However, the economic condition of the area during the high income years of IRR&R did not require improvement. Employment was high and the citizens were satisfied. Paradoxically, when the demand for high grade iron ores began to decrease and employment became a problem, the funds for IRR&R decreased and the demand for development increased. A new method was employed in the 196th Legislature to overcome this paradoxical situation. The establishment of a "revolving fund" was the means to provide funding in time of low receipts and high demand. Time has shown that this measure was not sufficient.

Taconite & Occupational Tax Receipts & Funds Transferred to University of Minnesota

Fiscal Year	Taconite Prod. Tax	Occupational Tax	University of Minnesota Legislative Transfer to Mineral Resources Research Center
1941-42	—	\$ 159,680.50	\$ —
1942-43	—	419,981.34	—
1943-44	—	411,622.60	22,000
1944-45	—	335,490.76	22,000
1945-46	—	316,799.53	50,000
1946-47	—	313,723.85	50,000
1947-48	—	318,620.65	60,000
1948-49	—	1,071,179.89	60,000
1949-50	—	651,873.36	75,000
1950-51	—	855,568.32	75,000
1951-52	—	1,199,834.72	80,000
1952-53	—	942,199.88	80,000
1953-54	—	1,379,095.05	83,050
1954-55	—	750,611.40	83,050
1955-56	—	1,233,214.65	87,500
1956-57	—	1,106,298.85	87,500
1957-58	—	1,314,442.06	100,000
1958-59	—	648,369.29	100,000
1959-60	—	1,300,865.62	150,000
1960-61	—	1,032,719.16	150,000
1961-62	—	652,548.38	159,000
1962-63	—	563,883.99	165,000
1963-64	—	555,749.37	190,298
1964-65	—	654,807.68	197,686
1965-66	—	784,015.37	80,000
1966-67	—	783,982.82	80,000
1967-68	—	635,161.69	150,000
1968-69	—	550,474.23	150,000
1969-70	—	560,305.03	150,000
1970-71	—	464,164.15	150,000
1971-72	\$168,887.72	364,586.72	75,000
1972-73	**337,774.00 Est.	*325,000.00 Est.	75,000
	<u>\$506,661.72</u>	<u>\$22,656,870.91</u>	<u>\$3,037,084</u>

*Exact receipts not available until June 30, 1973, determined by the occupational tax receipts based on the 1972 shipping season.

**Exact receipts not available until March 1973.

The Taconite Country

In the early 1950's as the taconite industry began to increase the economic conditions of the area began to revive. In some of the early reports of the IRR&R a discussion is held concerning the construction of an "iron powder plant" at Aurora, Minnesota. A new page in the history of the iron mining country was being written. The passage of the "Taconite Amendment" in 1964 marked the end of the experimental and pilot phase of the taconite industry and the enthusiastic entrance of the mining interests into the taconite processing market.

From the period of 1941 to 1972 the area of concern has experienced an economic situation which has been one of boom and bust. The econo-

my of the area fluctuated in proportion to the expansions and reductions of the iron mining industry. The area which is no longer called the "cut over" area is now referred to as the "taconite country". Unfortunately the area has not experienced the diversification of industry as have other parts of the nation. It is through diversification that the economy of an area is stabilized. Even with the manufacturing process of taconite as a "year round" process, no assurance for the stability of the economy of the area has been reached. The dominance of one industry subjects the area to the fluctuations of that industry's market.

The Department of Commerce through data provided by the Department of Labor considers the majority of the area to be a very depressed area which is in need of redevelopment. Unem-

ployment percentages run over 6% and as high as 14% in some counties of the area. The need for a state agency that seeks to provide new resources for development and employment is as great in 1973 as it was in 1941.

The Department of Iron Range Resources and Rehabilitation can point to several projects and developments which have resulted in benefits which have helped to stabilize the economy. Because of the helping hand of the State through the Department of IRR&R, Chun King Corporation grew into a multi-millionaire business with a high employment record. From that start, other industries have been established through the work of the original entrepreneur. An investment of funds to conduct a study of the economic and physical potentialities of the Port of Duluth have resulted in the development of a major source of employment through the shipping industry. These two historic events in which the Department of Iron Range Resources & Rehabilitation participated, are indicators of the potentialities of the agency. It is important to note that several hundred other investments and developments have been made in the area which were initiated or given vitality by the Department.

Throughout the history of the Department high investment has been made into research and development for the mining industry, the forest industry, and the infant industry of peat. As research and development of resource progress and are completed, the Department turns its attention,

responsibility, and its funding ability to other areas of importance. In the early years of the Department of Iron Range Resources & Rehabilitation emphasis was placed on agricultural research and agricultural development. Biennial Reports from later years indicate a diminishing interest in agricultural research. This trend did not mean a lack of interest in agriculture but rather it indicates the completion of the surveys of that particular industry by the Department.

The structure of the Commission has remained essentially the same from its inception in 1941 and 1943. The Commissioner appointed by the Governor is responsible to and reports to the Governor. He is advised by the Commission members in regard to the development of the projects he proposes. Such projects and proposals are based upon the information gathered and survey work completed by the several Divisions of the Department. The Divisions serve as the arms and legs of the Department and keep close contact with the local scene.

Thus the Department is an agency, within the structure of the State, which has the responsibility to overcome the economic difficulties of the area of concern with a direct line from the Office of the Governor down to the local communities. The purpose and goal of the Department is economic development through utilization of resources both natural and human, to offset economic conditions where distress and unemployment exist or may exist in the future.

IRR&R—1970-1972

This biennial report represents the 30th Anniversary of the Department of Iron Range Resources and Rehabilitation. It is interesting to note that some of the survey and development work begun in the early years of the Department have continued over these three decades. The basic areas of concern by the Department, and the areas considered to be the potential resource development areas have experienced only minor changes in the past thirty years. Investigations and resource development programs as well as surveys and studies have been conducted in the fields of timber, mining, peat, and industrial development.

In recent years the function of the Department has been threefold in particular. The emphasis has been toward on-going programs of forest oriented projects, special research projects and through industrial loans. As a functioning agency, the Department has been mindful of the purposes set forth by statutes which are to *develop the remaining resources of Northern Minnesota*, to *create new jobs*, and replace those lost through changes in the mining industry.

In the past, the appropriations to the Department included 5% of the occupation tax on iron ore. The annual budget has varied proportionately with the amount of iron ore shipped. In recent years that budget has diminished to the point when the Department was in such financial trouble that it faced the possibility of discontinuance. The Legislature in 1971 saw fit to appropriate one cent per ton of the production tax on taconite to the Department in order to continue the function. This will bring approximately \$360,000.00 per year in new revenue to the Department.

During these lean years the Department has been quite successful in maintaining its function. Forest oriented projects are carried on on a cooperative basis with various counties. Millions of dollars are generated to the economy of Northern Minnesota as a result of the forestry resources research which are in turn developed and utilized by the forest products industry. The Department funds have been made available for new industry or the expansion of existing industry on a loan basis. Many firms in Northern Minnesota have received their original financing from the Department. These firms employ over 2,000 employees and generate in excess of over 4 million dollars of payroll. In addition there is the normal economic spin-off from industry which has added considerably to the economic vitality of the area.

This report shows that during the biennium the divisions of the Department, namely the Division of Forestry, Special Research Projects Division and the Division of Administration which handles the cooperative projects with private industry, continue to add substantially to the economy of the area.

Research programs conducted by the Division of Forestry continue to be concerned with the availability of forest land and the management of forest land. The importance of timber industry to the economy of the area is pointed out in this report by a *representative value step up* which shows the dollar value growth from the tree on the stump to the finished product. This demonstration indicates the high source of revenue and the viability of that industry.

The Department's participation, through the Division of Forestry, in important recent projects such as the Voyageurs National Park land appraisal and component studies for total forest management indicate the emphasis placed upon long range planning and economically stable programs.

The accompanying charts and schedules show the high investment the Department has made in mining and mineral research. Most of this research has been carried on through the University of Minnesota. As the taconite industry matures and research becomes less necessary, proportionately the funds to the research projects have diminished and have been redirected toward new areas of concern.

Considerable emphasis, through the Division of Special Research, has been placed upon peat research programs. Northern Minnesota contains one of the largest peat deposits in the world. This natural resource has not been utilized nor has its potential been fully developed. Some of the most significant research has been directed toward the use of peat as a catalyst in waste water filtration and treatment. In cooperation with the University of Minnesota and other agencies, the Division of Special Research Projects has developed several methods of utilizing peat for pollution control. In keeping with the need to discover and inventory the natural resources of the area, the Department has undertaken a complete study of the peat bog reserves in the area. To work rationally toward development of programs within the area of concern, it is necessary to know the land ownership. For this reason the Department has provided land

ownership maps for each of the several counties in the area.

Two new programs were undertaken during the biennium. The first program was the "abandoned vehicle program" which is a cooperative program between the Department and the Minnesota Pollution Control Agency. The purpose of that program is to effect the removal of abandoned vehicles from the area. A second and similar program has been the "building demolition program" which utilized the legislation provided through the 1971 Legislature, to remove unsightly and dilapidated buildings. This program has met with considerable success and public support.

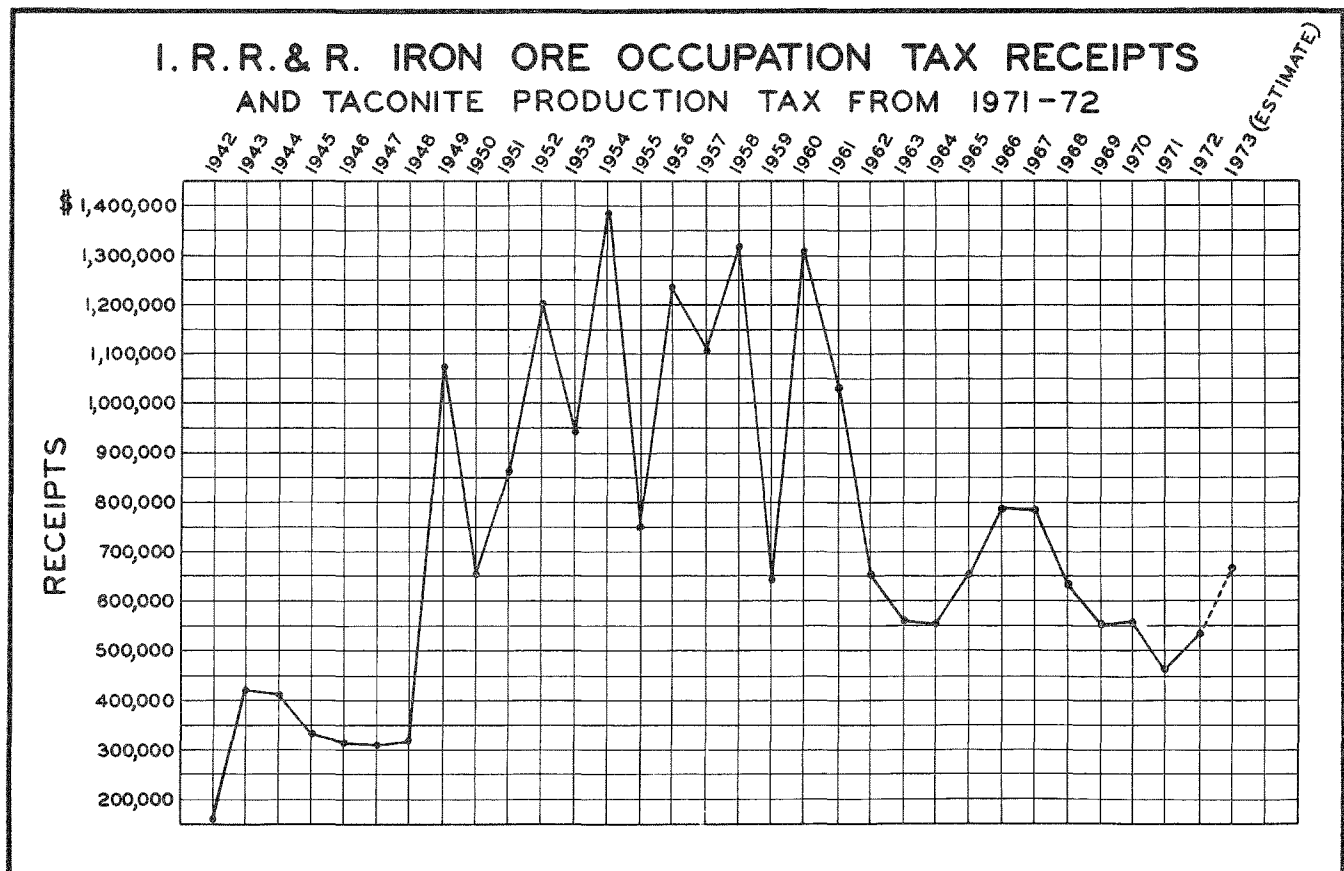
A significant cooperative effort between the Department and several Federal agencies has been the Iron Range Interpretative Program. Although this program is yet in its planning stage it is expected that during the coming biennium the program will be developed to a significant extent.

Recognizing that, too often, programs that are initiated have a tendency to go on endlessly, the Department has taken into consideration the necessity of discontinuing some programs and has consequently phased out some programs as they

ended with the fiscal year 1971. In most cases these programs were cooperative programs having a Federal input.

Finally, and probably most significantly, the Department has continued the policy of assisting private industry by entering into lease/purchase agreements with private parties. Consideration of a departure from this practice would be in the form of providing direct loans to private businesses at an interest rate which would be set by the Commission. The loans would be fully secured and made in a businesslike manner. Although some questions concerning the constitutionality of making loans of this nature remains, it seems that the intent of the Legislature was to allow the Commissioner the use of the Department's resources "as he may determine to be necessary and proper in the development of the remaining resources." The Department will continue to seek to determine the validity of such a practice.

In keeping with the above quoted responsibility of the Commissioner, the question was raised during the biennium whether or not the Department should participate in projects affecting the tourist industry. Tourism is a recognized industry in the



United States and since the area of concern lends itself to attracting tourists into the area, it is the opinion of the Attorney General's office that tourism is a resource which may be developed through the efforts of the Department.

A question that remains unresolved during the biennium is the question of whether or not the intent of the legislation, which created the Department, should be interpreted as to include taxation from taconite. Minnesota Statute 298.22 states that the Department is funded on the basis of 5% of occupation taxes on the *business of mining or producing iron ore*. Since taconite is a mined and produced iron ore the legislation should apply to taxation on that product. However, the Department has not received the benefit of taxation on taconite. In order that funding might be continued for the Department and give the Department economic viability it will be necessary that clarification of this unresolved question be accomplished through appropriate legislation in the 1973 session of the Legislature. When this is accomplished the benefit to the Department and consequently to the depressed areas of Northern Minnesota will be realized.

The paradoxical situation of declining funds to assist a declined economy, both which are caused by the same force, needs to be resolved through appropriate legislation. Each year taconite shipments rise and natural ore shipments decline. If the Department is going to continue to work toward the purpose and goal of the original legis-

lation, then, it is necessary that this paradoxical situation be made straight.

The benefit through the work of the Department to the categories of human resource, economic development and environment development cannot be over emphasized. Perusal of this report will indicate emphatically that the functional nature of the Department serves to uplift the human resource; to cause economic vitality through development; provide a better place to live through the conservation of the environment; all accomplished by developing programs that are based upon significant research carried on by the divisions of the Department.

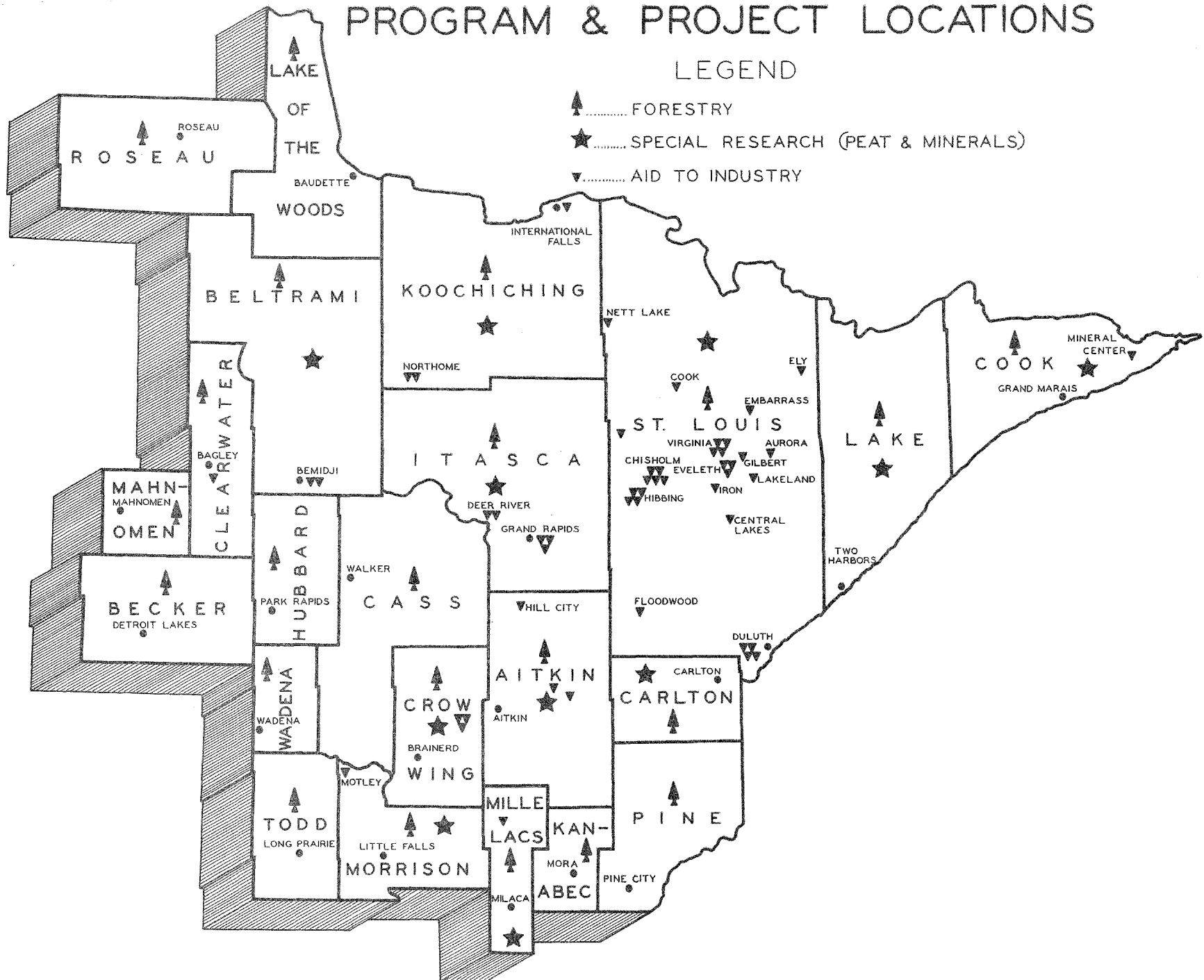
The map which illustrates the location of the several projects of the Department, both past and present, indicates the widespread activity of the Department. It is the intention, that this type of activity will continue and be expanded to more fully utilize the resources of the area. Continued emphasis will be given to the Division of Forestry and Special Research Projects to provide for further identification of the resources available and to set priorities for their development.

Particular emphasis will be given to providing methods of diversification of the industries in the area and to overcome the myopic focus of industry which has characterized the area for so many decades. The Department will continue to seek to revitalize the timber and lumber industry and to find methods to cause the peat industry to become a significant economic factor in the life of the area.

PROGRAM & PROJECT LOCATIONS

LEGEND

- ▲..... FORESTRY
- ★..... SPECIAL RESEARCH (PEAT & MINERALS)
- ▼..... AID TO INDUSTRY



DIVISION OF FORESTRY

FORESTRY

Minnesota's Third Largest Industry

To identify forestry as the third largest industry in the State, is in contrast to the fact that the timber industry, which was financed during the early logging days by large organizations, has diminished. As the large stands of White and Norway Pine disappeared, the large companies moved west to virgin timber regions. Shifting forest industries and the disregard for the permanent productivity of the forest lead to the downfall of the industry in Northern Minnesota.

During recent years, timber operations have begun to increase, particularly in the paper pulp category of the industry. Although the farm lot logger and portable saw mill operator continue to exist, they do not make a significant impact upon the economy of the area. New logging operations such as Rajala Lumber Company at Deer River and other similar operations have turned the economic condition of the industry from one that was declining to one that is increasing with great potential.

The need to continue to promote this industry is borne out by the fact that the State has 19 million acres of forested lands. Of this large acreage, 17.1 million are commercial forest lands and a little less than 2 million acres are non-commercial. The magnitude of the resource is borne out by the fact that, in the area of concern, some districts have as much as 87.8% of the land in forest. Thirty years ago the area was referred to as the "cut over" area. The reference was made based on the fact that the large stands of White and Norway Pine had diminished to practically nothing, hence, "cut over". The second growth timber has taken hold and through programs of reforestation the potential continues to enlarge. In the Lake Superior district of the area 84.5% of the land is forested. In the Rainy River district 87.8% of the land is forested. The Central Pine district has 72.2% of forest cover and the highly agricultural areas of the Southeastern district and Western district have 20.2% and 6.7% covered by forest, respectively.

Contrary to popular belief, the majority of forest land is privately owned. Forty-four percent of the forest land area is owned by farmers, the forest industry and other private groups and individuals. Seventeen percent of the land is owned by Federal agencies or Federally controlled agen-

cies, 19% by the State which includes School Memorial forests and swamp areas and 20% of the land area considered as forest land is county tax forfeited land. About 7.6 million acres are privately owned and can be put into productive use. This does not rule out the remaining portion of the forest land from which the stumpage can be sold.

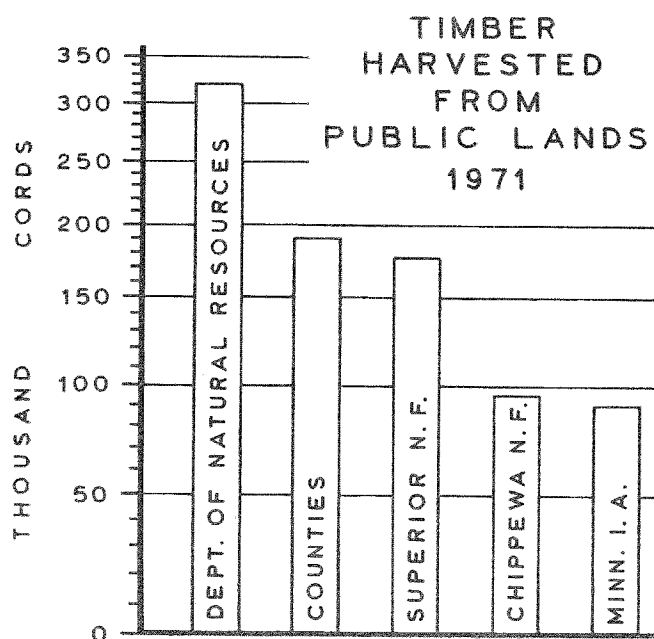


Timber harvested from public lands — modified shelter woodcutting method. Remaining trees will be cut after planted seedlings are established.

Forest Production

Minnesota forest production (1970-estimated) produced 1½ million cords and 164 million board feet of lumber. Pulpwood production led with 1.2 million cords and miscellaneous production such as posts, poles and fuel wood produced 338,000 cords. In an area that was once considered a "cut over" area and consequently barren of productive timber it is significant that in 1970 164 million board feet of lumber logs and bolts found their way to the sawmills and processing plants. The estimated primary process value of the 1970 production shows a total of \$369,668,860. Of this amount \$40.4 million was production processed from tax forfeited land.

In the early 1940's when the counties recognized that there was need to manage their forests and establish better land use policies of tax forfeited land, the Department gave financial and technical support to encourage the counties to make appropriate changes. By 1970, 181,000 cords



of wood had been cut from tax forfeited land. This represented 11.2% of the total production of all forest lands in Minnesota. The counties realized a return from stumpage payments of \$306,739.00 and in 1971 returns to the counties had increased to \$438,188.00.

The dollar figures began to indicate the significant resource that the area holds in the forested lands. It shows that through proper management an economic factor of considerable impact can be made to play in the vitality of Northern Minnesota.

In contrast to the economic ability of the forest industry to provide employment and the resulting economic spin-off, is concern of the conservationists and preservationists over the so-called destruction of the environment. The clear cutting of the past resulted in erosive conditions and the danger of fire. In recent years conservationists have pleaded for the wise use of the natural resources as it affects the total environment of the area.

The research conducted and provided through the Forestry Division has provided methods to protect the environment and to make wise use of the resource. Without the Department's continually studious program of research and reforestation the environment could be in considerable danger. If the public cry concerning the need to preserve forever the natural beauty of the forestlands were to be the prevailing voice in the industry the economic benefit to the area would also be lost. The work of the Department and other

agencies stand as the mediating factors providing wise use of the resource to build the economy and simultaneously preserve the environment.

Economic Factor

In the preceding section we have indicated the significant economic impact made in the area through the utilization of the timber resource. The economic benefit has not only been to the private industry and consequently to the persons employed by that industry but also to the counties from which the stumpage has been purchased. A still more significant consequence is the economic benefit of the secondary processing of the total production.

The primary process value of the 1970 production was approximately \$370,000,000. When the timber has been processed into finished products it is estimated that the total production represents a value in excess of *one-half billion dollars*. To further illustrate this economic impact this *representative value step-up* shows that a cord of wood if processed to paper is multiplied 100 times. With the nation consuming an estimated 14 trees per individual per year and that need is multiplied by 100 (representing the increase in value from stump to completed product) then we can begin to realize the magnitude of the economic impact that the industry could have in the area.

Representative Value Step Up

1 cord pulpwood — Average value of wood and/or products

On the stump	\$ 2.00
On the car	\$ 18.00
At the mill	\$ 24.00
Processed to paper	\$200.00 Plus

In addition to significant national and state economic impact is the more important factor that people are given productive employment in the forest industry. Estimated employment in the wood processing and allied industries is conservatively set at 30,000 employees in Minnesota. Wood suppliers both full and part time equal 9,000 employees, paper and pulp mill workers is estimated at 10,000 employees and other wood workers at 2,000. These people are employed directly in the wood industry. The allied industries employ approximately an additional 9,000 persons. In 1969 in the forest lands in Minnesota the Federal government has employed 6.0 field men per 100,000 acres, the Minnesota Division of Lands and Forestry employs 3.4 field men and the County Tax

Forfeited Land Departments employ 1.8 field men for the same acreage. In 1971 the county field personnel represented 391½ man years in service employed in the field and an additional 9 man years were contributed by the IRR&R. Fifty percent of the salaries paid to the employees in the County Cooperative Forestry Program was reimbursed to the State by the counties.

The expansion of the timber industry can potentially be doubled within the coming decade through good management. Continued employment of the facilities of the Forestry Division both in research and technical assistance will hasten the day of doubling the personnel and quadrupling the economic impact of the industry.

Less recognized value factors of the forest and forest industry have been of particular concern to the public in recent years. Pure water, which rapidly is becoming a scarce commodity, is a product of the forest. An estimated 13 million acre feet of water or approximately 77% of the State's total annual runoff comes from the forest lands. The production and quality of the water are dependent upon proper forest management. Also, growing forests provide one of the necessary ingredients to the delicate balance needed to maintain life. The forests absorb carbon dioxide and release oxygen. If this balance is upset through ravaging of the environment, human life is en-



Boring tree with increment borer to determine age of spruce tree.



Inspection of growth rate. Norway Pine plantation in Clearwater County.

dangered. To a population seeking to escape from the turmoil of urban living, the forest offers an opportunity to enjoy natural beauty. Several million visitors are attracted to the National, State and County forests in Minnesota each year. They come to enjoy the beauty and to observe the flora and fauna. Our forest land supports substantial deer and grouse populations. The area lands provide an important share of the hunting opportunities offered in the State of Minnesota.

The monetary return from well-managed forests can be measured. The aesthetic quality of the natural beauty of the forests and the conservation of the environment for future generations is of such great value that there is no way to measure it.

County Cooperative Forestry Programs

The economic and aesthetic values of the forests have been pointed out in the previous section. Of particular significance are the benefits that have been derived to counties through the Forestry Division of the Department. During the biennium the Department assisted 10 counties in the management of tax forfeited lands. In addition to these counties, assistance was given to 4 other counties as required. Ten men were assigned from the Division to assist the counties of Aitkin, Becker, Beltrami, Cass, Clearwater, Crow Wing, Hubbard, Itasca, Lake and St. Louis. One-half of



the salaries of these men was paid by the Department. The men are coordinated and assisted by the Division of Forestry at the office in Hibbing, Minnesota.

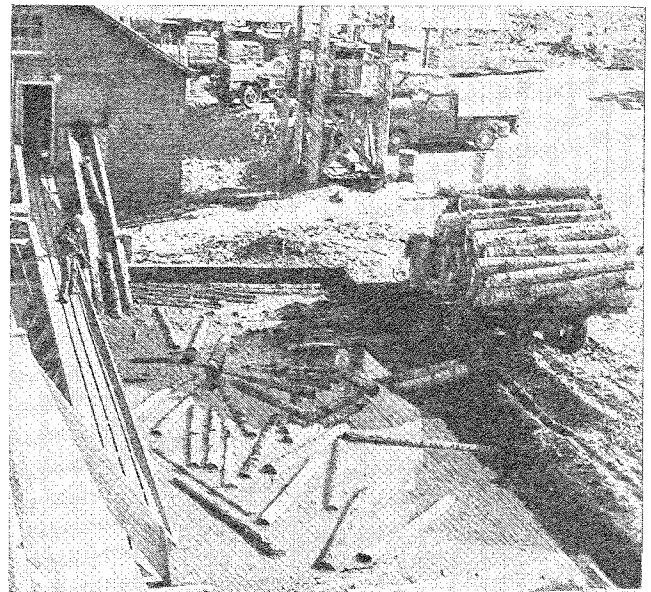
The men are Natural Resources Managers and their work covers a wide range of duties. As technical advisers they encourage the proper use and management of water, timber, and land. Charged with the management of a renewable resource, the staff men were involved in the management of just under 3 million acres of tax forfeited lands. They provided services which included timber management, reforestation, proper cutting methods, marketing of timber, scaling, timber stand improvement, timber inventory, timber sales, inventory maintenance and watershed management. In the area of recreation they assisted in development and maintenance of campgrounds, parks, lakeshore leases, hunting cabin leases, snowmobile trails and public access areas. A program of *conservation education* was conducted at Long Lake Conservation Center in Aitkin County and a similar program has been proposed for Deep Lake Park in Cass County.

Forest Inventory

A new approach to timber inventory on a county basis was started in the last biennium. This system which is similar to the one used by the National Forest and by the State of Michigan is based on aerial photo interpretations with ground checks. The inventory information is placed on McBee cards and mapped at 4" to the mile by townships. Using this method, timber inventory on all tax forfeited land in Hubbard

County was undertaken and nears completion. Completion will be realized when the necessary mapping has been accomplished. Each year an update of the inventories is conducted by cruising and adding new forfeitures and also by deleting land sales. A timber inventory is a valuable tool in the management of timber lands but unless they are maintained they lose their value.

In the proper conduct of any business it is necessary to know your source of raw materials and the location of it before you can properly manage the material and consequently your business. To give assistance to the counties and to the timber industry the Department has placed emphasis upon this feature of the forestry program. Through proper inventory and forest management, it is possible to realize profitable results both to the public and to private industry as illustrated in the graft summary of expenses and income on tax forfeited lands in this report.



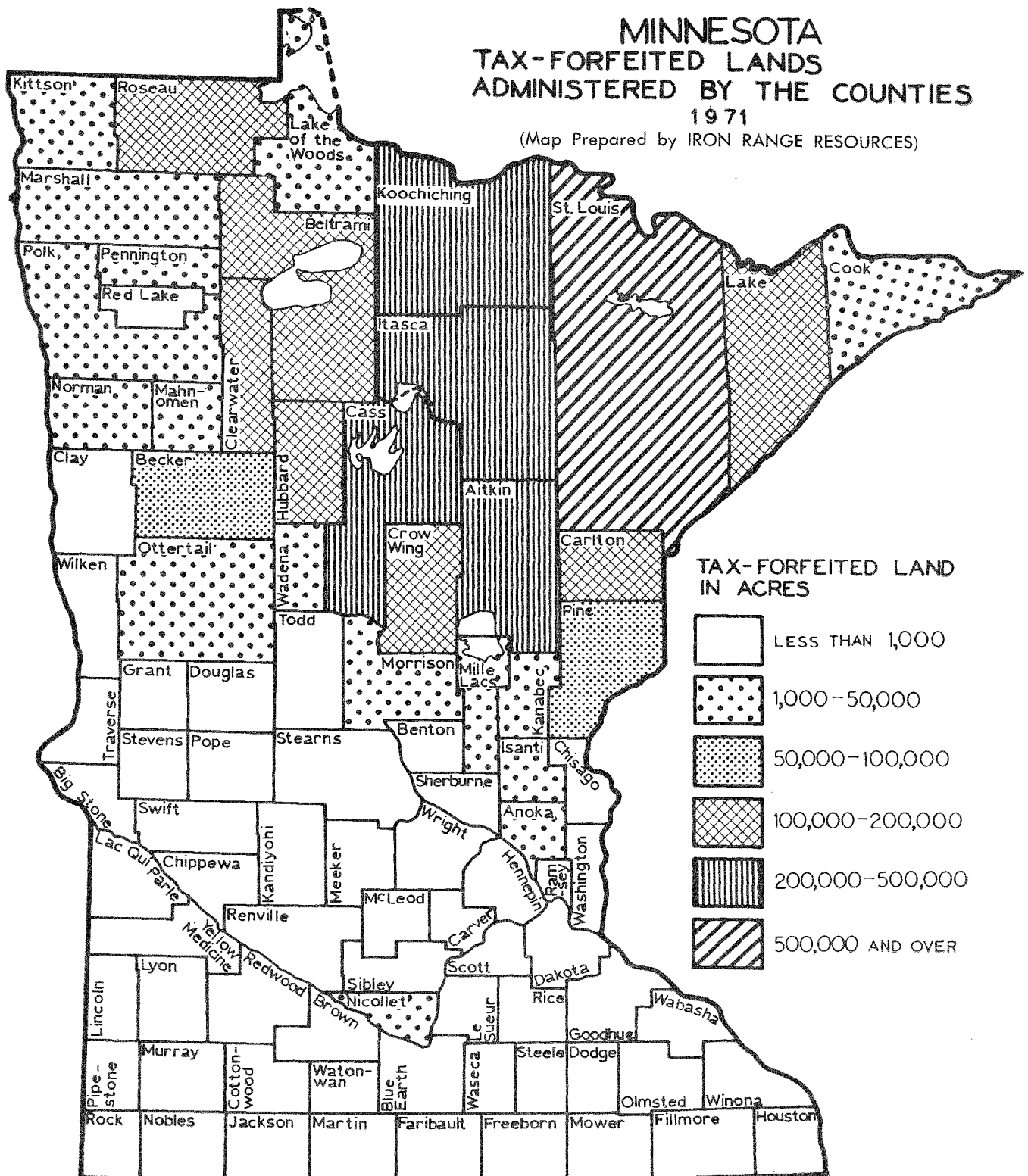
Land Ownership Maps

Land ownership maps which the Department has published since 1962 are widely used by many agencies as well as individuals. The maps are printed for 21 counties and show private and public ownership. This is a cooperative project between the Special Research and Forestry Divisions.

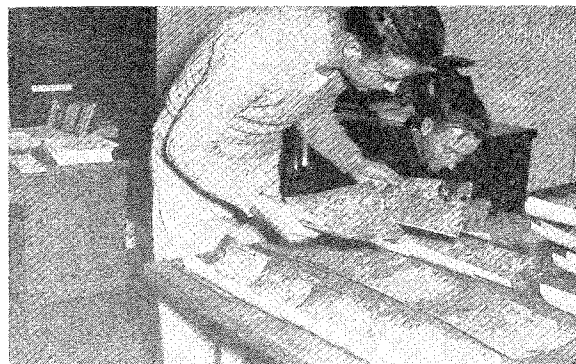
The ownership information is updated periodically by the Forestry staff for Federal and for county lands. The Forestry Division has a particular responsibility for determining tax forfeited

MINNESOTA TAX-FORFEITED LANDS ADMINISTERED BY THE COUNTIES 1971

(Map Prepared by IRON RANGE RESOURCES)



county fee, national forest, and Indian lands. (See Section on Special Research Divisions).



Matching photos preparatory to timber inventory work.

Corner Post Relocation

The purpose of this program is to find evidence of original corner posts and replace the monuments before the evidence is lost. This program is very important to the whole forestry program in the State as well as to several other programs. The Department has been instrumental in section corner post relocation programs in Itasca, St. Louis, Koochiching, Lake, Aitkin, Becker, Cook, Crow Wing and Wadena counties. The Department has provided funds for this program and considers the money well spent. When original corner post location is lost the cost of replacement is extremely high.

Table of Appropriations by Counties, 1951-1972

Aitkin (1962-69)	\$ 8,689.39
Becker (1951-55)	956.92
Cook (1958-72)	15,678.57
Crow Wing (1951-56, 1970-71) ..	3,742.00
Itasca (1951-71)	258,227.33
Koochiching (1951-72)	46,012.80
Lake (1951-69)	7,800.76
St. Louis (1951-72)	296,817.95
Wadena (1951-52)	29.50

Total through June 30, 1972.. \$637,955.22

The markers were first placed between the years 1856 and 1903 and several now require replacement. The program requires that more durable and reliable markers be placed at the original sites. This program is important to all landholders, particularly when sale or exchange of public land is involved, and in the relocation of industrial plants.

The appropriation by county for this program indicates the total dollars spent on the program. It is not possible to accurately estimate the savings from this program, the figure would run into several millions of dollars.

Additional Forestry Programs

A study of the forestry data by counties and the summary of expenses and income on tax forfeited land, indicates the main value of the survey and data collection work conducted by the Division of Forestry. The raw data and tables do not illustrate the significant benefit of the total forest management program which is the goal of the Department. In the foregoing sections we have emphasized the importance of forest management and land classification. Supportive to this primary program and spinning off the program are several minor programs.

Not the least of these programs is the public information program which is continually being conducted by the Division of Forestry of the Department. Articles by staff foresters appear regularly in State publications. Programs of conservation education have been instituted. Other programs and projects include:

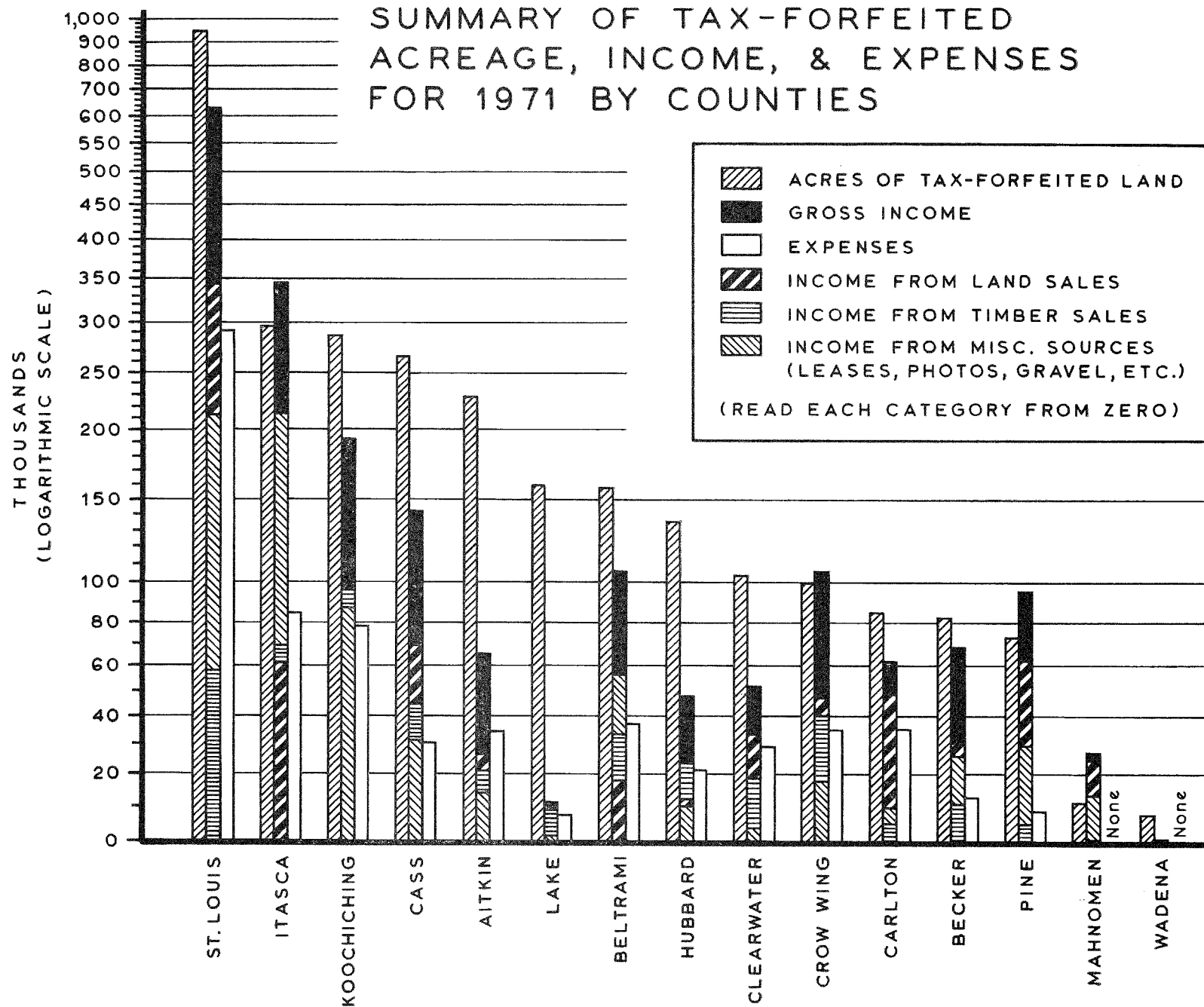
Marketing Report: A biennial bulletin giving the range and the average price paid for stumpage, wood products, and lumber has been provided since 1958 by the Division. Producers, dealers and government agencies are contributors to this report. The report entitled "Minnesota Forest Products Marketing and Pricing Review" is available for distribution to interested individuals.

Forestry Handbook: This is a field book for use by county and Department personnel. It is a compilation of tables, figures and information needed by field men to accomplish their jobs. This valuable tool can be made available to other agencies involved in similar endeavors.

Aitkin County Lakeshore Zoning: The Aitkin County Land Department requested assistance from the Forestry Division of the Department to provide information to the Aitkin County Planning Advisory Commission. The request included the preparation of zoning maps from aerial photographs and the zoning of 213 lakes into 4 categories of special protection districts, residential, commercial, and municipal. This project has been completed during the biennium through the work of the aerial photo specialists.

Aitkin County, Long Lake Conservation Center: The Department has granted monetary, physical,

SUMMARY OF TAX-FORFEITED ACREAGE, INCOME, & EXPENSES FOR 1971 BY COUNTIES



FORESTRY DATA BY COUNTIES—1971

INCOME—1971	Aitkin ¹	Becker	Beltrami	Carlton	Cass	Clear-water	Crow Wing	Hubbard	Itasca	Koochi-ching	Lake	Mahno-men	Pine	St. Louis	Wadena	TOTAL
TIMBER INCOME.....	\$20,875	\$9,943	\$34,678	\$3,000	\$44,871	\$19,252	40,635 \$	\$23,711	\$68,037	\$96,878	\$10,170	\$481	\$5,480	\$59,293	\$371	\$437,675
TOTAL INCOME.....	\$64,686	\$65,827	\$109,262	\$61,000	\$146,278	\$54,852	\$105,739	\$50,033	\$347,454	\$191,644	\$11,578	\$27,901	\$96,686	\$616,327	\$1,306	\$1,950,573
Tax-Forfeited Acreage.....	227,706	81,000	159,000	84,400	265,000	103,419	101,678	140,000	292,000	287,550	159,205	14,671	76,962	952,021	6,327	2,950,934
Park Commission.....	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes	
Acres in County Parks—Total.....	3,728	366	3,000	60	6,000 ²	13	50	None	None	30	None	None	None	None	590	13,837
Acres in Memorial Forests.....	115,753	58,000	24,000	1,600	140,000	78,405	5,000	24,935	202,000	None	29,067	1,550	NA	525,992	1,697	11,863,900
Timber Drain—Cords ³	13,956	3,020	14,004	NA	12,552	8,773	4,074	11,000	28,306	53,547	10,016	NA	NA	31,923	30	191,281
Active Timber Permits.....	134	40	140	22	103	101	25	48	165	NA	29	None	None	1	1	1,229
No Trees Planted to Date ⁴	2,899,000	1,341,000	2,860,000	947,000	2,120,000	2,022,000	1,478,300	2,025,400	10,361,000	4,858,000	310,000	477,000	35,000	8,183,000	1,697,400	41,674,100
Public Access Roads—Total.....	6	17	1	6	None	15	8	4	64	13	None	None	None	5	2	141
Miles of Access Roads—Total.....	49	7	None	9	55	26	—	—	59	2	4	None	None	12	22	245
Leases.....	6	50	30	10	51	23	—	37	300	45	106	None	None	1,000	2	1,660
Developed Campsites—Total.....	4	16	1	3	None	3	2	1	9	9	None	None	None	2	11	61
Apportionments ⁵	\$18,473	\$27,205	\$51,817	\$29,600	\$111,154	\$23,426	\$53,580	\$14,380	\$119,861	\$70,535	NA	\$16,063	NA	\$293,440	\$1,300	\$8,308,340
No. County Employees in Land Department.....	4	1.5	4	1	5	2	2	3	5	7	0	0	0	13	0	47.5
No. IRR&R Personnel Assigned to County.....	1	0.25	1	0	1	0.5	1	0.75	2	0	1	0	0	1	0	9.5

NA—Not Available.

¹—Operate Long Lake Conservation Camp.

²—Proposed.

³—All Volumes Converted to Cords.

⁴—With IRR&R Assistance.

⁵—10% to State, 20% to Towns, Villages and Cities, 30% to County, 40% to Schools.

Misc. Appor. = \$2,288,160.

and technical assistance to this program for the purpose of constructing an environmental education camp. The camp has statewide support from many conservation groups and has proven to be a valuable asset in providing true environmental experience and educational functions. The Department personnel have been involved in teaching a forestry class during the summer session of this camp.

Cass County Deep Lake Park: This project is similar to the Long Lake Conservation Center. The plan has been developed by conservation groups to make this into an environmental education center. The Forestry Division of the Department has been involved in this project through the preparation of maps for the proposed Deep Lake Park.

Reforestation Program: The Counties of St. Louis, Cass, Hubbard and Lake have been the areas where the Department has conducted re-seeding experiments. The experiment involves broadcasting seeds and determining germination and survival. The cost of reforestation has increased tremendously during the past years. If the project proves fruitful the reforestation cost can be greatly reduced.

Results show that Jackpine has the greatest potential of survival while other species have been less encouraging. Investigation shows that Jackpine stands generally will not reestablish themselves on better soils. Once a stand is cut it usually produces a poor quality stand. For this reason the project will concentrate on Jackpine reseedling by broadcasting seeds.

An interesting feature of the program is that reseedling is done during the winter months on snow machines using a cyclone broadcast seeder. A large area can be covered in a relatively short period of time. This program is still in the experimental stage.

Block Land Sales: The Department has assisted in the appraisal of large special land sales. This assistance has been limited to those sales of large acreages and of special sales. Assistance is not given to counties in their regular land sales.

Timber Resources Reports: Spinning off from the forest resources inventories or timber inventories, conducted in cooperation with the counties, are the forest resource reports. The Department of Natural Resources, Division of Lands and Forestry, recommended that the Forestry Division of IRR&R assist the counties in preparation of management plans. Plans have been developed

for all State districts but not down to the county level. The counties should have the same type of information available to guide their operations. The goal of the Department is to provide management plans for all the cooperating counties. Plans have been prepared for Hubbard County and Becker County.

Information in the Timber Resources Report is the basis for computing the tree growth tax. Many counties use this tax for private lands held primarily for timber production. The rates for this tax are changed periodically based upon the present stumpage rates and growth rates as determined by the forest survey. Counties are given assistance by the Department in calculating the tree growth tax. This tree growth tax law was passed several years ago to provide a more equitable manner of taxation on forest lands.

Directory of Primary Wood Using Industries: Two directories have been published. The first directory was published in 1955, covering the entire State and the second directory in 1965, which covered the 23 northern counties. The data for the directories was collected by the Forestry Division of the Department in cooperation with the Lake States Forest Experiment Station. (Now known as North Central Forest Experiment Station.)

A new directory has been under preparation during the biennium by the Forestry Division in cooperation with the Department of Natural Resources, Division of Lands and Forestry based on data collected by the State. This directory will be available within the next biennium.

Voyageurs Park Appraisal: Along with several agencies the Division of Forestry has participated in the planning stage of the Voyageurs National Park. Recognizing the significance of this program for the Northern region of Minnesota, the Department has been willing to participate to bring this program into being.

The IRR&R was designated by the Department of Administration to make a timber appraisal and land classification on the tax forfeited lands which are being transferred to the Federal government in connection with the establishment of the Voyageurs National Park.

This work covered 3,841 acres in St. Louis County and 2,132 acres in Koochiching County. The area of 5,983 acres contains timber valued at \$143,609. Field work for this project was done during January through March of 1972.

PROPOSED PROGRAMS

Forest Survey

One of the major projects that needs continuance in the Division of Forestry is the correlation of information concerning timber inventory and land ownership. These reports will continue to be the basis for the timber industry expansion in the State. Data that is used in these reports is partially gathered by the North Central Forest Experiment Station in cooperation with the U.S. Forest Service, U.S.D.A. Approximately each decade timber surveys are made and the next survey will be conducted during the years of 1972 and 1973.

Due to the participation of the Division of Forestry in this work the survey reports for Minnesota have been published on a county basis making the information gathered very useful to the counties. Normally where states do not contribute in the survey the USDA publishes a state by state survey report. In order to provide the information, concerning this important natural resource, to the counties it is reasonable that the Department should continue in this cooperative survey effort.

Aerial Photographing

In conjunction with the timber inventory sur-

veys and the new methods employed for timber inventories, aerial photography of the areas concerned would be a useful tool for timber management. Available high altitude blue line photo prints are not suitable for timber management. Timber management stereo photos with a scale of at least 2" to the mile are necessary to determine and delineate timber types.

In Depth Study of Tax Forfeited Lands

A cooperative study by the IRR&R Forestry Division and North Central Forest Experiment Station on county lands is a projected possible project. Much in depth study has been done on Federal and state lands but relatively little in depth information is available concerning the three million acres of tax forfeited lands. The proposed study would investigate the processes that have taken place, the trends, and the resources available, which would indicate what positive direction should be taken for development of the lands.

Startling things are happening to the forest regions of Minnesota. They may be the beginning of a new orientation from which not only the forest regions but the entire State will profit.

**DIVISION OF
SPECIAL RESEARCH PROJECTS**

DIVISION OF SPECIAL RESEARCH PROJECTS

At the beginning of the biennium, the Division of Mineral Research was merged with the Division of Special Research Projects. The Special Research Projects Division covers all the activity of the Department excluding those of forestry, and administration.

The assistance afforded the mining industry, by the Department, over the past several decades has resulted in the development and maturing of the taconite industry. In this biennium the Commissioner saw fit to direct the attention of the Department to new areas of research. Recognizing that the era of research for the mining industry has not come to a close, the decision to devote the resources of the Department into other areas of consideration was based upon priority. Funds were spent on those research activities which had the greatest need for development or held the highest potential. Recognizing that one of the main objectives of the Department is to provide industrial diversification and utilization of all available resources, the priorities of the Department indicated the need for the shift in emphasis. It was for these reasons that the Division of Mining and Mineral Research was discontinued and was incorporated as a subdivision of Special Research Projects Division. Consequently, to keep the budget within limitations, the allocations to mining research have diminished and may phase out during the succeeding biennium in order that the financial resources might be expended on activities that would be supportive of the entire population and supplementary to the basic mining industry.

Utilization of the Department resources in the area of peat research has been accelerated to some degree, during the biennium. This natural resource has not realized full utilization nor have the potentials of the resource been fully surveyed. Particular emphasis has been placed upon research and study to use peat in waste stabilization as well as in other methods of pollution control. In order to determine the potential of the resource an inventory of the peat bogs has been expanded and updated. The investigation of the current use of peat by peat producers, their market and economic impact of their ventures, has been given consideration as a factor in determining the future of the industry.

The Division of Special Research Projects has utilized the Wilderness Valley Farms area for several research projects both in peat and reforestation. A program of sod cutting was introduced during the biennium. This program utilized the properties at Wilderness Valley Farms and provided employment for college youth during the summer months.

The Division has the responsibility of preparing and distributing land ownership maps in cooperation with the Division of Forestry. New programs introduced during the biennium were the "abandoned vehicle program" and the "building demolition program." These programs will be dealt with under a separate heading.

The Division of Special Research Projects might be called the exploratory arm of the Department. All new potential programs are examined by this Division before a decision is made on whether to enter these programs or not. The Division is concerned with discovering new potential fields of investigation both in mineral and natural resources and human resources. The Division has allowed the Department to direct its efforts to the broad spectrum of potential development projects and resources. It gives the Department the ability to develop innovative programs which are not confined to specialized work.

It is the purpose of the Department of IRR&R to discover all potentials which will lead to a viable and stable economy for the area.

The Division of Special Research is located at the Hibbing office and at Wilderness Valley Farms. In addition to the separate programs mentioned above, the Division has the responsibility of survey and drafting, utilization of Department equipment and all new programs undertaken by IRR&R.

LOCATION OF PEAT DEPOSITS & PEAT PRODUCERS IN NORTHERN MINNESOTA



SCATTERED AREAS OF PEAT BOGS



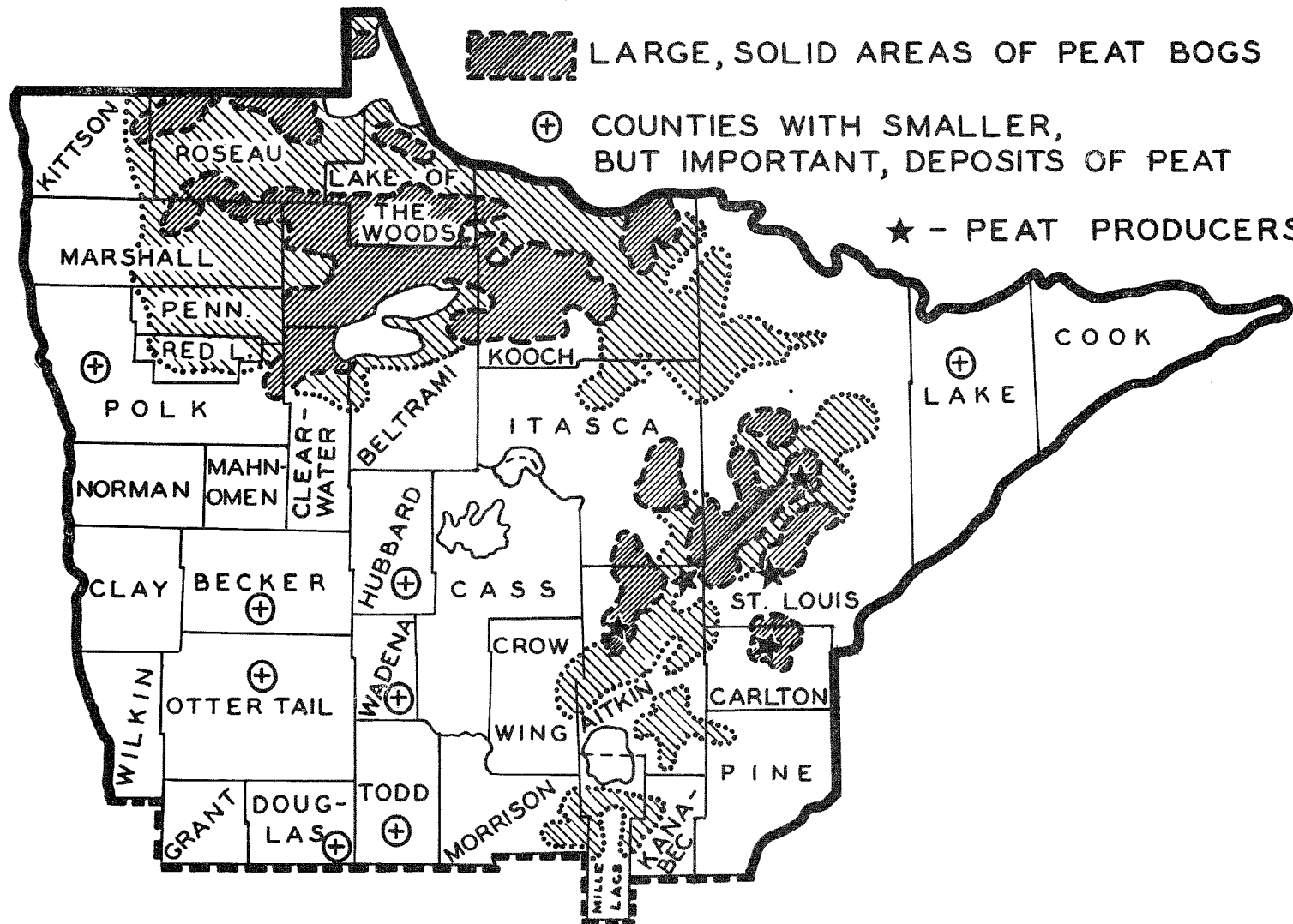
LARGE, SOLID AREAS OF PEAT BOGS



COUNTIES WITH SMALLER,
BUT IMPORTANT, DEPOSITS OF PEAT



PEAT PRODUCERS



Peat Research Programs

The vast peat deposits have not been utilized to any great extent to the present time. Potentialities of these peat lands for horticultural and agriculture production appear promising. In order to utilize this great natural resource the Department of Iron Range Resources and Rehabilitation has for the past 11 years been conducting peat land inventories in cooperation with the University of Minnesota Soil Science Department. The peat survey samples collections are gathered by the Special Research Division upon advice and consultation with the University. The subsequent analysis and final classifications are made at the University.

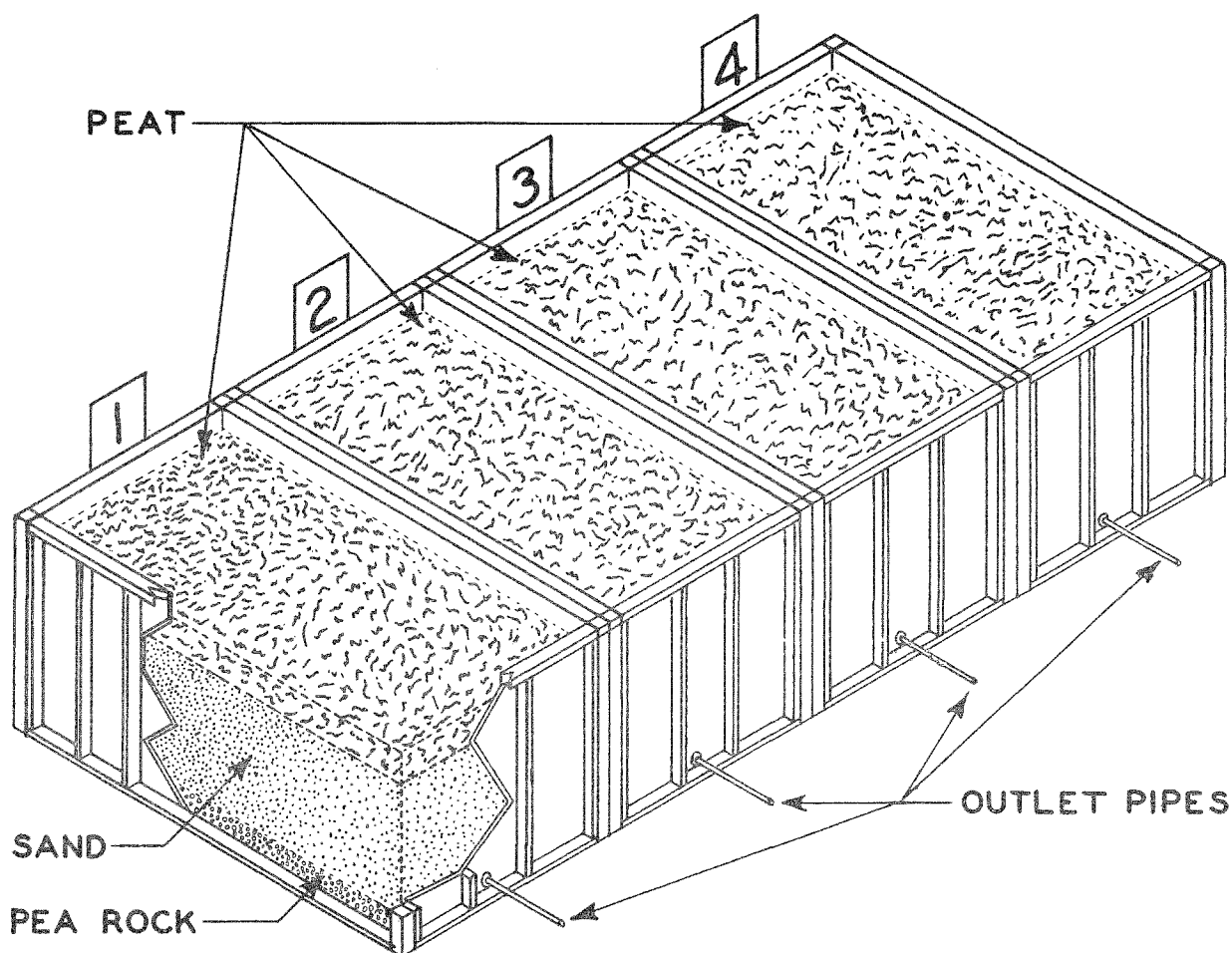
Today, 53 peat areas of varying sizes have been partially or completely surveyed. One hundred and fifty thousand acres out of approximately 7.5 million acres in the State have been surveyed. As a result of this work four reports have been published. The first three cover peat bogs with commercial deposits and the fourth a large peat area composed mainly of reed-sedge peat. This bog was

investigated for its potentialities for multiple use. The reports were distributed to government agencies, libraries, peat producers and interested parties.

The method of bog selection, sampling, and analysis have been detailed in a report presented in 1972 to the Fourth International Peat Congress in Helsinki, Finland by the authors, D. N. Grubich of the Division of Special Research, IRR&R, and R. S. Farnham, University of Minnesota. The report precludes the potentialities of the use of peat for water stabilization, pollution control and horticultural uses. As a result of this basic investigation and research, experimentation programs in the use of peat have been instituted by the Division of Special Research Projects. These studies and experiments are discussed in the following sections.

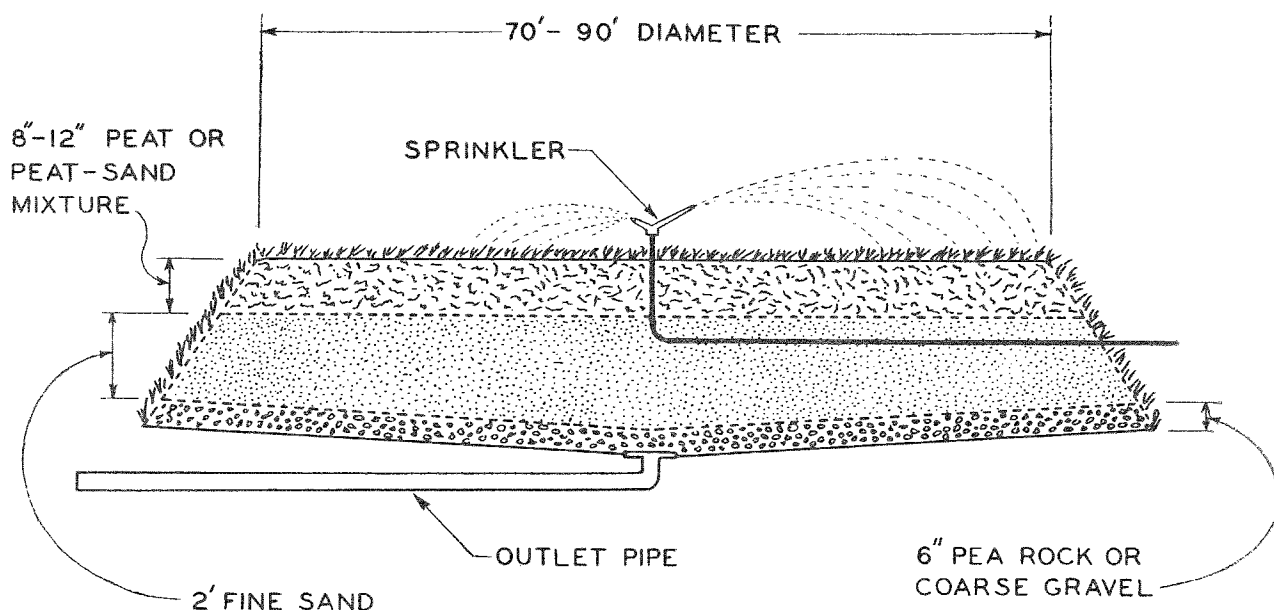
Waste Stabilization Research

The objectives of the research were to reduce the organic content and phosphate levels in waste



Lysimeter plots — type used for Virginia, Minnesota experiment.

GOLF GREEN TYPE FILTER BED



water through the use of peat and sand mixtures. Generally, the research objectives have been to maximize the filtering capability of peat media using municipal sewage. The study, which was originally undertaken in 1967, has continued each year through March of 1971. In the third year of the study, Lysimeter plots using peat over sand in several combinations were constructed at the Virginia, Minnesota sewage disposal plant. A building was built around the Lysimeter plots to permit running two shifts seven days a week to monitor the project. The laboratory experiments in relation to the pilot experimental project were continued at the University of Minnesota Soils Science Department in St. Paul. Demonstrations of the Lysimeter plots were provided for the U.S. Forest Service, for peat producers and for other interested parties including the League of Women Voters with special emphasis upon the ecological implications.

The results of the study were published during the biennium. The results show that the phosphate reduction and organic content (B.O.D.) removal was very good. On July 1, 1971, the final report was sent to Washington D.C. The comment concerning that report has not been returned as of this date. Unfortunately the report is not available for distribution until it has been finalized. The Department has requested additional funding for this experimentation but such funding has not been forthcoming from the Federal agencies.

The potentials of the experimentation and finite results of the experiments indicate a potential new use for the peat resources of Northern Minnesota. More importantly, the results show an alternative method to waste stabilization which may have superior qualities to those methods now in use. It needs to be pointed out that the method under experimentation is a natural plan of filtration and does not involve the use of chemicals.

Other Methods of Pollution Control

A variation of the principal employed in the Lysimeter plots is a method called the Golf Green Type Filter Pad. This method, developed in cooperation with other agencies by the Division of Special Research Projects, has caught the interest of the U.S. Forest Service. The U.S. Forest Service has built some Golf Green Type Filter Beds systems on campgrounds. The installations are based on the study and computation of the Division. Two units have been installed in Upper Michigan, one in Wisconsin, and one at the Northstar Camp Ground at Norway Beach in Minnesota. The results of this filtration is similar to tertiary treatment of phosphates.

The work being conducted during this biennium, by the Division of Special Research, in regard to this process, has involved continual consultation with the U.S. Forest Service, meetings with State Park officials, and investigation of some other

possible uses. The Division has discovered that the Golf Green Type Filter Bed is ideal for seasonal places such as campgrounds, trailer parks. Use on feed lots is under investigation at this time.

The filter system as illustrated in this report sprinkles the waste water on a built-up area containing peat and sand. The water filters down through these elements and joins the water table. In the illustration the drainage pipe is included only to determine the quality and quantity of the filtered water in this experiment. Under normal circumstances no drainage other than the natural drainage would be required.

While the above methods of Lysimeter plots and Golf Green Type Filter Beds are experimental, other methods of utilizing peat and peat bogs have been taken into consideration during the biennium. One such potential method of pollution control has a potential of development at the city of Biwabik.

Presently, the City of Biwabik Stabilization Ponds are inadequate. The community has received notice from the Pollution Control Agency that these would have to be corrected. The community is way down on the list for Federal aid. In cooperation with the community, the Division of Special Research Projects is working on a proposal to provide a demonstration of a pollution control and waste stabilization method. The method was discovered by a member of the Division of Special Research Projects while touring in Finland at the Fourth International Peat Congress.

The method, which is called "The Finnish Method", is relatively simple in construction. Nineteen cities in Finland are using the method and it was at Piesamaki, Finland that the sewage treatment facility was inspected. Using conventional methods, the primary treatment is given to the sewage and then through a series of ditches in a natural peat bog the phosphates and BOB are removed.

The application for this type of sewage treatment is practical in those areas in Northern Minnesota where the communities are located adjacent to peat bogs. In Northern Minnesota the condition of such proximity is frequent.

In Finland the system is used all year around; however, there are some considerations to be given to the possibility of freezing. Experimentation in this method is important to determine whether or not the application in Northern Minnesota could be affected.

Other Peat Work

Preliminary Reports: The Division has continued its program of providing reports on several peat bogs which have been sampled and analyzed during the biennium. Copies of the compiled data have been distributed to interested parties, particularly to State and county agencies who continue to request the information contained in the preliminary reports.

The reports point out that through systematic survey sampling, a research program must be conducted by an agency prior to any capital outlay by interested developers. The reports have been prepared for possible producers both in Canada and the United States. These producers may be willing to risk capital if they can obtain sufficient reserves of high quality peat which are suitable for large scale economic production methods. A continuing survey program, such as this, would provide the potential developers with such preliminary reports, which would provide the information needed, for commercial production of horticultural type peat and help insure the growth of the peat industry in the State.

Peat Bog Inventory: During the biennium no new reports were published. The samplings made were not completed through analysis. The University of Minnesota did not receive funding for the analysis and consequently the work was not done. The peat bog inventories were continued on large bog areas and will continue to be surveyed during the next biennium. The Toivola bog was surveyed during the winter of 1970-71 and the spring of 1971. Eight hundred and two additional samples were gathered and 6,000 additional acres were covered. When the inventory has been completed and the reports are published, they will include survey maps, ownership maps, and site location maps as well as complete analytical data on the collected samples. The reports will discuss the quality of the peat in each bog and diagrams will be provided showing several cross sections of the peat deposits.

The reports are particularly helpful to companies who are interested in developing a commercial peat operation. Consideration is being given to continuing the peat bog inventory during the coming biennium. There are no definite plans stated at this time but it is supposed that the inventory will be aimed at bogs usable for sewage filtering in areas of parks, cities, and campgrounds. It is the intention of the Division to attempt to discover new sources of peat for the future.

Peat Producers: The research and study conducted by the Division have caused it to be a primary source of information and data for commercial enterprises in peat production. Aid and advice has been given to such operating concerns as Power-O-Peat Company and Northern Peat Company.

Northern Peat Company is a new producer operating in Aitkin County in a Reed-Sedge bog. The operation started in 1971 and the Division has given assistance in proposing harvesting methods to the company.

Midwest Peat Co., Inc., which is a commercial operation, has leased some equipment from IRR&R. Basically this enterprise is a relatively small operation.

Considerable information has been provided to other perspective developers. The "Location of the Peat Deposits" map also indicates the location of the peat producers in the area. Some of the larger corporations, such as Burlington Northern, have indicated an interest in peat. Several meetings were held with the interested parties and field trips were taken into the peat areas. The interest by Burlington Northern is in the consideration of the freight that would be involved in peat production.

Conservation and Land Development: Assistance was provided to the State Department of Natural Resources Lands and Forestry Division and to the St. Louis County Land Department in determining areas of commercial peat on tax forfeited lands. Information was also provided on peat areas for wild rice development. Requests have continued to be made in relation to conservation and land development. The only sources of information concerning the matter are the Division of Special Research Projects and the University of Minnesota. Interest has been indicated in peat as a potential economic development resource for the area by the Upper Great Lakes Regional Commission with whom the Division has had several meetings.

The potential of peat is great. The research needed to intelligently develop the resource is vast. During the biennium the Division has touched on some of the most important aspects of peat development, however such is yet to be learned. It is the intention of the Division that peat research should continue and possibly be accelerated.

Land Ownership Maps

Land ownership maps which are produced by IRR&R show the State, County, Private and Fed-

eral landholders. The maps which are produced with excellent quality are used by a variety of agencies for a variety of purposes. As previously discussed, the Division of Forestry of the Department makes use of the ownership maps through the land classification program as well as in determining timber inventories. When the program began in the early 1960's 21 counties were surveyed. Land ownership maps were printed for them. The great demand for these maps has caused several printings of the maps, so that 21,500 of the maps have been printed and distributed. Some of the maps have been reprinted as many as five times to meet the demand. These maps are a very valuable tool as reference for State, County and Federal agencies as well as others who work with public ownership.

Land Ownership Maps Printings	Totals Approximate Number Printed
Aitkin — 1963, 1969	950
Becker — 1964, 1967, 1971	1,100
Beltrami — 1963, 1969, 1972	1,000
Carlton — 1964, 1969	1,150
Cass — 1963, 1966, 1970, 1972	1,350
Clearwater — 1964, 1968	550
Cook — 1963, 1967, 1972	1,000
Crow Wing — 1963, 1967, 1971	1,000
Hubbard — 1965, 1969	600
Itasca — 1962, 1964, 1967, 1969, 1970	2,000
Kanabec — 1966, 1970	650
Koochiching — 1963, 1966, 1969	1,400
Lake — 1964, 1965, 1968, 1969	1,200
Lake of The Woods — 1966, 1972	700
Mahnomen — 1967	400
Mille Lacs — 1966, 1972	750
Pine — 1964, 1969	750
Roseau — 1967	350
St. Louis — 1963, 1966, 1967, 1970	3,300
Todd — 1966	400
Wadena — 1964, 1966, 1971	900

Wilderness Valley Farms

As the demand for types of information changes and as some programs of experimentation and development are completed, the uses of the resources of the Department and the Division also change. Wilderness Valley Farms, which in past years has been the location for agricultural experimentation, has undergone some changes in its utilization. The farm was donated to the Department in 1964 by the Chun King Corporation.

At first, the primary use of the farm was experimentation in wild rice paddy production methods. More recently, it has been used for research in relation to the use of peat for waste stabilization. The variety of peat bogs at the location were ideal for a program which was funded by the Federal Water Pollution Control Agency. This

program has been phased out and attention has been given to experimentation in peat harvesting methods, utilizing peat as fertilizer and for other types of products.

In 1971, experiments were started in seed production in cooperation with Northrup King and Company. The experiments were directed to determine the growth characteristics of Trivialis and Holfor grass. The Division provided land plots for the seed production experiments and also assisted in the experimentation. This was done in recognition of the potential these types of grass might have as crops for farmers in the local area.

The area and facilities at the Wilderness Valley Farms lend themselves to a sod cutting program. In the summer of 1971 the program was begun with field maintenance and seeding of Blue Grass for cultured sod. In the summer and fall of 1972 a program of sod maintenance continued with mowing, spraying, fertilizing and other cultivation. New fields were prepared and seeded. This work has resulted in 138 acres of sod fields and 64 acres of hayfields. College age youth are employed in the sod program. This allows the students financial resources to continue their education. To continue the summer employment and

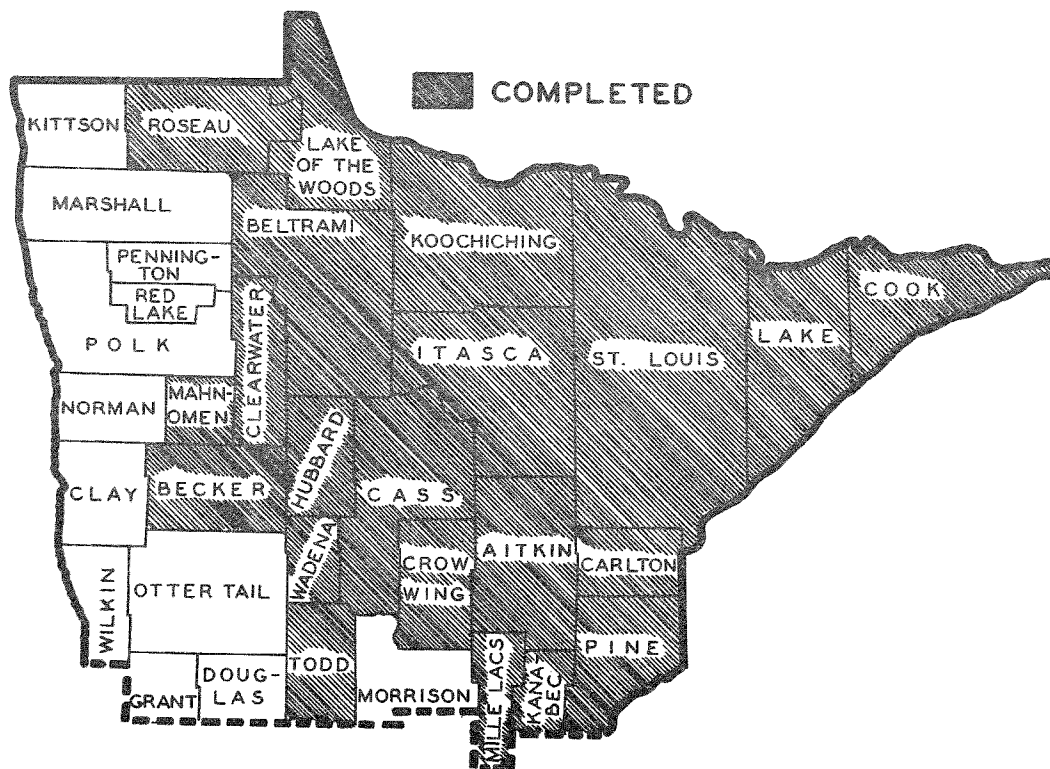
experimentation program on a fiscally sound basis, sod was sold by the Department to users. The sale of the sod has allowed the farm to become self-supporting as well as providing employment. In 1971 and 1972 a total of 519,170 square yards of sod were sold. Additional fields will be planted in the next biennium, however, the expansion of this program is limited to the available equipment.

Leasing of Sod Fields

Recognizing that it is not in the best interest of the State or the Department to allow real property to remain idle, or to neglect a potential source of income as well as provide employment, the Department has determined to lease sod fields and hay fields to the Kerrick Sod Company located at Duluth, Minnesota. The fields are located at Wilderness Valley Farms.

During the biennium a lease was made with the Kerrick Sod Company at rates that were calculated on the number of yards of sod or hay removed. This leasing arrangement not only put the real property to good use, but also provided employment opportunity for people in St. Louis County and helped a small industry.

LAND OWNERSHIP MAPS



Other Types of Work

Surveys: The accompanying illustration of the Nett Lake Rice Paddy points out the type of surveying work done by the Division. The Division was responsible for putting in the final grade stakes prior to the construction of the rice paddy. In participation with other agencies the work was done during the previous biennium and partially into the biennium of this report. The scope of the project indicates the need for the Department to give assistance wherever a potential for economic development arises. Although the final results of the project are not complete, the early reports indicate that through proper management, the project can help create economic stability for the Nett Lake Indian Reservation.

A topographic survey was conducted for the City of Biwabik to provide information concerning potential developments in and around the city. A map and cross sections were prepared and provided to the city by the Division. This type of work requires considerable drafting and map drawing.

The Division of Special Research Projects handles most of the drafting and map preparation for the Department. Drafting and mapping have been done as a major part of the peat research. The following reports contained drafting and mapping provided by the Division:

The Federal Water Pollution Control Agency Reports.

The Biennial Reports of the Department.

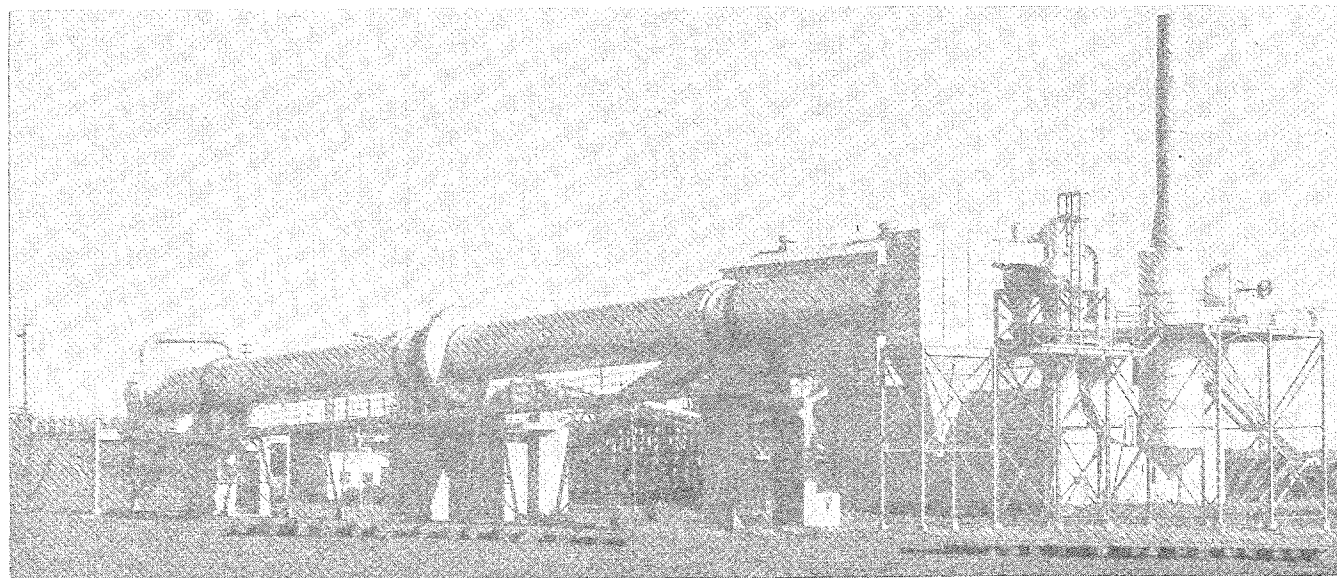
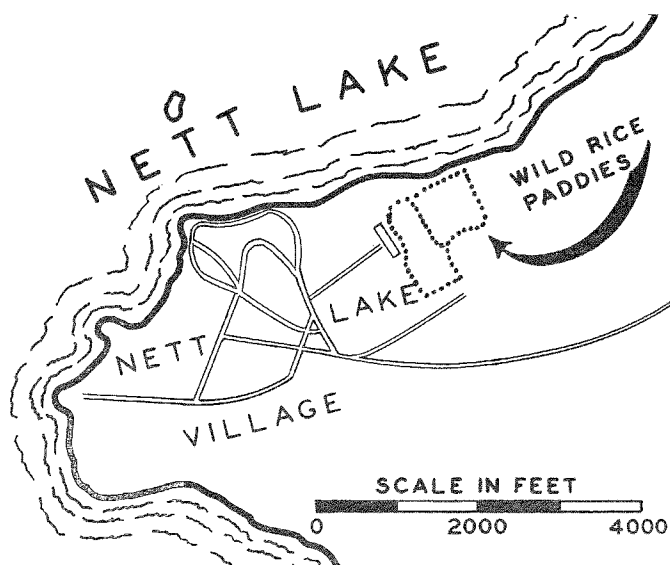
Voyageurs National Park.

Land Ownership Maps.

Many other type of maps related to research being conducted by the Department.

Miscellaneous

Equipment: The Department through the Division makes available on lease or loan, some of the several pieces of equipment that it owns. For example, the City of Virginia received the services of the Division to ditch their golf course area and various other areas in the city. Since the Department has one of the few "backhoe equipped bog vehicles" in the area, numerous requests are received from government agencies to aid in ditch construction and maintenance areas.



250 Foot Rotary Kiln at Keewatin Demonstration Plant.

An attempt was made to aid a small manufacturer in packaging equipment. Located at Iron, Minnesota, a manufacturer intended to develop an enterprise that would create some employment. One staff man was assigned to work with him and provided some ideas however, this enterprise is still pending.

Keewatin Demonstration Plant: In 1969 the Department took over the maintenance of the unfinished U.S. Bureau of Mines Experimental Pellet Plant near Keewatin. The building had been started in 1967 and was to demonstrate the use of scrap metal in converting Minnesota's vast deposits of non-magnetic taconite into high grade iron ore pellets. The work was discontinued in February, 1969 when the plant was approximately 40% complete. It was at that time that the Department agreed to keep the plant open and maintain the facility.

Abandoned Vehicle Program

In cooperation with the Minnesota Pollution Control Agency, a program to remove abandoned vehicles was undertaken by the Department. This program, which was funded by Minnesota PCA, allowed for the removal of abandoned vehicles after ownership had been determined and notice had been given. The "abandoned vehicle removal program" had the purpose of cleaning up the many scars along the landscape through negligence of private parties.

The program required the location of a disposal site where the vehicles were brought and rendered into scrap metal. The potential utilization of the vehicles in scrap metal programs, for converting non-magnetic taconite into high grade iron ore pellets, was taken into consideration. This program was begun and discontinued during the biennium.

Building Demolition Program

The purpose of the program was to clean up and beautify the Iron Range area.

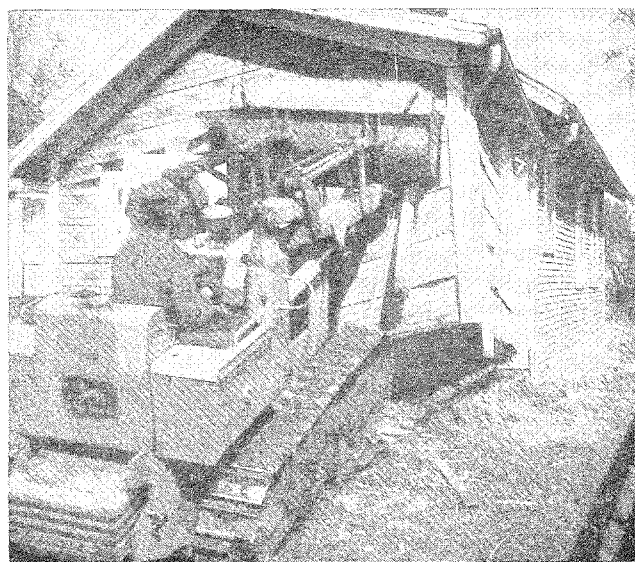
In 1971 the Legislature made provision for each municipality to levy monies for demolition of dilapidated buildings. Under the direction of the Department, the program was developed in three phases. The first phase was to conduct a preliminary survey to locate the abandoned and dilapidated buildings on the Iron Range area. A staff of four persons was employed to conduct the survey. Local officials were contacted for description

of the properties and the status of each description was checked through the County Register of Deeds.

The second phase was to conduct a field inspection of the dilapidated buildings. After the on-site inspection had been made, reports were turned over to each municipality concerning the condition of the structures. The municipalities of Hibbing, Chisholm, Gilbert, Aurora, Biwabik, Keewatin, Nashwauk and Grand Rapids participated in the program. Considerable publicity was given the program through press, radio and television. This led to further individual complaints concerning unsafe or dilapidated buildings. These complaints were investigated and property owners were traced through existing county records. Notification of the program was given to all property owners prior to any action being taken on their property.

The final phase of the program was to demolish the buildings in the most economic and reasonable manner possible as illustrated in the accompanying photo. Sixty buildings were demolished during the biennium. The razing of the buildings has been accomplished through the cooperation of the owners, (who in some cases demolished their own buildings), through the sale of some of the buildings for salvage, and through the cooperation of the counties. It is important to note that all demolition takes place only after reports had been processed through legal channels.

This program was favorably accepted by the public since it provided a method of upgrading the environment in the communities.



Demolition of unuseable dwelling.

IRON RANGE INTERPRETATIVE PROGRAM

Tourism is recognized nationally as a business that has economic benefit. Communities that utilize the assets of their area, for the purpose of attracting the traveling public, reap the benefit.

Earlier in this report, we have discussed the consideration given by the Attorney General's office to the Department's involvement in tourist oriented programs. In recognition of the fact that tourism has a definitive economic impact upon an area, it is to be considered as a resource and, therefore, is in keeping with the purpose and goals of the Department.

The major thrust of the Department toward tourism, during the biennium, has been the Iron Range Interpretative Program. The Department has expended funds and staff time to assist in the development of the program in cooperation with the Minnesota Resources Commission.

In 1969, the Minnesota State Legislature established an Iron Range Trail across the State's three Iron Ranges and related points on the North Shore of Lake Superior. In June of 1970, the Iron Range Trail became the management responsibility of the Minnesota Department of Natural Resources.

In the initial development stages, a brochure and small guide book were published for distribution at various locations to guide the traveling public along the Iron Range Trail. The publications point out those attractions already existing in the mining region.

Considerable publicity was given to the program. A survey conducted in August of 1970 indicated that the Iron Range Trail publicity had paid off. Persons, particularly from the Twin City Metropolitan area, had come to the Iron Range specifically to view mining activity.

To expand the Iron Range Trail Program, the Minnesota Department of Economic Development organized an Iron Range Interpretative program designed to generate a greater tourist economy in Minnesota's mining region. The key element of this program is to expand the Iron Range Trail system.

In the next decade, Minnesota's iron mining regions are going to experience a large influx of tourists. Coincidental to this development will be the development of the Voyageur's National Park. Since the major access routes to the Park will pass directly through the Mesabi Range, it can be expected that large numbers of travelers will be attracted to the Iron Range Trail. As the trail system is expanded, it becomes important to pro-

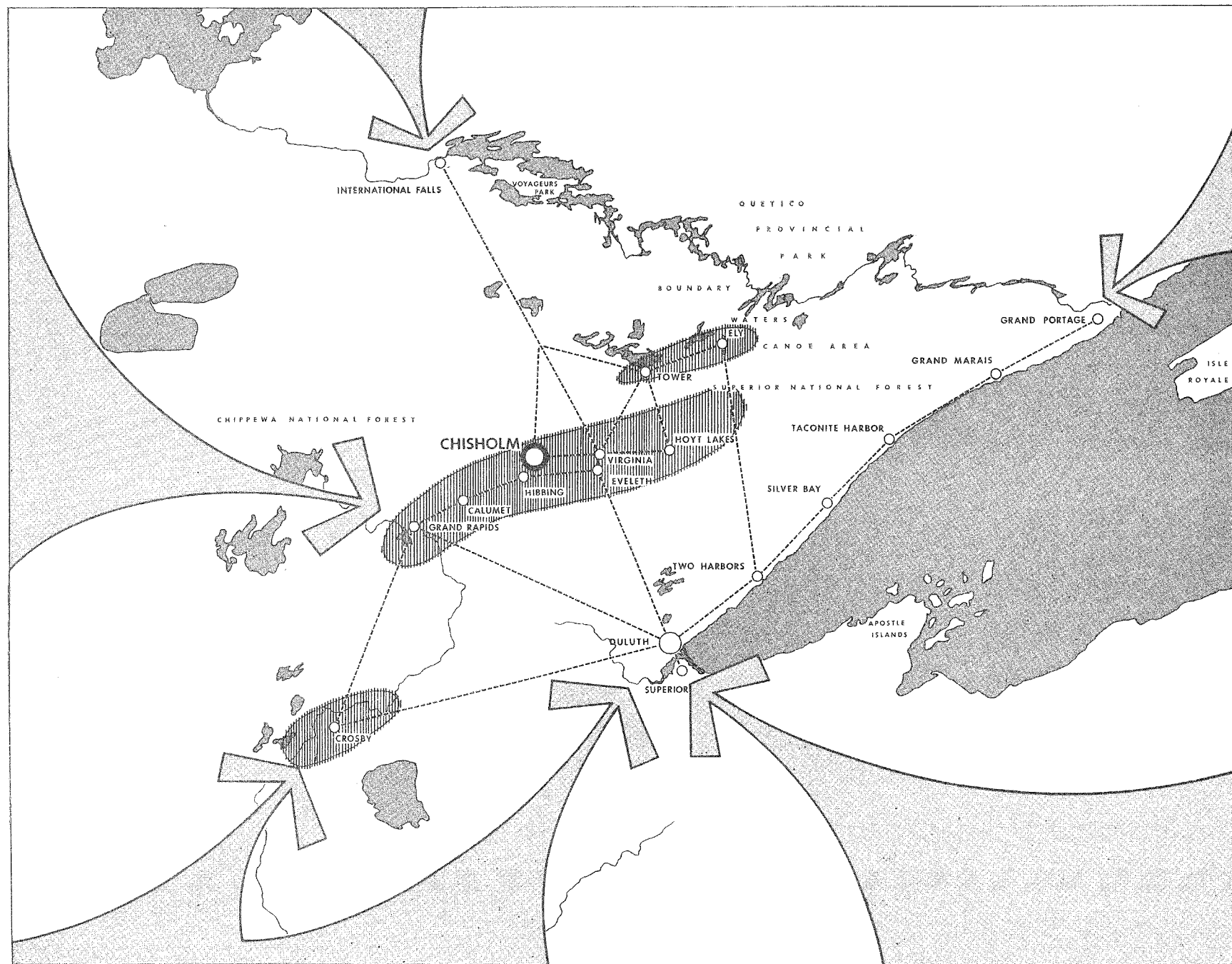
vide a focal point through the establishment of a major Iron Range Interpretative Center. The Center, which could be located in the vicinity of Chisholm, is probably the most important element of the overall Iron Range Interpretative Program. The accompanying map indicates that Chisholm, strategically located just off the major southwest travel axis, will serve to pull traffic into the east-west Iron Range Trail corridor. Large numbers of tourists and vacationers who already pass through the Mesabi Range on the way to resorts and campgrounds of the Superior National Forest, will be drawn to the Center. Chisholm is for all practical purposes geographically the center of the Iron Range Trail attraction.

Establishment of a major Iron Range Interpretative Center will serve the important function of drawing visitors from a wide area into the very heart of the Iron Range, as well as enticing a large amount of "pass through" traffic into staying in the area at least a few hours longer, thereby having additional exposure to the region's other attractions.

The Interpretative Center will tell the story of Minnesota's Iron Mining Region. This will include the natural and human history of the area in addition to the mining aspects of this fascinating story. In addition, this proposed Center will provide the answer to the difficult question, "Where does the Iron Range Trail start and end?" It will eliminate the confusion of the present system which does not provide direction to the visitor who is interested in the Iron Range Trail.



Lt. Gov. Rudy Perpich and Commissioner Scuffy consider some concepts for the Iron Range Interpretative Center with representatives of the consulting/architectural firm.



Located at Chisholm is the Minnesota Museum of Mining. During 1970 nearly 27,000 persons from 50 states and 30 foreign countries visited the Museum. In 1968 attendance was over 33,000 persons. It should be noted that these figures represent an operating season of only 3 months. It is anticipated that approximately 75,000 to 100,000 annual visitors will, initially, be attracted to a major Interpretative Center. As it develops and becomes known over a wide area, it would not be unreasonable to expect as many as 225,000 or more annual visitors.

To adequately tell the story of Minnesota's Iron Mining Regions the proposed major Interpretative Center will be an imaginative, flexible and dramatic facility. Major emphasis will be placed upon participatory and self-guided activities. Flexibility is a key element. The facility will have to provide space and ways to do everything from handing out literature to exhibiting enormous pieces of mining equipment. There are four major categories of functions the Interpretative Center will provide:

1. Geological and natural history interpretation.

2. Historical and cultural interpretation.
3. Mining industry interpretation.
4. General visitor information service and relaxation facilities.

It is important to point out that the proposed major Interpretative Center should not be regarded, merely, as a museum or collection of static displays. Among the methods that could be employed are models, audio visual presentations, photographic techniques and participatory activities as well as imaginative displays and exhibits.

The major structure, with elements of interpretation, exhibits, displays and viewing location, as envisioned, consists of three separate levels, each designed to serve a separate function and take full advantage of the unique topographic features. The main level is for lounge spaces, the dissemination of information, administrative quarters and restroom facilities. The center level is to serve the function of ultimate flexibility and exhibit space. The lower level is display and interpretative space and offers immediate exposure to the steep bluff of the Pillsbury Mine which is the recommended location.

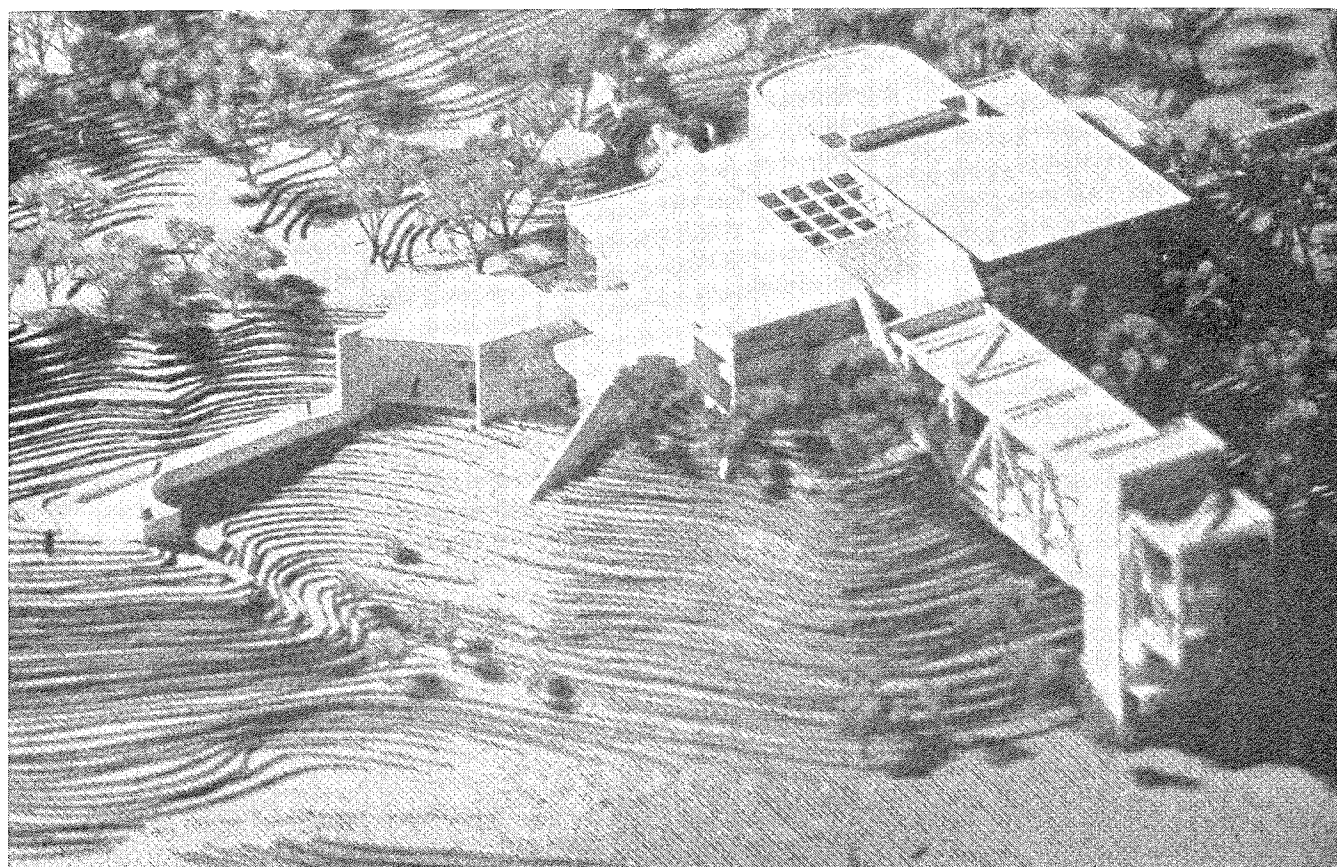


Photo of the model of the Iron Range Interpretative Center.

The Pillsbury Mine is in the southwest corner of Chisholm, where highway 169 crosses the mine at this point. The site would require improvement such as roadways, an underpass beneath the railroad tracks and extensive landscape site improvements. The accompanying site section does not show the building design but quite adequately indicates the functional use of the topography.

In addition to the main major Interpretative Center, a number of "gateway interpretative centers" are suggested at strategic entrances to the Iron Range Trail Country. Nine such sites are suggested to be located in geographically strategic points. The role of a gateway Interpretative Center, is to give the visitor the important initial contact with the Iron Range Country and to provide him with information about the major interpretative center, related attractions, accommodations and a variety of other things the typical tourist is concerned about. The gateway interpretative centers will not include expensive exhibits, although methods will be employed to attract the visitor and make him aware of the Iron Range Trail System. In general, the typical gateway interpretative center is envisioned as more than a mere tourist information booth. It will probably be a place where the visitor can stop to rest, have a picnic and learn about the area as well as pick up tourist literature and information.

Common on the Iron Range have been the observation sites constructed by mining companies. The total Interpretative Program will include observation points, utilizing the existing ones and installing some additional sites. When completed the trail system will include at least 13 observation type sites.

Finally, in addition to proposed related museums and expanded tours, the program considers the restoration of the Village of Calumet to a living Iron Range Community of 1920 vintage. This would be accomplished through restoration of existing old buildings, the removal of modern buildings and replacement of those characteristics of the community as they were in the early 1920's.

Up to the present time, Northern Minnesota's iron mining industry has perhaps represented the single largest force in the State's economy. This industry's physical impact upon the face of Minnesota also has been immense. While thousands of people over the years have gaped in awe at the Hull-Rust Mine, the giant trucks, and more recently taconite processing plants that often stretch over a quarter mile in length, relatively few visitors and residents fully understand the complete story of Minnesota's Iron Range. It is the intention of the Iron Range Interpretative Program to provide the story and attract tourists and thereby increase the vitality of the economy.

OTHER PROJECTS

During the biennium, several projects surfaced which were not necessarily handled by the Divisions of the Department. In some cases, these projects were carry-overs from the previous biennium and in other cases the projects were generated by other agencies. The Division of Administration, which is in reality the entire body of the Department, handled the so-called "other projects". In each case the projects were directly related to development of the resources of the area for the sake of creating economic viability.

In the past, several of the projects of the Department were operated and financed in conjunction with Federal, State, or local agencies. For several reasons, some of these projects were closed-out or ended during the biennium. The most prominent reason being a discontinuation of funding from the Federal or local agency. In some cases the particular project that was closed-out had reached a point of completion and therefore, was naturally terminated. Projects which were phased out at the end of fiscal 1971 were:

Topographical mapping Recognizing the need to keep up-to-date maps because of extensive mining and timber operations in the area, the Department had, in cooperation with the U.S. Geological Survey (U.S. Department of Interior), conducted a topographic mapping of quads in N.E. Minnesota extending from Grand Rapids to Babbitt and 13 additional quads in the Duluth-North Shore Region. An inventory of the maps covering Northern Minnesota is maintained with availability to the public and governmental agencies. This particular activity ended in 1971 and probably will not be repeated for at least 10 years.

U.S. Geological Water Survey The Department contributed matching funds of \$5,000 to this project which was continued into the biennium. The information involving source of industrial water supply is used by iron mining companies and city government.

The Neighborhood Youth Corps The program has been operated in cooperation with the U. S. Department of Labor but was not refunded for the biennium and during the biennium was phased out.

Already discussed has been the Federal Water Pollution Control Agency peat research program for waste water stabilization. Although there has been a need to continue this program, funding has not been available. It may be available in the future.

New and Continued Programs

Tourist Information Center

The Department made a grant to the N.E. Minnesota Tourist Information Center to allow the maintenance of this important tourist feature on one of the entry routes into the Iron Range. This program and IRR&R sponsorship is in keeping with the Department's interest in the Iron Range Interpretative Program. The point, south of Eveleth, Minnesota, at a place called Lion Springs, could well be utilized in the future as one of the gateway points for the Iron Range Interpretative Program.

Although the Department was not instrumental in setting up the program, it is important to know that this Information Center provided the necessary ingredient of hospitality and friendliness from the State of Minnesota and the Iron Range to the traveling public.

Gravity Mapping

Over the past years "gravity maps" have been made of an area of Northwestern Minnesota which when completed could cover 10,000 square miles. The Department, in cooperation with the Minnesota Geological Survey, University of Minnesota, responded to the needs of the Department of Natural Resources, State of Minnesota, to complete the mapping of two areas located adjacent to the Red Lakes.

During the biennium the Department allowed a grant to the Minnesota Geological Survey, University of Minnesota, and as a result of that grant the mapping was completed for an area of 1,500 square miles.

Gravity mapping is done through the use of a gravimeter which measures the relative density of the underlying rocks and thereby shows the distribution of different rocks in a particular area. The result of the survey is a gravity map which is an integral part of geological maps. The mapping was completed in June of 1972 and served the purpose of allowing the Department of Natural Resources to better determine and classify state-owned lands which aids in their conservation and management. Gravity maps also allow the Department of Natural Resources to better determine the general exploration target area and set priorities in the State's mineral exploration

leasing program. Copies of the maps are sent to the appropriate agencies and are also available to the public.

The area defined as the "Red Lakes area" is in the counties of Koochiching, Lake of the Woods and Beltrami. It has been determined that distress and unemployment exist in these counties and there is need to provide information which will lead to better management of the natural resources

and eventuate in a more stable economy through the wise use of the mineral resources.

It is expected that a continuation of this program will take place in the next biennium through the cooperation of the Department, the Department of Natural Resources and the Minnesota Geological Survey, University of Minnesota to complete the gravity mapping of Northwestern Minnesota.

ASSISTANCE TO PRIVATE INDUSTRY

The programs, which were established in the past, through appropriate legislation, providing for loans from revolving funds to private industry were continued. In many cases, the Department was unable to supply the total amount of monies needed by the industry. Consequently, some of the loans were on a participation basis with other agencies or with private financial institutions.

Two important innovations were introduced into the program during the biennium. The first, a very aggressive program of assuring the payback of loans made in the past. Since the monies come from a revolving fund it is vital that loans made in the past be kept current to replenish the fund! The Department staff, in cooperation with the Commissioner, conducted a program of collection. The second, and probably the most significant introduction into the program of cooperative industry projects is the investigation of the possibility of making direct loans to private business at an interest rate which would be set by the Commission. These loans, which would be secured, would allow a new latitude to business development. It seems that the intention of the Legislature, was to allow such use of the Department's resources in this manner; however, the Department will continue to investigate the concept.

The following descriptive listing of industries which have been assisted by IRR&R include those that were given assistance during the previous years, those which were given additional or continued assistance during the biennium, and those which were initiated during the biennium.

Before assistance loans are made to an industry, a feasibility of the success of the industry is determined. The Department does not just make the loan and forget the industry, but rather offers technical assistance and provides information to the industry to assure its success. Besides being a financial helping hand, the Department also continues to be a working assistant to the private industries.

North Star Evergreen, Inc., Hill City

In the last Biennial Report it was reported that the Hill City building, owned by the Department, was available for lease or purchase. Since that time the Department has leased the building to North Star Evergreen, Inc.

The firm produces Christmas garlands that are distributed primarily in Minnesota and particularly in the Minneapolis area. A national grocery chain is one of their biggest accounts.

During the three months' period of operation, from approximately October to January, 65 persons were employed receiving salaries amounting to \$14,000 plus. The firm estimates that it makes expenditures in excess of \$10,000 in the immediate local area and has annual gross sales in excess of approximately \$30,000. The main branch of the company is located in Park Rapids, Minnesota.

Duluth Filter Company

This firm manufactures large industrial filters which are used in marine outfits. Some of the filters are used in U.S. Steel ore boats sailing the Great Lakes. Another product, a smaller filter, is produced for use in trucks. The firm is supplying the filters to large companies, such as Indianhead Tanker Fleet Trucks and to U.S. Steel, for use in their Wabco trucks at Minntac in Northern Minnesota.

The Company has 6 full time employees with an estimated annual payroll of \$50,000. In addition to their main line of filter, the company fabricates tanks for construction companies.

Duluth Filter Company operates \$26,000 worth of machinery which is under lease from IRR&R.

C. W. D. C. Industries

C. W. D. C. is a non-profit organization with

branches at Virginia, Hibbing and Grand Rapids. The purpose of the organization is to provide training, evaluations, placement and/or employment of handicapped individuals. Ninety-five handicapped people and 23 staff members participate in different projects, such as the production of rough boxes, sauna projects, taconite bags, car washes and blister packs.

The projects of CWDC are sub-contracted through local firms and realize an estimated annual gross sales exceeding \$120,000.

The project recognizes approximately \$88,000 worth of local expenditures, adding not only to the welfare of the human resource, but also adding to the vitality of the economy of the area.



Commissioner Scuffy presents a check to C. W. D. C. Industries.

Rainducker, Inc., Chisholm

During the biennium, Rainducker, Inc. of Duluth, Minnesota, extended their operation to a branch plant in Chisholm. Chisholm offered a labor force that was acquainted with the needle industry and lent itself to the production of outer sportswear for children and teenagers.

The company has expanded its sales into 48 of the 50 states with the biggest account being at Dayton's of Minneapolis. The estimated gross annual sales were \$225,000. Fifty people are employed at Rainducker in Chisholm with an estimated annual payroll of \$70,000.

Significant to the economy of the area is a \$15-20,000 expenditure by the company on the local market.



Commissioner Scuffy inspecting a product of Rainducker, Inc. at the Chisholm plant.

Cladwood Corp., Virginia

At the Virginia, Minnesota plant, 48 people are employed in the production of decorating siding board, lap siding, press board and shutters. The estimated annual payroll has gone up approximately 4 times in the last two years and the number of employees has doubled. Cladwood Corporation is a branch of a successful Oregon firm which took over the once idle, IRR&R owned, multi-plant at Virginia. The company has estimated gross annual sales of \$1,800,000, and expenditures on the local market in excess of \$150,000 per year.

Cladwood is under contract with Georgia Pacific Corp., and distributes the product in all 50 states. The intervention of the Department in helping to obtain this company, points up the significant success that the Department realizes through the program of cooperative projects with private industry. The operations of the plant and the nature of the business illustrate the successful diversification of industry, in the Iron Range area, utilizing the natural resources of timber and providing jobs and opportunity to ambitious workers in the Iron Range area.

Ramsgate, Inc., Eveleth

One of the newest projects of the Department is Ramsgate, Inc. which produces portable electronic calculators, printed circuits, electronic assemblies and provides engineering expertise for various firms. The company sells their product, through nationwide distribution, to several retail outlets and to such prestigious institutions as Harvard and Yale Universities.

The company estimates that they will double their labor force by the end of 1973 and consequently will double their payroll which now stands at \$572,000 annually. The estimated gross sales of \$1,100,000, provide employment for 125 persons and make a significant economic impact on the local market with an expenditure of \$100,000.

Anticipating the growth of the Corporation, the Department is satisfied with the successful investment made to provide viability to this industry which helps to diversify the industry of the area.

Power-O-Peat Company, Gilbert and Central Lakes

Significant to the research, conducted by the Division of Special Research Projects into the resource of peat, is the operation of this firm. The firm was originally established in 1962 with impetus provided through the Department by an equipment loan of \$50,000. The firm produces blended and unblended peat moss, golf course mix and potting soil. The product is distributed through retail outlets in 39 of the 50 states and provides employment for 43 persons, 6 to 8 are full time employees. The estimated annual payroll is \$30,000 and provides a local input of \$50,000, annually. The main products, which are known as Power-O-Peat and Mesabi Grow, realize an average gross sales of \$150,000 per year.

Mesabi Drill and Tool, Inc., Chisholm

Mesabi Drill is anticipating sales over \$1,000,000 for 1973. In 1972, gross sales reached $\frac{3}{4}$ of a million dollars and provided employment for 58 persons with an annual payroll of \$300,000.

Mesabi Drill and Tool produces high speed twist drills with nationwide sales to large corporations such as Ford Motor, General Motors, Chrysler and North American Rockwell, as well as several smaller corporations and the local mining industry. The plant, located at Chisholm, is leased to Mesabi Drill & Tool by the Chisholm Development Corp. The Department has a large investment in the machinery at the plant. With an anticipated 25% growth in sales, the future of the company will give considerable assistance to the economic stability, sought by the Department and the people of Northern Minnesota. The production of steel products in the iron ore mining area is in keeping with the utilization of the natural resource.

Pennec Frock Mfg. Co., International Falls

The firm is a sub-contractor to a larger corporation located in Orange City, Iowa. This firm offers employment to women in a community that is dominated by an industry that normally requires male employment. Twenty-seven to thirty-two employees manufacture jackets, dresses, shirts, ladies' and men's light wear and receive approximately \$6,000 a month in payroll.

Samco Sportswear of Crosby, Inc., Crosby-Ironton

A St. Paul-based firm has located a plant at Crosby-Ironton and employs 47 people with a weekly payroll of approximately \$6,000. The Company produces outer snowwear, mostly snowmobile suits, and has sales in all of northwestern United States. The estimated annual gross sales is approximately $\frac{3}{4}$ of a million dollars.

SAMCO is located in the Crosby National Guard Armory, under arrangement with that city, and utilizes equipment owned by IRR&R.

Rajala Timber Co., Deer River

Rajala Timber Company produces a rough product which is sent to the Rajala Lumber Company for final processing. It is estimated that, during 1973, sales will go from over $\frac{3}{4}$ million dollars to the one million dollar mark. Twenty three people are employed at the timber company and receive an annual payroll of \$128,000.

This firm received financial assistance, from the Department in cooperation with Minnesota ARA and EDA, to build a sawmill-chip plant designed to utilize second-growth timber. IRR&R's contribution was in the form of leasing equipment consisting of a debarker, chipper, chip screen, bin and air equipment. Although sawed lumber is the principal product, none of the timber is wasted, since the waste wood is turned into wood chips for paper manufacturing and becomes a major by-product of the mill.

The Rajala Lumber Co., Deer River

A sister organization to the Rajala Timber Company this firm is operated by the same people. The lumber company is primarily interested in dry kilning and custom surface work, producing precut framing lumber for mobile home manufacturers, pallets and crating lumber and lumber for

furniture and window manufacturers. The company estimates that in 1973 their sales will reach \$300,000 and the number of employees will consequently also grow from the present 11 employees who take home an annual payroll of \$53,000. In 1972 the gross annual sales for the company were \$183,000.

Mills Cash Sales, Grand Rapids

IRR&R provided Mills Cash Sales with a building on a lease/purchase agreement. The building was a former rutabaga warehouse and is used primarily for storage.

Mills Cash Sales handles retail hardware sales as well as the construction of prefab houses and garages. Employing 15 people, with an annual payroll of \$120,000, the company does an estimated gross annual business of \$750,000. In addition to the sales, Mills Cash Sales is involved in contract building and add to the local economy with expenditures in excess of \$125,000.

Battle River Wood Mills, Inc., Northome

Battle River Wood Mills deals in wood fencing. The Department has provided them with a building and some equipment to a contract agreement. Employing 8 persons with an estimated annual payroll of \$60,000, the company has sales in excess of \$280,000 through nationwide distribution.

Allan Merrill Manufacturing Co., Chisholm

This firm is the largest employer in Chisholm. In excess of 200 people are employed with an estimated annual payroll of $\frac{3}{4}$ of a million dollars.

The company is adding significantly to the economic condition of the community. Allan Merrill Manufacturing Co., is a subsidiary of Hart, Shaffner & Marx Corporation, producing jackets, overcoats and men's winter and summer outerwear. Employees are primarily female and the job slots are a means of supplementing household incomes.

Conclusion

It causes one to wonder, whether or not a person employed in a small community in Northern Minnesota, by a small industry, realizes that legislation passed over 30 years ago is responsible for his livelihood. We can be sure that the citizens benefiting from the efforts of the Department are not aware of the amount of valuable research conducted by the Divisions of the Department which consequently is of benefit to industries that employ them. Nor are employed people aware of the fact that the resources of the Department, which came into being through creative thinking and legislation of the past Commissioners and Commission members, has had a significant economic impact on their lives. We can only be sure that the evidence, outlined in this section, indicating the progress made by the cooperative projects with private industry, is a benefit to the people of Northern Minnesota.

Comparing the last biennium to the statistics of the present report, it becomes evident that everyone of the industries realized some progress in the areas of employment, gross sales, and local input. These significant progressive signs, indicate that the economy of Northern Minnesota is slowly changing to give to the people of the area a way of life that is not fraught with the fears of unemployment and social distress.

FINANCIAL REPORT

FINANCIAL REPORT

Receipts, Transfers, and Expenditures

RECEIPTS:

	<u>1970-1971</u>	<u>1971-1972</u>
Balance brought forward July 1.....	\$612,686.90	\$518,245.13
Receipts from IRR&R Revolving Fund.....	44,477.88	43,289.47
Miscellaneous refunds from prior years' expenditures	975.03	225.14
Reimbursement from 9 counties for services of IRR&R foresters.....	48,525.61	53,025.51
Refund from Dept. of Natural Resources of unexpended balance of \$50,000 transferred in 1969-70 for program of mineral evaluation in cooperation with Minnesota Geological Survey.....	646.22	
Grants from Federal Government:		
U. S. Dept. of Labor, Manpower Admin., Bureau of Works Programs (Neighborhood Youth Corps program)	14,711.00	
U. S. Dept. of the Interior, Water Pollution Control Administration (Peat research)	48,140.59	6,562.74
U. S. Dept. of Commerce, Upper Great Lakes Regional Commission (Nett Lake wild rice research)	39,153.59	
U. S. Dept. of Commerce, Upper Great Lakes Regional Commission (Hallett-Harrison feasibility study on a custom pelletizing plant) ..	35,000.00	
U. S. Dept. of Commerce, Upper Great Lakes Regional Commission (Lurgi Canada Ltd. testing of metallized pellet production by SL/RN process)		8,190.77
Total Receipts	<u>\$844,316.82</u>	<u>\$629,538.76</u>

EXPENDITURES:

Transfers Out (Legislative and *Commission action) :

University of Minnesota - Mineral Resources Research Center (Beneficiation of manganiferous and low grade ores)	150,000.00	75,000.00
*Dept. of Natural Resources, Div. of Waters, Soils, and Minerals (Program of mineral evaluation in cooperation with Minnesota Geological Survey)	50,000.00	
Dept. of Administration (Utilities)	230.45	728.30
Dept. of Taxation (Occupation tax refund for overpayments in years 1967, 1968, and 1970)		1,436.83
Total Transfers Out	<u>\$200,230.45</u>	<u>\$ 77,165.13</u>

Projects:

Administration (Overhead)	82,068.89	88,244.02
Forestry - Coop. County forestry assistance programs.....	196,659.26	197,493.88
Special Research Projects (Peat and Sod)	47,542.97	58,405.69
Conservation-type Work Projects	60,512.30	14,380.25
County Coop. Land Management Work Programs.....	10,000.00	20,500.00
Section Corner Post Relocation.....	32,058.84	22,500.00
Wilderness Valley Farms.....	22,780.71	31,958.50
Crow Wing County NYC Program.....	5,409.35	4,039.77
Abandoned Motor Vehicle (Reimbursed by Pollution Control Agency)		8,856.22
CWDC Industries, Inc., Hibbing, Minn.		50,000.00
Dilapidated and Abandoned Building Demolition Program.....		348.58
Iron Range Interpretative Program.....		905.89
Long Lake Conservation Center, Aitkin, Minn.		630.00
Minnesota Geological Survey (Gravity surveying and mapping)		10,000.00

	<u>1970-1971</u>	<u>1971-1972</u>
N. E. Minnesota Tourist Information Center.....		294.31
Northome plant.....	163.48	150.00
Rainducker, Inc., Chisholm, Minn.		31,252.49
St. Louis County Ditching.....		5,000.00
Mark Hurd Aerial Surveys, Inc.	5,750.00	
University of Minnesota - Dept. of Soil Science.....	5,000.00	
Wild Rice Research on Aase's Evergreen Farm.....	1,878.00	
Voyageurs National Park Appraisal (Reimbursed by Dept. of Administration)		1,689.75
Federal - State Contracts:		
U. S. Geological Survey (Topographic Mapping)	18,000.00	
U. S. Geological Survey (Water Survey)	4,971.64	
U. S. Dept. of Labor, Manpower Administration (NYC program)	8,038.19	
U. S. Dept. of the Interior, Bureau of Mines (Keewatin Iron Range Demonstration Plant)	20,873.24	
U. S. Dept. of Commerce, Federal Water Pollution Control Administration (Peat research)	46,373.86	29.52
U. S. Dept. of Commerce, Upper Great Lakes Regional Commission (U. of M. iron ore industry study)	14,615.90	
U. S. Dept. of Commerce, UGLRC (Nett Lake wild rice research)	551.76	
U. S. Dept. of Commerce, UGLRC (Lurgi Canada Ltd., testing of metallized pellet production by SL/RN process)	8,193.83	
Total Project Expenditures.....	<u>\$591,442.22</u>	<u>\$546,678.87</u>
Total Transfers Out and Project Expenditures	<u>\$791,672.67</u>	<u>\$623,844.00</u>
Balance June 30	52,644.15	5,694.76
	<u>\$844,316.82</u>	<u>\$629,538.76</u>
Receipts from 5% of the Occupation Tax on Iron Ore, June 30.....	465,600.98	364,586.72
Receipts from 1971 Taconite Production Tax, March 1972.....		168,887.72
Unexpended Balance June 30	52,644.15	5,694.76
Brought forward July 1.....	<u>\$518,245.13</u>	<u>\$539,169.20</u>