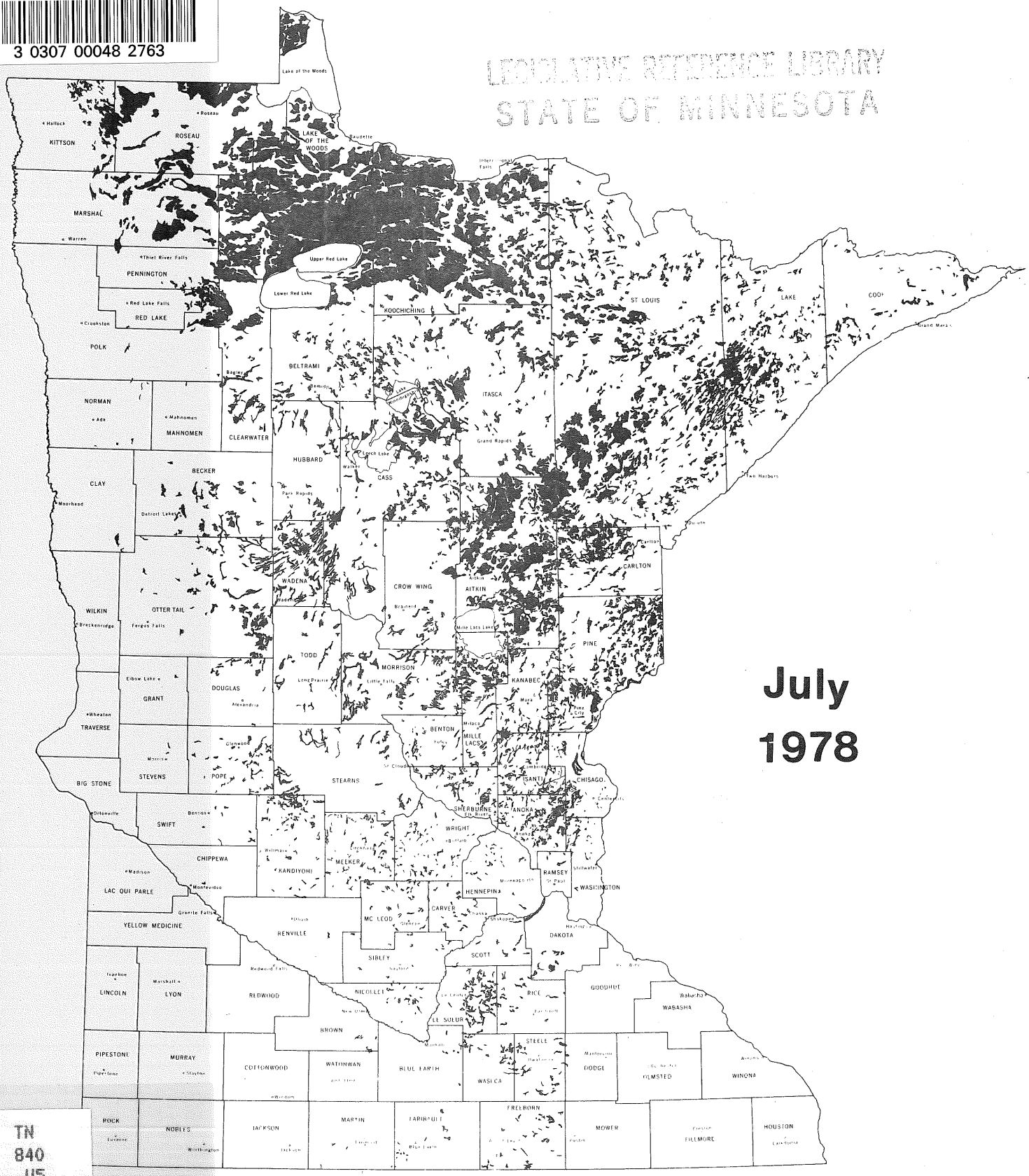
PEATLANDS POLICY REVIEW



July
1978

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

PEATLAND POLICY STUDY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF
NATURAL RESOURCES

BY

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TABLE OF CONTENTS

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While the assistance of all these people involved has resulted in the completion of the study and subsequently in this report, the final product still reflects whatever limitations that belong solely to the author.

EXECUTIVE SUMMARY

The findings of this study are based on the responses to a questionnaire mailed to Departments of Natural Resources(or equivalent organization), the Director of the State Geological Survey and the State Conservationist(SCS) in each of the states and Puerto Rico. The study considers four major substantive areas related peat land management: 1) peatland policies, 2) peat production, 3) future of peatlands and, 4) peatland information and committee activity.

The two major considerations regarding policy are the legal status of peatlands and the mechanisms for regulating peatlands. When given a specific and separate legal status, peat is most often considered a mineral. The regulation of peatlands is based on a wide variety of legislative acts including surface mining laws, mining acts, wet land laws, mined land reclamation acts, environmental quality acts and local zoning ordinances.

In addition to many states not having a specific legal status defined for peat, many states do not have policies for the regulation of the utilization of peatlands. Of those that do have regulations of the utilization, application fees, rent per acre and royalties are the most often used.

The extraction of peat is regulated by lease, permit and outright sale. Approximately one-third of the states use one or more of these three mechanisms for regulating extraction of peat.

When considering rehabilitation of protection of lands disturbed by peat extraction, 22 of the states have rehabilitation policies, 17 have bonding requirements, 22 have environmental protection regulations and 13 require environmental impact statements.

The most common distribution of revenue generated by the extraction of peat is to a special fund -- generally at the state level.

The commercial operations producing peat are for the most part on private land. It should be noted that this is generally not the case in Minnesota. The peat that is extracted commercially in the peat production states includes peat of the major types: Sphagnum, reed sedge and peat humus.

As might be expected, the majority of states indicated that the primary use of the extracted peat was horticultural/agricultural purposes with some commercial use. Commercial use means the use of peat for packing material, litter, etc. None of the states indicated that peat was being extracted primarily for fuel or chemical uses.

When considering the significance of the resource, only eight (8) states indicated that peat was a significant resource in that state. The states are: Michigan, Florida, North Carolina, California, Indiana, New Jersey, South Carolina and Minnesota.

The direction of the future of peatlands is evidenced by the indication that eight states responded that there was pressure for preserving the peatlands. Six of those states indicated that there was pressure for developing the peatlands. Seven states currently have applications pending or anticipated related to the development of peatlands. Maine, North Carolina and Minnesota have applications pending (either officially or unofficially) for uses other than horticultural or commercial (packing or litter) uses such as peat for fuel.

A majority of the states responded that there was not an official preferred use of the peatlands. Similarly, none of the states indicated that there existed a strategy for the management of peat as a resource.

Only 19 of the states indicated that work had been done developing a description of the peat resource. Most of the states that did have peat inventory work done or in the process were states that had current commercial peat production operations.

Only four states; Iowa, Michigan, Minnesota and South Carolina had committees which were specifically working or doing research on the use and/or regulation of peat.

The major conclusion of the study is that peat management policy is in what might be called the "early stages" of development. Minnesota is on the "cutting edge," however, dull it might be, of the movement to more advanced states of peatland policy development.

INTRODUCTION

The management of natural resources has become an increasingly difficult task. The difficulty has resulted from many factors, not the least of which are the increasing demands and the diminishing resource bases. As high technology is applied to the development of the resources the management problems generally become more acute. The diminishing resource base has led to the search for alternative resources. The application of technology has led to the development of the alternatives and to the extraction or harvesting of hitherto "uneconomical" resource supplies.

One of the resources that fits the pattern described above is peat. There is currently an increasing interest in peat as an alternate resource base for fuel and chemicals. This increase in interest is in addition to the interest in the more "traditional" horticultural and agricultural uses of peat, which in all likelihood will also increase in the future.

Given the present conflict of interests over conservancy and development, the peat management problem is based on a twofold question: Management for what ends and how? The problems posed by these questions have been considered and dealt with to varying degrees. A number of techniques have been used as means for solving the peat management problems. Even as this report is published, units of government, federal, state, provincial, and local are wrestling with the development and implementation of policies and regulations governing the management of peatlands within their respective jurisdictions.

Generally speaking, the activity involved in the development of policy is stimulated by the identification of problems with existing policies or by the lack of formalized policy. This study exemplifies the existence of

such "stimuli" in the State of Minnesota. More specifically, requests for the use of peatlands for new development and the expansion of existing operations and holdings have served as the impetus for the consideration of the current policies, regulations and practices regarding the management of the vast and varied peat resources in Minnesota.

STUDY OBJECTIVES

It is apparent that at least in the United States, peat is coming to the attention of a larger number of people than during the past. The attributes and uses of peat have been studied and extolled over a long period in history. The use of peat in the Soviet Union, the Scandinavian countries and Ireland is well documented and in many cases even legendary. Peat in the United States has a less clear and obviously shorter historical documentation. The lack of comparable history and use of peat in the United States does not mean that it is a resource with little or no significance. In fact, one of the documents encouraging immigrants to settle in Minnesota makes reference to the availability of peat in Minnesota. In the section on Peat for Fuel Girart Hewitt states:

> In a northern country a ready and cheap supply of fuel is of the first importance. If any have imagines Minnesota to be a cold, timberless region, let them be at once undeceived. Our pineries are sufficient to supply the whole country with lumber, while throughout the State, the proportion of timbered lands and prairies is about what it should be to make it a good farming and stock growing country. Besides nature has made up whatever deficiency there may be of wood and coal with immense and inexhaustible deposits of Peat. a cheap, excellent substitute for both, for ordinary use and manufacturing purposes. Peat is a deposit of vegetable matter, principally from a kind of moss, which has collected for ages in fens and bogs. Vast beds of this material, from twenty to fifty feet deep exists all over the State, requiring only to be cut out in square lumps with a light spade and dried. It burns slowly, and gives off a great quantity of heat. It is identical with the "turf" taken from the peat bogs of Ireland and Scotland, and so extensively used in those countries. For ordinary heating and cooking purposes, it is simply cut out in brick-shaped pieces, of any size desired, and spread around to dry. When dried, it is carted and piled up under a shed so as to keep dry for use.[1]

In more recent times, peat has been viewed as a resource for primarily horticultural and agricultural purposes. The peatlands have also been

[1] 1867 Hewitt, Girart, Minnesota: Its Advantages to Settlers. Press Printing Company, Book and Job Printers and Bookbinders, St. Paul, MN., p. 13.

utilized for logging. They also serve as natural areas which are to a large extent undisturbed due primarily to the physical features of the bogs themselves. These patterns are changing. The increasing recognition of the diminishing supply of crude oil and natural gas focused attention on resources that serve as functional alternatives by allowing substitution for the petroleum based products.

In operational terms, peat has certain characteristics that allow it to be used as a source of energy or as a chemical feed stock. As such, peat can serve as an alternative to crude oil and natural gas. Along with the substitutibility of peat goes the commercialization and the available technology for the processing of peat.

Implicit in the discussion of the potential for utilizing peat as a source of energy or as a chemical feed stock is the point that there is associated with its potential a possibility of change in the peat land and the places adjacent to the areas that might be extracted and/or used for processing. Two of the major proposals for the utilization of peat lands are in different stages of development. Those proposals are in Minnesota and North Carolina. Both proposals represent situations that are dramatic changes from the patterns of utilizing peat lands that were envisioned with the enactment of the existing policies and/or management practices related to peat lands. Consequently, questions are being raised regarding the nature of existing policies and management practices. More specifically, the proposals for the development of peat lands have resulted in a considerable effort which focuses on the evaluation of the resources as well as the implications of alternative uses of the resource. In addition, the peat land related policies and management practices, where they exist,

are also being considered in light of the recent proposals.

There are two basic approaches to the process of policy evaluation and development. The first approach, and the least informed of the two, is to consider the problem as a unique problem and restrict one's considerations exclusively to the immediate problem and situation. The second approach is facilitated if information is available which identifies the sources of the other efforts. More specifically, it is useful to know which other states are or have wrestled with the policy problem. Contacts can then be made regarding the details of the efforts. It is toward these ends that this project was developed. It may be possible to transfer the knowledge gained in one situation to the current policy development efforts. Before such transfers can take place the sources of the information need to be identified.

This study is directed toward meeting objectives related to information that might be useful to those interested in peatland management and policy development. This report presents a broad overview of existing peat management practices and policies. In addition, information is included which provides a basis for a comparative description of the peat resources. The study is intended to provide: (a) a point of departure for development and/or modification of peat land management policies, (b) a reference source for those interested in peat management. Because of the combination of the two objectives, the report follows a format which presents a narrative describing the findings and an appendix which contains the raw data and a set of references if the reader wishes to pursue the data further. It is anticipated that the report will not provide answers to all or even most of the questions that the reader might desire to have answered. Certainly, the reader is encouraged to use the appendices to continue the process of exploring further those areas that require additional information.

POLICY

The objectives of this study pertain to the problem of developing a peatland management policy. As indicated the study reports the findings of research focusing on the current peatland management policies of states in the United States. The development of peatland management policies and the description of existing policies can be most informative if the nature of policy is understood.

Policy is a term that has a history of having a number of different meanings associated with it. This fact contributes to the problem of establishing a peatland management policy, or any policy for that matter. One of the general definitions of policy is offered by J.A. Ponsioen. He defines policy as

> "a continuous and deliberate activity aimed at a remote purpose or ideal which becomes realized progressively according to circumstances, possibilities, resistance, stimulating forces and counter-forces."[2]

While Ponsioen presents a general definition of policy it is apparent that although the definition is brief it is also complex. The complexity of the problem of defining policy is evidenced in a discussion by Freeman and Sherwood. While their discussion focuses on "social policy", the definition is instructive and useful for researching policy related to the management of peatlands. More specifically, their definition considers policy as a philosophical concept, a product, a process, and a framework for action. The authors indicate it is possible to distinguish between four different uses or definitions of policy:

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[2] J.A. Ponsieon, "General Theory of Social Welfare Policy," in J.A. Ponsieon ed., Social Welfare Policy--Contributions to Theory, The Hague, The Netherlands; Mounton and Company Publishers, 1962 (Vol. III, Seiner Maior, Publications of the Institute of Social Studies) p. 18.

(1) "Social policy as a philosophical concept. In an abstract sense, social policy is the principle whereby members of large organizations and political entities collectively seek enduring solutions to the problems that affect them--almost the opposite, that is, of rugged individualism.

(2) Social policy as a product. Viewed as a product, social policy consists of the conclusions reached by persons concerned with the betterment of community conditions and social life, and with the amelioration of deviance and social disorganization. Often the product is a document--what the British call a 'white paper'--which lays out the intended policy for an organization or political unit.

(3) Social policy as a process. Here social policy is the fundamental process by which enduring organizations maintain an element of stability and at the same time seek to improve conditions for their members. Existing social policies are usually never fully developed. They are continually modified in the face of changing conditions and values.

(4) Social policy as a framework for action. As a framework for action, social policy is both product and process. It assumes the availability of a well-delineated policy which is to be implemented within the context of potential changes in the values, structure and conditions of the groups affected."[3]

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[3]Freeman, Howard E. and Clarence C. Sherwood. Social Research and Social Policy. Englewood Cliffs, N.J. Prentice-Hall, Inc. 1970, p. 2.

When policy is used in the sense of philosophical concept it is often in terms that are appealing but are often platitudes. In the area of natural resources policy area the use of policy as a philosophical concept is represented in a statement like: managing the environment for the benefit of all" or "manage peatlands so as to bring development and environmental interests in harmony." There is an apparent commitment to do something (manage) and all will benefit similarily or at least satisfactorily. The latter condition is unlikely to be reached, if not impossible.

When conceived as a product, policy is viewed as a specific issue or problem to be dealt with or resolved. The resolution or end is the focus of the "policy". In the area of peat management this might include "increasing employment", preserving environmental quality, etc. When this is contrasted to policy as process or what might be called procedure, rather than product, the emphasis is on how something is to be done, not the results that are to obtain. In the area of peat land management this might include emphasis on the procedures for application for permits, the amount of land under lease, and classification of ownership of the resource. Implicit in the procedures is some rationale for implementation. When policy is used as "process" the rationale is at best implicit.

When the process and product definitions of policy are combined the result is a "framework". That is, the specifications of outcome or at least desired as expected outcomes are related to the methods, practices and/or procedures for attaining the "product".

The policies related to peatland management that are currently in effect represent to varying degrees all forms of the definitions of policy. Ideally, the policies for the management of peatlands would allow the "policy as framework" definition.

It has been pointed out earlier that peat is a resource which has recently come to be a focal point for management policy discussions. As a resource, peat is of interest because people are able to use it to satisfy some need or desire. The value of all resources is determined by its use or potential use by people and by the effect that the resource has on people.

The development of management policy for a resource is confounded by the fact that the resource and its use affects people in different ways. Thus, management of a resource includes processes or "management practices" often referred to as the "management policy" which involves the control of the resource and/or the resource setting. The relationship between the procedures and the product or outcome of the management as interpreted by people is the nexus problematic to the development of policy as a framework.

As applied to peatland management, the existence of this type of policy "the framework type", requires a high degree of knowledge and technological sophistication regarding the procedures for managing the resource and a clear and intelligent articulation of the products that the processes or procedures should be directed toward attaining. While this study does not attempt to specifically assess the quality of the management policies in these terms, it is clear that such an assessment is an appropriate next step in the process of reviewing and possibly revising existing peatland management policy.

METHODOLOGY

As a natural resource the ownership of the peatlands falls in a number of categories. The peat may be on privately owned land or on land owned by a unit of government. The governmental units owning land with deposits of peat ranges from local to federal ownership. In addition, the governmental units that have responsibilities for establishing and administering policies related to the management of peatlands also varies.

This study is concerned primarily with peatlands that are under state or local level jurisdiction for policy development and/or management plan implementation. The state level agency in most states which is responsible for the management of land, including wetlands, is the Department of Natural Resources or an equivalent agency with a different name. In addition, the Office of the State Geologist (USGS) in each state also serves as a useful source of information regarding peat and the management of the peatlands. The Office of the State Conservationist (SCS) is responsible for soil classificaiton and as a result can provide peat related information.

A questionnaire[4] was designed which incorporated the questions that the Minnesota Department of Natural Resources (MDNR) was using to obtain data from major peat states for use in their study related to peat as a source of fuel for power generators.[5] As a result, some of the data presented in this report can also be found in the "Peat as a Power Plant Fuel" report.

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[4] See appendix for a copy of the questionnaire.

[5] The data collected by MDNR are included in the report: "Potential of Peat As A Power Plant Fuel Part I - Present Perspectives for Peat Decision Making". Prepared by Philip Pippo, Department of Natural Resources, Division of Minerals, St. Paul, Minnesota. November, 1977.

The focus of this study is oriented primarily toward the utilization of peat for commercial purposes. Commercial as used in the generic sense in this study pertains to the use of peat for the following purposes: agriculture and horticulture uses, as a chemical feedstock, as a fuel, and for other commercial purposes such as packing material, litter, etc.

Four major conceptual areas are covered by the study in order to focus on the commercial use of peatland. First, an attempt was made to determine the existence and nature of current peatland management policies. Second, the study focuses on the nature and extent of the commercialization of peat. More specifically the research focuses on commercialization as it relates to the extraction of peat. The future of peat in the states provides the third major area of four for the study. The fourth and final area covered is concerned with the availability of information about peat as a resource and the existence and level of activity focusing on peat policy development.

A questionnaire was developed and was mailed to the following types of agencies in each of the fifty states and Puerto Rico.[6]

1. Department of Natural Resources or equivalent agency.
2. State Geologist - (Director of the State Geological Survey).
3. State Conservationist (State representative of the Soil Conservation Service).

These three agencies were thought to be the ones most consistently involved and knowledgeable about peat in each of the states. Responses were obtained from all fifty states and Puerto Rico. It should be noted that not all three agencies responded from each state. In some cases questionnaires were forwarded to other agencies for response.

[6]See Appendix for agency listings and addresses.

The reader should note that there are two sources of bias that should be considered as having possible effects on the data. First, the study is oriented primarily to the commercialization of peat. It is not designed to address specific questions regarding the use of peat lands for non-commercial purposes such as natural/wildlife areas or recreation areas. This bias is by design. Second, there may be inadequacies in the data due to the nature of the questions and the extent to which the responding agencies had complete knowledge about peatlands, peatland management policies and practices, and commercial peat operations.

It is expected that although these biases exist, the error has been minimized by checking inconsistencies with other data such as those provided by the Bureau of Mines and with persons knowledgable about peat in the United States.

A final note regarding the nature of the data concerns the fact that the decision was made early in the study to limit the study in such a way so as to not go beyond state level policy. The study of Federal management policies and practices regarding peatlands are beyond the scope of this study. This should not be interpreted to mean that the peatland related policy at the federal level does not merit study. The magnitude of the research problem which combined both state and federal peat related policy is so large as to exceed the preview of this study.

FINDINGS

The four conceptual areas which provide the basis for the study - policy, peat production, future of peat lands, and research and committee activity in policy development-represent the structure of the discussion of the findings. The findings are presented by first providing an overview using data from all of the states. Second, the findings are presented for those states with 75,000 acres or more of "peat land". Finally, the findings are presented for those states with commercial peat production. The three-part format provides the opportunity to present the data in a manner that facilitates the comparative analysis of the findings. It provides an overall picture of peatland management policy, the policy in the "large" peat states and the policy in "peat producing" states.

It should be noted that no attempt has been made to develop complete interpretations of the findings. Such interpretations are left to the reader.

The data in Table 3A through 20 represents the frequency of responses to the questionnaire (See Appendix D). Tables 3A through 19A represent the total for all states including Puerto Rico. Tables 3B through 19B present the total for the 21 states producing peat in 1977 and Tables 3C through 19C present the data for the states with at least 75,000 acres of peatland.

The data for each state for all of the questions on the questionnaire are presented in Appendix A. The data for the peat producing states on selected questions are presented in Appendix B and the data for related questions for the "large peatland" states are in Appendix C. In all cases the data in the appendices represent those summarized on the tables.

The nature of a resource is represented by its qualitative attributes. In addition, the amount or quantity of the resource is also an important variable. The data in Table 1 represents the number of acres of peat (organic soils) for each of the states and Puerto Rico. It should be noted that the data represents surface measurements and not volumetric measures. The data in Table 1 are also represented in Figure 1 in order to provide a sense of the geographical distribution of peat. The first 26 states as indicated by rank of acres of peat are those defined as the "large peat acreage states".

For the purpose of this report the decision on "large acreage" was made to include states with 75,000 or more acres of organic soils. This cut-off point, although somewhat arbitrary, is used since it also includes all of the "peat producing states".

The second categorization used for presenting the data is the "production states". The data in Table 2 represents the rank of peat producing states according to 1976 and 1977 production data (in short tons). In addition, the data for the 1977 production ranks are presented in Figure 2.

TABLE 1

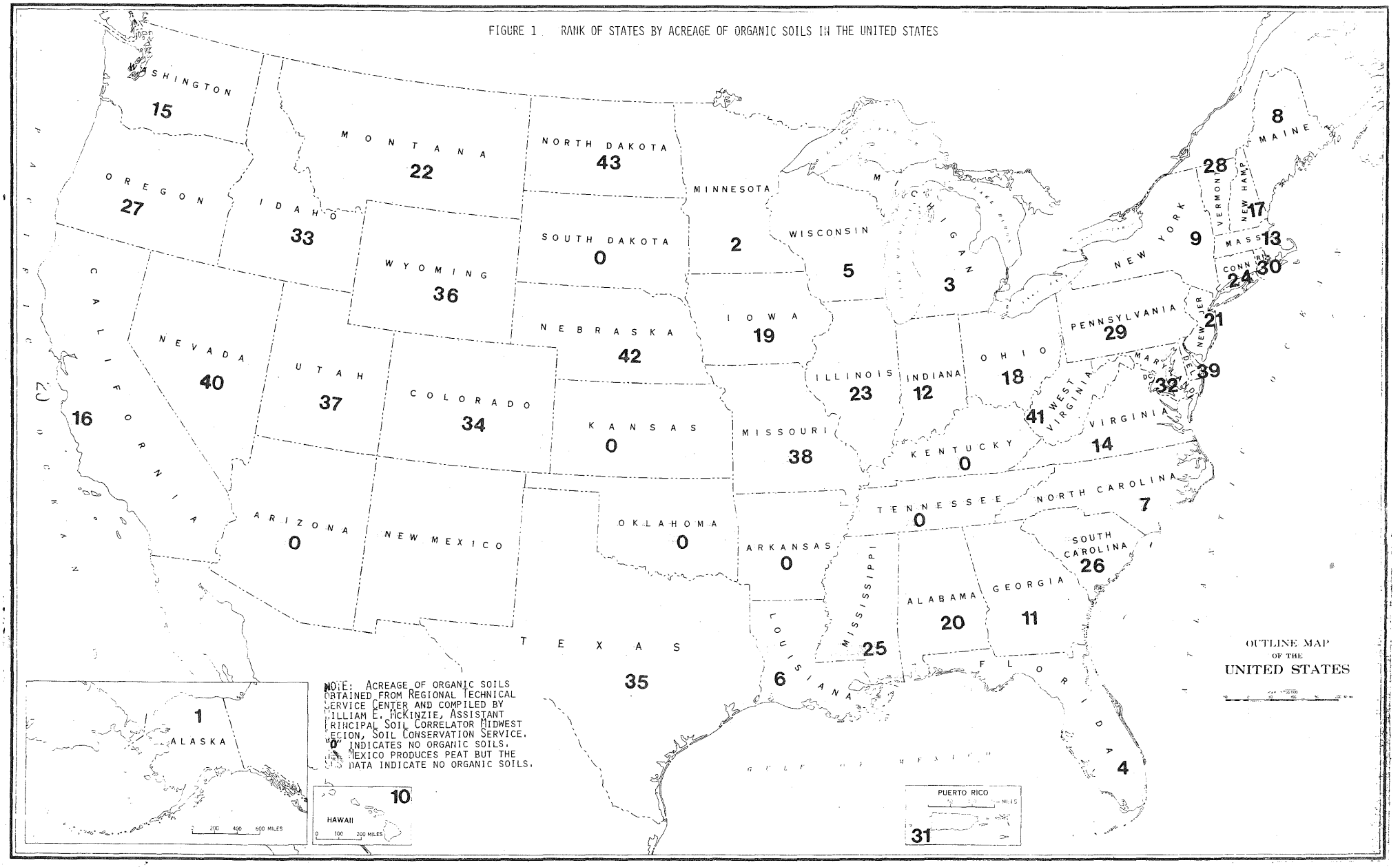
ACREAGE OF ORGANIC SOILS IN THE UNITED STATES [7]
(Rank order of States including Puerto Rico)

1.	Alaska	27 000 000
2.	Minnesota	7 200 000 [8]
3.	Michigan	4 530 000
4.	Florida	3 000 000
5.	Wisconsin	2 830 000
6.	Louisiana	1 800 000
7.	North Carolina	1 200 000
8.	Maine	772 000
9.	New York	648 000
10.	Hawaii	486 000
11.	Georgia	430 000
12.	Indiana	375 000
13.	Massachusetts	347 000
14.	Virginia	312 000
15.	Washington	200 000
16.	California	166 000
17.	New Hampshire	151 000
18.	Ohio	122 000
19.	Iowa	118 000
20.	Alabama	115 000
21.	New Jersey	113 000
22.	Montana	110 000
23.	Illinois	104 000
24.	Connecticut	100 000
25.	Mississippi	75 000
26.	South Carolina	75 000
27.	Oregon	67 000
28.	Vermont	60 000
29.	Pennsylvania	39 071
30.	Rhode Island	23 700
31.	Puerto Rico	22 208
32.	Maryland	21 547
33.	Idaho	13 600
34.	Colorado	10 000
35.	Texas	10 000
36.	Wyoming	5 500
37.	Utah	4 500
38.	Missouri	4 000
39.	Delaware	3 890
40.	Nevada	2 000
41.	West Virginia	1 500
42.	Nebraska	1 000
43.	North Dakota	1 000
44.	Arizona	-0-
45.	Arkansas	-0-
46.	Kansas	-0-
47.	Kentucky	-0-
48.	New Mexico	-0-
49.	Oklahoma	-0-
50.	South Dakota	-0-
51.	Tennessee	-0-
	Total	52,666,000

[7] Acreage of organic soils obtained from Regional Technical Service Center and compiled by William E. McKinzie, Assistant Principal Soil Correlator Midwest Region, Soil Conservation Service.

[8] Minnesota acreage provided by Professor Rouse Farham, Department of Soil Science, University of Minnesota.

FIGURE 1. RANK OF STATES BY ACREAGE OF ORGANIC SOILS IN THE UNITED STATES



NOTE: ACREAGE OF ORGANIC SOILS OBTAINED FROM REGIONAL TECHNICAL SERVICE CENTER AND COMPILED BY WILLIAM E. McKINZIE, ASSISTANT PRINCIPAL SOIL CORRELATOR MIDWEST REGION, SOIL CONSERVATION SERVICE. "0" INDICATES NO ORGANIC SOILS. NEW MEXICO PRODUCES PEAT BUT THE DATA INDICATE NO ORGANIC SOILS.

OUTLINE MAP OF THE UNITED STATES

TABLE 2

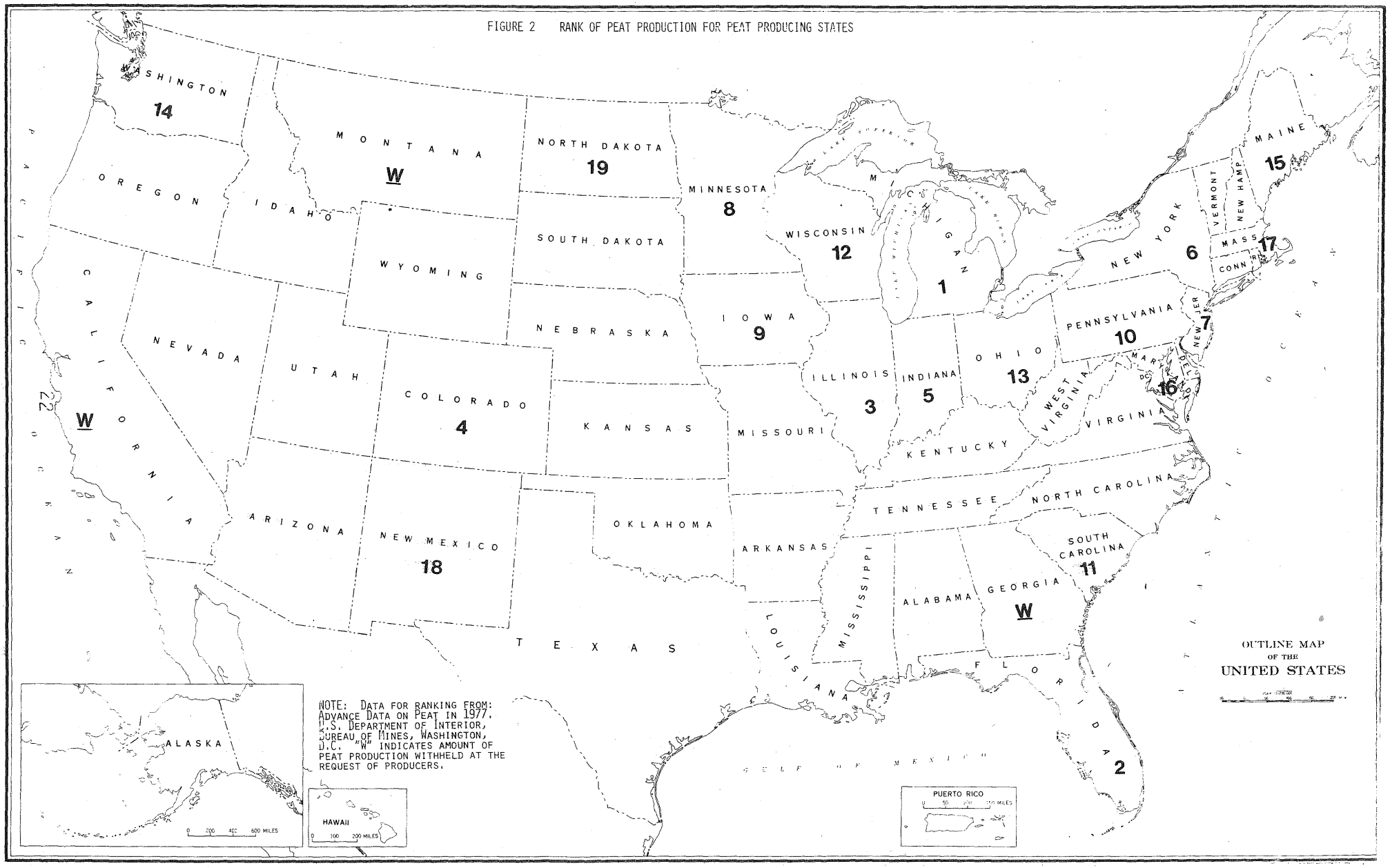
RANK OF PEAT PRODUCTION FOR PEAT PRODUCING STATES

PRODUCTION RANK 1976 [9] (SHORT TONS)	PRODUCTION RANK 1977 [10] (SHORT TONS)
1. Michigan	1. Michigan
2. Indiana	2. Florida
3. Illinois	3. Illinois
4. Florida	4. Colorado
5. New York	5. Indiana
6. Colorado	6. New York
7. Minnesota	7. New Jersey
8. New Jersey	8. Minnesota
9. South Carolina	9. Iowa
10. Washington	10. Pennsylvania
11. Wisconsin	11. South Carolina
12. Maine	12. Wisconsin
13. Ohio	13. Ohio
14. Maryland	14. Washington
	15. Maine
	16. Maryland
	17. Massachusetts
	18. New Mexico
	19. North Dakota

[9]. Advance Data on Peat in 1976, U.S. Department of Interior, Bureau of Mines, Washington, D.C., November 1977. Includes the states with producers allowing production data to be released by U.S. Department of Interior, Bureau of Mines (California, Georgia, Iowa, Massachusetts, Montana, North Dakota, Pennsylvania, requested this production data not be released.)

[10]. Advance data on Peat 1977 U.S. Department of Interior, Bureau of Mines, Washington, D.C., September, 1977. California, Georgia and Montana data withheld by request.

FIGURE 2 RANK OF PEAT PRODUCTION FOR PEAT PRODUCING STATES



NOTE: DATA FOR RANKING FROM: ADVANCE DATA ON PEAT IN 1977, U.S. DEPARTMENT OF INTERIOR, BUREAU OF MINES, WASHINGTON, D.C. "W" INDICATES AMOUNT OF PEAT PRODUCTION WITHHELD AT THE REQUEST OF PRODUCERS.

Peat Land Policies

Legal Status of Peat

One of the considerations in developing peat land policy which has implications for other policies concerns the "legal status" of peat. Legal status does not in this case refer to a court tested determination of the legal classification of peat lands. Rather, it refers to the generic legal classification applied to peat lands in each state.

Mineral is the most common category used to classify peat. This is true for all states (Table 3A), for the peat producing states Table 3B, and for the large acreage states, Table 3C. THe data show that 14 states do not have a "legal status" for peat. Nine (9) of those states are in the large states category and five (5) are peat producing states. The next most common category used to classify the "legal status" of peat is the "Horticulture category."

Mechanisms for Regulation

A number of types of mechanisms are used to regulate peat land use. The data in Table 4A summarizing the six major categories of regulatory mechanism. Mining related regulations are the most common titles given for the peat land regulations. This is not different than what might be expected given that the most common "legal status" for peat is mineral category.

The reader is referred to Appendix A for a listing of the titles of regulating mechanisms and the agencies responsible for regulating peat lands. The agencies were asked to indicate the title and number of the statute(s) used to regulated peat lands. To the extent that they were given, the titles and numbers and the regulating agencies are presented in Appendix A, Table A-1.

TABLE 3A: LEGAL STATUS OF PEAT (ALL STATES)

LEGAL STATUS	# OF STATES
MINERAL	14
FUEL	0
HORTICULTURE	7
OTHER	2
NO LEGAL STATUS	14
NOT GIVEN	6
NOT PEAT	8
	51

MINNESOTA: SURFACE RIGHTS

TABLE 3B: LEGAL STATUS OF PEAT (PEAT PRODUCING STATES)

LEGAL STATUS	# OF STATES
MINERAL	10
FUEL	0
HORTICULTURAL/AGRICULTURAL	4
OTHER	2
NO LEGAL STATUS	5
	21

TABLE 3C: LEGAL STATUS OF PEAT (LARGE PEAT ACREAGE STATES)

LEGAL STATUS	# OF STATES
MINERAL	10
FUEL	0
HORTICULTURAL/AGRICULTURAL	3
OTHER (SURFACE)	2
NO LEGAL STATUS	9
NOT GIVEN	2
	26

TABLE 4A: TYPE OF MECHANISMS USED FOR REGULATION OF PEATLAND MANAGEMENT

SURFACE MINING ACTS	MINNESOTA: STATUTE DNR COMMISSIONER RE: SALE OR LEASE
MINING ACTS	
WETLAND LAWS	
MINEDLAND RECLAMATION ACTS	
ENVIRONMENTAL QUALITY ACTS	
LOCAL ZONING REGULATIONS	

Regulation of Extraction and Utilization

The agencies were asked to indicate specific mechanisms that allowed the extraction of peat (Tables 5A through 5C) and the utilization of peat generally (Tables 6A through 6C). The most common mechanism for regulating the extraction of peat is the outright sale of the land. The next most common mechanism when considering "all states" is the use of a permit. The lease is the second most common mechanism for the "large acreage" states. A permit is the second most common extraction mechanism for the peat producing states. Lease is the third most common mechanism for peat producing states. While permit is the third most common extraction mechanism when considering all states and also for the "large acreage" states.

The utilization of peat land is regulated most commonly by Royalties, Rent Per Acre and Application Fees. In addition to being the most common three categories of utilization mechanism for "all states" they are the most common mechanism for "peat producing states" and the "large acreage" states.

Rehabilitation and Bonding

A topic of much concern, debate and legislative action involving the extractive industries relates to the rehabilitation of the area from which a material has been removed. Whether it is called reclamation or rehabilitation, the concept involves purposive action on the part of some one or some agency or business to attempt to convert the mined or extracted area to a condition that allows for future uses that meet some acceptable definition. The agencies were asked to indicate if rehabilitation (reclamation) of harvested or mined peat lands was required. The data in Tables 7A, 7B, and 7C indicated that a total of 22 states require rehabilitation. A majority of both the "peat producing states" and the "large acreage" states require rehabilitation on harvested mined peat lands.

TABLE 5A: MECHANISMS USED FOR THE REGULATION OF EXTRACTION OF PEAT (ALL STATES)

	# OF STATES*
LEASE	19
PERMIT	18
OUTRIGHT SALE	22
LAND EXCHANGE	5
OTHER	5

(51)

MINNESOTA: LEASE/ OUTRIGHT SALE

*TOTAL NUMBER OF STATES IS LARGER THAN 51 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING EXTRACTION OF PEAT.

TABLE 5B: MECHANISMS USED FOR THE REGULATION OF EXTRACTION OF PEAT (PEAT PRODUCING STATES)

METHOD OF REGULATION	# OF STATES*
LEASE	10
PERMIT	11
OUTRIGHT SALE	15
LAND EXHANGE	2
OTHER	2
NOT GIVEN	1

*TOTAL NUMBER OF STATES IS LARGER THAN 21 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING EXTRACTION OF PEAT.

TABLE 5C: REGULATION OF EXTRACTION OF PEAT (LARGE PEAT ACREAGE STATES)

METHOD OF REGULATION	# OF STATES*
LEASE	14
PERMIT	9
OUTRIGHT SALE	16
LAND EXCHANGE	2
OTHER	2
NOT GIVEN	3
NONE	1

(26)

*TOTAL NUMBER OF STATES IS LARGER THAN 26 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING EXTRACTION OF PEAT.

TABLE 6A: MECHANISMS USED FOR THE REGULATION OF UTILIZATION OF THE PEATLAND (ALL STATES)

METHOD OF REGULATION	# OF STATES*
APPLICATION	10
RENT/ACRE	11
ROYALTIES	12
SIZE LIMIT	5
TERMS	6
VARIES	2
NOT ESTABLISHED	12

*TOTAL NUMBER STATES IS LARGER THAN 51 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING UTILIZATION OF PEATLANDS.

TABLE 6B: MECHANISMS USED FOR THE REGULATION OF UTILIZATION OF PEATLAND (PEAT PRODUCING STATES)

METHOD OF REGULATION	# OF STATES*
APPLICATION	7
RENT/ACRE	6
ROYALTIES	7
SIZE LIMIT	2
TERMS OF APPLICATION	2
VARIES WITH DEPOSIT	2
NOT GIVEN	6

*TOTAL NUMBER STATES IS LARGER THAN 21 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING UTILIZATION OF PEATLANDS.

TABLE 6C: MECHANISMS USED FOR THE REGULATION OF UTILIZATION OF PEATLAND (LARGE PEAT ACREAGE STATES)

METHOD OF REGULATION	# OF STATES*
APPLICATION	6
RENT/ACRE	8
ROYALTIES	8
SIZE LIMIT	3
TERMS OF APPLICATION	2
VARIES WITH DEPOSIT	1
NOT GIVEN	8
NONE	2

*TOTAL NUMBER STATES IS LARGER THAN 26 SINCE STATES CAN USE MORE THAN ONE METHOD FOR REGULATING UTILIZATION OF PEATLANDS.

TABLE 7A: REHABILITATION OF MINED PEATLANDS REQUIRED (ALL STATES)

	# OF STATES	
YES	22	
NO	10	MINNESOTA: NO
NOT GIVEN	11	
NO PEAT	8	
	51	

TABLE 7B: REHABILITATION OF MINED PEATLANDS REQUIRED (PEAT PRODUCING STATES)

	# OF STATES
YES	13
NO	8
	21

TABLE 7C: REHABILITATION OF MINED PEATLANDS REQUIRED (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	15
NO	7
NOT GIVEN	4
	26

TABLE 8A: BONDING REQUIRED FOR THE EXTRACTION OF PEAT (ALL STATES)

	# OF STATES
YES	17
NO	18
NOT GIVEN	8
NO PEAT	8
	51

MINNESOTA: NO

TABLE 8B: BONDING POLICY REQUIRED FOR THE EXTRACTION OF PEAT (PEAT PRODUCING STATES)

	# OF STATES
YES	11
NO	10
	21

TABLE 8C: BONDING POLICY REQUIRED FOR THE EXTRACTION OF PEAT (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	12
NO	10
NOT GIVEN	4
	26

Bonding is a technique that is used to assure that there will be funds to cover the rehabilitation or reclamation of peat lands should the operator fail to follow through. A total of 17 states require bonding related to rehabilitation (Table 8A). E even (11) peat "producing states" and 12 of the "large acreage states" require bonding to assure that rehabilitation is covered financially. These data are presented on Tables 8B and 8C respectively.

Environmental Protection

While the rehabilitation and bonding requirements relate primarily to the extracted peat lands, the environmental protection regulation generally relate to the harvesting or extraction of peat. The use of environmental impact statements if required are usually part of the process of applications for the use of peat lands.

The data in Table 9A indicate that twenty-two states have some type of environmental constraints placed on the harvesting or mining of peat resources. Over half (13) of the 21 producing states (Table 9B) indicated that there were environmental protection constraints related to peat extraction. Similarly, over one half of the "large acreage" states have environmental protection constraints related to peat extraction (Table 9C).

When considering the requirement for environmental impact statements (EIS) on new operations or applications, only 13 of the states indicated an EIS requirement. (Table 10A). The data in Tables 10B and 10C indicated that 10 of the peat producing states and 12 of the "large acreage" states respectively require an EIS to be written on new applications or operations.

Peat Production

In order to provide a sense of the relevance of the peat land policy problem, the study was designed to collect data on the production of peat. The data pertaining to peat production are presented on Tables 11, 12, 13, 14, 15A through C.

TABLE 9A: ENVIRONMENTAL PROTECTION REGULATIONS ON EXTRACTION OF PEAT (ALL STATES)

	# OF STATES	
YES	22	
NO	9	MINNESOTA: NOT SPECIAL ONES
NOT GIVEN	12	
NO PEAT	8	
	51	

TABLE 9B: ENVIRONMENTAL PROTECTION REGULATIONS RELATED TO PEAT EXTRACTION (PEAT PRODUCING STATES)

	# OF STATES
YES	13
NO	7
NOT GIVEN	1
	21

TABLE 9C: ENVIRONMENTAL PRODUCTION REGULATIONS RELATED TO PEAT EXTRACTION (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	16
NO	6
NOT GIVEN	4
	26

TABLE 10A: ENVIRONMENTAL IMPACT STATEMENT REQUIRED ON NEW OPERATIONS (ALL STATES)

	# OF STATES	
YES	13	MINNESOTA: YES
NO	17	
NOT GIVEN	13	
NO PEAT	8	
	51	

TABLE 10B: ENVIRONMENTAL IMPACT STATEMENT REQUIRED FOR PEAT EXTRACTION (PEAT PRODUCTION STATES)

	# OF STATES
YES	10
NO	10
NOT GIVEN	1
	21

TABLE 10C: ENVIRONMENTAL IMPACT STATEMENT REQUIRED FOR PEAT EXTRACTION (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	12
NO	10
NOT GIVEN	4
	26

It has been pointed out previously that during 1977, twenty-one states were producing and selling peat. Only four of these states indicated that at the time of the survey, there were active producing operations on state owned land. Those states are: Alaska, Louisiana, Minnesota and Montana. California had a peat operation on some type of government land other than state owned. The data in Table 11 indicate that a total of eight (8) peat operations are on state lands and the remaining 113 are on private lands.

When considering only those states with 75,000 acres or more of peat land, 18 have commercial peat operations. These data are presented in Table 12.

All three types of peat - moss peat, reed sedge, and peat humus - are extracted in 18 of the 21 peat producing states (Table 13). It should be noted that more than one type of peat may be extracted in a state and therefore the total number of states would exceed the number of peat producing states.

The data in Table 14 reveal that the 23 of the states have indicated the primary use of the extracted peat for horticulture/agricultural purposes. Commercial use of peat (packing, litter, etc.) has only three (3) of the states indicating it as a primary use of the extracted peat. No states indicated extracted peat being used for chemical or fuel purposes.

The discussion of peat policy and the production of peat would not be complete without some indication of the significance of peat as a resource for the state. The data in Table 15A indicate that only eight (8) states had indicated that peat was a significant resource.

When considered by production rank (Table 15B) seven of the states have indicated that peat is a significant resource. Eight (8) of the states that have indicated that peat is a significant resource are in the group of states with 75,000 or more acres of peat (Table 15C).

TABLE 11: NUMBER OF COMMERCIAL PEAT OPERATIONS

	# OF OPERATIONS		
# ON STATE LAND	8	MINNESOTA:	3 STATE
# ON PRIVATE LAND	113		3 PRIVATE
TOTAL	121		

TABLE 12: NUMBER OF STATES WITH COMMERCIAL PEAT OPERATIONS (LARGE PEAT ACREAGE STATES)

	# OF STATES
NUMBER WITH	18
NUMBER WITHOUT	6
NOT GIVEN	2
	26

TABLE 13: TYPE OF PEAT EXTRACTED

	# OF STATES*
SPHAGNUM	18
REED SEDGE	18
PEAT HUMUS	18
	54

*TOTAL NUMBER OF STATES GREATER THAN 21/SOME STATES EXTRACT MORE THAN ONE TYPE OF PEAT.

TABLE 14: PRIMARY USE OF EXTRACTED PEAT

	# OF STATES*		
CHEMICAL	0		
COMMERCIAL (litter, packing material, etc.)	3		
FUEL	0		
HORTICULTURAL/AGRICULTURAL	23**	MINNESOTA:	HORTICULTURE/ AGRICULTURE
OTHER	2		
NOT GIVEN	1		
	29		

*TOTAL NUMBER IS GREATER THAN 21, SOME STATES REPORTED MORE THAN ONE USE OF EXTRACTED PEAT.

**ALASKA AND IDAHO REPORTED PEAT EXTRACTED

TABLE 15A: SIGNIFICANCE OF PEAT AS A RESOURCE (ALL STATES)

	# OF STATES	
YES	8	MINNESOTA: YES
NO	43	
	51	

(2) MINNESOTA, (3) MICHIGAN, (4) FLORIDA, (9) NORTH CAROLINA, (12) INDIANA, (16) CALIFORNIA, (21) NEW JERSEY, (26) SOUTH CAROLINA

NOTE: NUMBER IN PARENTHESIS ( ) INDICATES RANK OF ACREAGE OF PEAT LAND

TABLE 15B: PEAT CONSIDERED A SIGNIFICANT RESOURCE (PEAT PRODUCING STATES)

	# OF STATES
YES	7
NO	14
	21

TABLE 15C: PEAT CONSIDERED A SIGNIFICANT RESOURCE (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	8
NO	16
NOT GIVEN	2
	26

It is interesting to note that apparently only 5 of the 14 states with 250,000 or more acres of peat consider peat a significant resource. Similarly, only 5 of the top ten "peat producing states" responded that peat is a significant resource.

Future of Peat Lands

The review and development of peat land management policy requires not only data on current policy but also data pertaining to the future of the peat lands. Insights pertaining to future of peat lands can be learned from current activities and preferences related to the peat lands. Data were obtained which indicates the existence of pressure and activities related to the preservation and/or development of peat lands.

The data in Tables 16A through 16C indicate that eight (8) states have pressure for preserving peat lands. Six of the states with pressure for preserving peat lands are peat producing states (Table 16B). Seven of the states are in the group of states with 75,000 or more areas of peat land.

It should be noted that these data do not reflect a "public opinion poll" but rather the responses of governmental agencies to a question which attempted to determine if there was actually pressure for preserving the peat resource.

In addition to pressure for preservation, it is important to know if there is pressure for developing the peat resource. The data in Tables 17A through 17C indicate that eight (8) states have pressure for developing the peat resource.

Seven (7) of the states which indicated that there was pressure for developing the peat resource are currently peat producing states (Table 17B).

TABLE 16A: PRESSURE FOR PRESERVING PEATLAND

	# OF STATES	
YES	8	MINNESOTA: YES
NO	25	
NOT GIVEN	10	
NOT PEAT	8	
	51	

STATES WITH PRESSURE FOR PRESERVING PEATLANDS:

ILLINOIS MICHIGAN MONTANA NEW JERSEY

NORTH CAROLINA WEST VIRGINIA WISCONSIN MINNESOTA

TABLE 16B: PRESSURE FOR PRESERVING PEATLANDS (PEAT PRODUCING STATES)

	# OF STATES
YES	6
NO	14
NOT GIVEN	1
	21

TABLE 16C: PRESSURE FOR PRESERVING PEATLANDS (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	7
NO	15
NOT GIVEN	4
	26

TABLE 17A: PRESSURE FOR DEVELOPING PEATLAND

	# OF STATES	
YES	8	MINNESOTA: YES
NO	27	
NOT GIVEN	8	
NO PEAT	8	
	51	

STATES WITH PRESSURE FOR DEVELOPING PEATLANDS:

COLORADO ILLINOIS MAINE MICHIGAN MONTANA NEW JERSEY

NORTH CAROLINA MINNESOTA

TABLE 17B: PRESSURE FOR DEVELOPING PEATLANDS (PEAT PRODUCING STATES)

	# OF STATES
YES	7
NO	14
	21

TABLE 17C: PRESSURE FOR DEVELOPING PEAT LANDS (LARGE PEAT ACREAGE STATES)

	# OF STATES
YES	7
NO	16
NOT GIVEN	3
	26

The two non-producing states with pressure for developing the peat resources are West Virginia and North Carolina. North Carolina at this time has a large scale peat development effort underway in the state.

When considering the "large acreage" peat states (Table 17C) seven (7) states expressed the existence of pressure for the development of the peat resource.

One way of operationalizing pressure for development of the peat resource into clear behavior terms is to determine if there are applications for the development of peat lands. The data in Table 18 indicate that 7 states had at least one application pending for the development of peat resource.

TABLE 18 APPLICATIONS PENDING FOR DEVELOPMENT OF PEATLANDS

STATE	# OF APPLICATIONS	PURPOSE OF APPLICATION
LOUISIANA	1	HORTICULTURE
MAINE	3	HORTICULTURE & PROCESS & FUEL
MICHIGAN	2	HORTICULTURE & PROCESS
NORTH CAROLINA	1	MULTIPLE
OHIO	2	NOT GIVEN
PENNSYLVANIA	2	HORTICULTURE
MINNESOTA	5	MULTIPLE

Two of the states, Pennsylvania and Louisiana are states with less than 75,000 acres of peat land. All of the states, except North Carolina, were commercially extracting and selling peat in 1977.

There are a number of uses for peat and for peat lands. The agencies were asked to indicate if the state had a preferred use of the peat resource, horticultural and agricultural uses and use as a natural wildlife area were

the most often mentioned areas of preferred use. When considering the peat producing states, the data in Table 19B reveal that the majority of the states have no preferred use. The same is true for the states with 75,000 or more acres of peat land (Table 19C). As is the case with the "all states" data, the next most preferred uses for the "producing states" and the "large acreage" states are the horticulture/agriculture and natural wildlife categories.

One of the major considerations for the future of peat lands or any resource that is to be managed is the existence of a long range strategy for the development or non-development of the resource. The agencies were asked to respond to the question, "does your state have a long-range strategy for the development (or non-development) of the peat resource?" The data in Table 20 show that none of the responding agencies for any of the states had indicated that such a strategy existed in their respective states. That is, apparently, none of the states have a long-range peat development strategy or at least none of the states indicated that there is some type of long-term plan or strategy to be used for making decisions regarding the management of the peat resource.

Peat Land Information and Committee Activity

It has been pointed out earlier that there is an increasing interest in peat as a resource. With the increase in interest, has come an increase in activity both in the realm of policy review and development as well as in the area of research. The Minnesota Peat Project, of which this report is a part, exemplifies the increasing interest and activity. The increase in interest and activity has increased the feasibility and the necessity for sharing information. The survey attempted to obtain data on two types of activities related to additional information about peat lands in the states. The two types of informations are: 1) peat inventory, and 2) committee activity related to use and/or regulation of peat. The state by state data are presented in Appendix A, Table A-5.

TABLE 19A: PREFERRED USE OF PEAT AS A RESOURCE

PREFERRED USES	# OF STATES
CHEMICAL	0
COMMERCIAL	0
FUEL	0
HORTICULTURAL & AGRICULTURAL	6
NATURAL WILDLIFE AREA	5
NO PREFERRED USE	24
NOT GIVEN	10
NO PEAT	8

TABLE 19B: PREFERRED USE OF STATE PEATLANDS (PEAT PRODUCING STATES)

PREFERRED USES	# OF STATES
CHEMICAL	0
COMMERCIAL (litter, packing, etc.)	0
FUEL	0
HORTICULTURAL/AGRICULTURAL	4
NATURAL/WILDLIFE	2
OTHER	1
NO PREFERRED USE	15

TABLE 19C: PREFERRED USE OF STATE PEATLANDS (LARGE PEAT ACREAGE STATES)

PREFERRED USES	# OF STATES
CHEMICAL	0
COMMERCIAL (litter, packing, etc.)	0
FUEL	0
HORTICULTURAL/AGRICULTURAL	3
NATURE/WILDLIFE	3
OTHER	1
NO PREFERRED USE	17

TABLE 20: LONG RANGE STRATEGY FOR THE MANAGEMENT OF PEAT AS A RESOURCE

	# OF STATES
YES	0
NO	51
	51

The agencies were asked to respond to a set of questions which asked if a peat inventory had been done, who had done the inventory and which method(s) was used. The term peat inventory was defined as a description of the peat resource in terms of location, amount, type, etc. Nineteen (19) states indicated that some type of peat inventory has been done.

Some type of peat inventory has been done in eight (8) of the 15 states with the 50,000 or more acres of peat and in 12 of the 26 states with 75,000 or more acres of peat. When considering those states producing peat in 1977 the data show that 14 of the 21 peat producing states have had some type of peat inventory done.

The peat inventories were generally done by a state agency and the most frequently employed method was field mapping of the resource. Nine of the states: California, Florida, Indiana, Maine, Maryland, Michigan, Minnesota, Pennsylvania, Washington, indicated that at least one technique in addition to field mapping has been used in the peat inventory.

In addition to peat inventory activity, the survey also attempted to determine whether or not legislative and/or administrative committees which have done or are currently doing research regarding the use and/or regulation of peat. Only four states indicated that such committees had existed or currently are in existence. Those states with such committees are Iowa, Michigan, Minnesota and South Carolina. All four states indicated administrative level committees. Only Minnesota indicated a legislative committee.

SUMMARY

One of the major problems facing the State of Minnesota in the area of peatlands is the refinement of the current laws and policies related to the management of the peatlands. This peatlands policy study is directed toward the objective of providing an overview of the peatlands policies in other states. The rationale for the study is based on the premise that it is useful to know the "state of the art" regarding current peatland policies and practices in order to place the Minnesota policy review and development in a proper perspective.

The complete detailing of all of the policies in all of the states is not the orientation of the study. Rather a questionnaire was mailed to the Departments of Natural Resources (or equivalent agency), the Director of the State Geological Survey, and the State Conservationist (SCS) of all of the states and Puerto Rico. The questionnaire was designed to determine (1) the existence of management policies and the general nature of the regulating mechanisms, (2) the nature of commercial operations and uses of the extracted peat, (3) future of the peatlands and strategies for managing those lands, (4) existence of peatland surveys and research on use and regulations.

In developing a theoretical framework for the study a brief discussion of the use of the concept policy is presented. Generally, policy can be and has been used to mean (1) a philosophical concept, (2) a product, (3) a process, and (4) a framework for action. It is apparent from the research that peatlands management policy, as it presently exists in the United States is generally of the process type--that is, it is generally comprised of activities, requirements, legislation and procedures. Some evidence was found to indicate that objectives are stated specifically along with the processes. The "framework for action"--

which includes both product and process--is yet to be realized to an appreciable extent in current peatlands policies.

The findings of the study are presented in four sections: Peatland Policies, Peat Production, Future of Peatlands, and Peatland Information and Committee Activity.

Policy

The two major considerations regarding policy are first the legal status of peatlands and the mechanisms for regulating peatlands. When given a specific and separate legal status, peat is most often considered a mineral. The regulation of peatlands is based on a wide variety of legislative acts including surface mining laws, mining acts, wet land laws, mined land reclamation acts, environmental quality acts and local zoning ordinances.

In addition to many states not having a specific legal status defined for peat, many states do not have policies for the regulation of the utilization of peatlands. Of those that do have regulations of the utilization, application fees, rent per acre and royalties are the most often used.

The extraction of peat is regulated by lease, permit and outright sale. Approximately one-third of the states use one or more of these three mechanisms for regulating extraction of peat.

When considering rehabilitation or protection of lands disturbed by peat extraction, 22 of the states have rehabilitation policies, 17 have bonding requirements, 22 have environmental protection regulations and 13 require environmental impact statements.

The most common distribution of revenue generated by the extraction of peat is to a special fund--generally at the state level.

Production

The commercial operations producing peat are for the most part on private land. It should be noted that this is generally not the case in Minnesota. The peat that is extracted commercially in the peat producing states includes all of the major types of peat: Sphagnum, reed sedge and peat humus.

As might be expected the majority of states indicated that the primary use of the extracted peat was for horticultural/ agricultural purposes with some additional commercial use. The additional commercial use means the use of peat for packing material, litter, etc. None of the states indicated that peat was being extracted primarily for fuel or chemical uses.

When considering the significance of the resource, only eight (8) states indicated that peat was a significant resource in that state. The states are: Michigan, Florida, North Carolina, California, Indiana, New Jersey, South Carolina and Minnesota.

Future of Peatlands

The direction of the future of peatlands is evidenced by the indication that eight states responded that there was pressure for preserving the peatlands. Six of those states indicated that there was pressure for developing the peatlands. Seven states currently have applications pending or anticipated related to the development of peatlands. Maine, North Carolina and Minnesota have applications pending (either officially or unofficially) for uses other than horticultural or commercial (packing or litter) uses such as peat for fuel.

A majority of the states responded that there was not an official preferred use of the peatlands. Similarly, none of the states indicated that there existed a strategy for the management of peat as a resource.

Conclusions

In conclusion, it appears that peatland management policy in the United States is not well developed. Those policies which are in existence tend to specify procedures and regulations, or what might be called process policy. Little exists, or at least is apparent from this research, to suggest that there is anything in the way of well-defined framework for action which links the regulations and procedures with goals and objectives.

Minnesota is definitely on the "leading edge" of the peat policy development problem. Unfortunately, that edge is presently quite "dull" and is in need of a great deal of care as the "honing process" begins and continues. Further, states should be aware of the pitfalls of attempting to do a "direct transfer" of policy from some other state to their particular situation. Most policies appear to be process policies in which the goals and objectives are not included or not stated, or even worse, not known. A state, by attempting to "borrow" one of the existing "policies", in all likelihood may adopt a set of procedures which are oriented toward a set of goals and objectives quite unlike those that are the primary goals and objectives toward which its efforts are to be directed. Much can be learned from the policies of other states but the ownership of the resource and the purposes for managing the resource must be understood and clarified before "adoption" or "transfer" of policies should be attempted.

APPENDIX A

State by State
Questionnaire Responses
TABLE A1 through A5

TABLE A-1 Policies Related to the Regulation of Peatlands

	Mechanisms for the Regulation of Peat Lands	Regulating Agency	Legal Status of Peat				Mechanisms for the Extraction of Peat				
			Mineral	Fuel	Horticultural	No Legal Status	Lease	Permit	Outright Sale	Land Exchange	Other
Alabama	Numerous (None specifically mentioned)	None specifically - those empowered with controlling water & air pollution & reclamation				X	X		X		
Alaska	No laws relating specifically to peat	DNR - Division of Lands	X				X				
Arizona	No Peat	No Peat									
Arkansas	No Peat	No Peat									
California	Not regulated specifically Local ordinance Senate Bill 756	State Division of Mines and Geology and County	X				X	X	X		
Colorado	Not regulated specifically	Mine Land Reclamation Board Division of Mines, EPA Dept. of Health, County Planning	X					X	X		
Connecticut	Inland & Tidal Wetlands Acts	Local municipality State				X					
Delaware	No Commercial Production	Not Given				X		None			
Florida	Mineral Lease on State Lands/Reclamation	Florida Department of Natural Resources/Div. of Resource Mgmnt.	X						X		X
Georgia	Georgia Surface Mining Act of 1968	Not Given	X				X	X	X		
Hawaii	Not regulated	None				X		None			
Idaho	Idaho Surface Mining Act (Title 47 Chapter 15 Idaho Code)	Idaho Department of Land				X	X				
Illinois	Surface-Mining Land Conservation & Reclamation Act	Department of Mines & Minerals & Illinois EPA				X				X	
Indiana	None specifically	Local or county zoning boards				X	X		X		
Iowa	None specified	None specified				X	X		X		X
Kansas	No Peat	No Peat									
Kentucky	No Peat	No Peat									
Louisiana	Not Given	Coastal Zone Management U.S. Corps of Engineers	X				X		X		
Maine	The Maine Mining Law for state owned land/Title 10 Chapt. 401, Revised Statutes, 1964/Chapt 339	Maine Geological Survey Bureau of Public Lands	X				X		X		
Maryland	Maryland Commercial Fertilizer Law	Maryland Dept of Agriculture			X		X				
Massachusetts	Local zoning licensing, ordinances, permits	None specified				X		X			X
Michigan	Sect 404 Pl 92-50 U.S. Corps of Engineers, D.A. 345 1972 Inland Lakes & Streams Act Mich DNR	U.S. Corps of Engineers Mich DNR - Water Management Division			Other		X	X	X	X	

TABLE A1 (CONT)

			Mineral	Fuel	Horticult.	No Leg. St.	Lease	Permit	Contr. Sale	Land Exchg.	Other
Minnesota	State Statute Chapter 92.461 Subdivisions 1 & 2/ Chapter 282.04 Subdivision 1	Department of Natural Resources/ County Auditor		Other = Surface			X		X		
Mississippi	House Bill 606 (1977)	Mississippi Geological Survey				X	X	X	X		
Missouri	No Commercial Production										
Montana	Hardrock Mining Law Title 50 Chapter 12 RCM 1947/ Title 81 Chapt 7 RCM 1947	Dept of State Lands, U.S. Forest Service, Bureau of Land Management	X				X	X			
Nebraska	No Peat	No Peat				X	X	X	X	X	
Nevada	No Peat	No Peat				X					X
New Hampshire	Incomplete Data	Not Given									
New Jersey	Local Zoning Ordinances	Local zoning boards			X				X		X
New Mexico	No Peat										
New York	Mineral Resources (Mined Land Reclamation) Part 420/Environmental Conservation Law 23,2903, etc.)	NY Dept of Environmental Conservation Bureau of Mineral Resources	X				X	X	X	X	
North Carolina	Mining Act of 1971 G.S. 74-46 thru 74-68 G.S. 143-350 thru 359	Dept of Natural Resources & Community Development				X			X		
North Dakota	Not given	Not given				X					
Ohio	Ohio Revised Code Chapter 1514/Surface Mine Law	Ohio Dept of Natural Resources - Division of Reclamation	X					X			
Oklahoma	No Peat	No Peat									
Oregon	Incomplete Data	Not Given									
Pennsylvania	Surface Non-coal Mining Operations Subchapter E	Bureau of Surface Mine Reclamation	X					X	X		
Rhode Island	No Commercial	Not Given									
South Carolina	South Carolina Mining Act 1973 (58) 314 Code 63-711 thru 63-733	South Carolina Land Resources Conservation Commission	X					X			
South Dakota	No Peat	No Peat									
Tennessee	No Peat	No Peat									
Texas	Texas Surface Mining and Reclamation Act	Surface Mining & Reclamation Division of the Railroad Commission	X				X	X	X	X	
Utah	Not given	Utah Oil & Gas & Mining Commission					X	X	X		
Vermont	Act 250 Title 10 Part 5 Chapter 151	Dept of Environmental Conservation			X			X			
Virginia	Wetlands Act	Marine Resources Commission									
Washington	Rew 79-01.124 79-01.176 79-01.132 79-01.201 79-01.174 For State 79-01.168 owned land	Department of Natural Resources			X				X		
West Virginia	Wetlands Act	Not Given			X						
Wisconsin	Not regulated	None			X			X	X		
Wyoming	Environmental Quality Act 35-502.1 - 35.502.56	Department of Environmental Quality	X				X	X			
Puerto Rico	Not given	Department of Agriculture Commonwealth of Puerto Rico			X						

*SCS Data shows no peat. Response to questionnaire indicates only Humates. Bureau of Mines data indicates some peat extracted in 1977.

TABLE A2 Policies Related to the Management of Peatlands*

	Mechanisms for the Regulation of the Utilization of Peat Lands					Rehabilitation of Mineral Peat Land Required		Bonding Required For Extraciton of Peat		Environmental Protection Constraints on Extraction of Peat		Environmental Impact Statement Required on New Operation		Distribution of Revenue Generated by Extraction of Peat
	Application	Rent/Acre	Royalties	Size Limit	Terms	yes	no	yes	no	yes	no	yes	no	
Alabama			X			X		X		X		X		Royalties paid to land owner
Alaska		X				X			X	X			X	General Fund
California	Varies with deposit					X		X		X		X		
Colorado	Varies					X		X		X		X		General Fund
Connecticut										X				
Delaware		None					X		X					
Florida							X		X		X		X	Special Funds
Georgia			X			X		X		X			X	Land Owner
Hawaii		None				None		None						
Idaho	X	X	X	X	X		X		X		X		X	Endowment Fund
Illinois						X			X			X	X	
Indiana			X				X		X	X			X	
Iowa		X					X		X		X		X	
Kansas														
Maine	X	X	X			X		X		X			X	Special Fund
Maryland			X				X		X		X		X	Revenue from Sales Tax General Fund
Massachusetts						X		X		X			X	
Michigan	X	X	X				X		X	X		X		Land Aquisition Trust Fund

* States with no organic soils omitted from table.

TABLE A2 (CONT)

	REG					REHAB		BONDING		ENV PROT		EIS		DIST
	Appli.	R/Ac	Royals	Sz L.	Terms	yes	no	yes	no	yes	no	yes	no	
Minnesota		X					X		X					
Mississippi		X	X			X		X		X			X	
Missouri														
Montana	X	X		X		X		X		X		X		Permanent School Funds
Nebraska			X				X		X		X		X	
Nevada							X		X		X		X	
New Hampshire														
New Jersey						X			X	X		X		
New York	X		X			X		X		X		X		Special Fund
North Carolina	Not	established				X		X			X		X	
North Dakota	Not	given					X		X		X	Not	given	Not given
Ohio	X					X		X					X	Special Funds General Fund
Oregon														
Pennsylvania	X	X				X		X		X			X	Reclamation Fund
Rhode Island														
South Carolina				X	X	X		X			X		X	State receives no funds
Texas	X	X	X			X		X		X			X	
Utah						X		X		X		X		
Vermont				X	X	X			X					
Virginia														
Washington	X		X		X	X		X		X		X		Permanent School Fund
West Virginia														
Wisconsin							X		X	X		X		
Wyoming	X	X	X	X	X	X		X		X		X		
Puerto Rico						X			X		X		X	

TABLE A3 Commercial Peat Operations

	Number of Commercial Peat Operations				Type of Peat Extractions			Primary Use of Peat Extractions						Rank of Production			
															Rank of Access		
	On State Land	On Private Land	On Other Land	Total # of Operations	Sphagnum	Reed Sedge	Peat Humum	Chemical	Commercial (packing & litter)	Fuel	Horticultural/ Agricultural	Other	None Harvested		Peat a Significant Resource		
															Yes		No
Alabama				0									x		20		x
Alaska	3			3	x						x				1		x
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
California			3	3	x	x	x				x			c	16	x	
Colorado				9	x	x	x				x			4	34		x
Connecticut															24		x
Delaware															39		x
Florida		9		9	x	x	x				x			2	4	x	
Georgia		2		2			x		x		x			c	11		x
Hawaii															10		x
Idaho											x				33		x
Illinois		Not given			x	x	x				x			3	23		x
Indiana		18		18	x	x	x							5	12	x	
Iowa		4		4	x	x	x				x			9	19		x
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Louisiana	x														6		x
Maine				4	x	x	x		x		x			15	8		x
Maryland		1		1	x						x			16	32		x
Massachusetts		3		3	x	x					x	x		17	13		x
Michigan		16		16	x	x	x				x			1	3	x	
Minnesota	3	3		6	x	x					x			8	2	x	
Mississippi															25		x
Missouri															38		x
Montana	2	4		6	x	x	x				x			c	22		x
Nebraska		1		1		x					x				42		x
Nevada															40		x
New Hampshire															17	-	-
New Jersey		6		6		x	x		x		x			7	21	x	
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	x
New York		9		9	x	x	x				x			6	9		x
North Carolina															7	x	
North Dakota				1		x					x			19	43		x
Ohio				6	x	x	x				x			13	18		x
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Oregon				2											27	-	-
Pennsylvania		13		13	x	x	x				x			10	29		x
Rhode Island															30	-	-
South Carolina		1		1			x				x		x	11	26	x	
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Texas															35		x
Utah															37		x
Vermont															28	-	-
Virginia															14	-	-
Washington		10		10	x	x	x				x			14	15		x
West Virginia															41		x
Wisconsin		4		4	x		x				x			12	5		x
Wyoming															36		x
Puerto Rico															31	-	-

TABLE A4 Policy Considerations and the Future

	Pressure For Preserving Peatlands			Pressure For Developing Peatlands			Application Pending For Developing Peatlands				Preferred Use Of State Peatlands							Strategy For Managing Peatlands	
	Yes	No		Yes	No		Yes	No	#	Uses	Chemical	Commercial	Fuel	Horticultural/ Agricultural	Natural Wildlife	Other	No Preferred Use	Yes	No
Alabama		x			x												x		x
Alaska		x			x			x	0								x		x
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California		x			x												x		
Colorado		x		x										x					x
Connecticut			Not	given															x
Delaware			Not	given															x
Florida		x			x			x	0								x		x
Georgia		x			x			x	0					x	x				x
Hawaii		x			x			x	0								x		
Idaho		x			x			x	0		Not given								x
Illinois	x			x				x									x		x
Indiana		x			x												x		x
Iowa		x			x												x		x
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana		x			x		x		1	Horticult.							x		x
Maine				x			x		3	Hort/Pro/Fuel				x					x
Maryland		x			x			x									x		x
Massachusetts		x			x			x								x			x
Michigan	x			x			x		2	Processed					x				x
Minnesota	x			x			x										x		x
Mississippi		x			x			x	0								x		x
Missouri			Not	given															
Montana	x			x				x	0								x		x
Nebraska		x			x			x	0								x		x
Nevada		x			x			x	0								x		x
New Hampshire			Not	given															
New Jersey	x			x				x	0								x		
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York		x			x			x									x		x
North Carolina	x			x			x		1	Multiple	Not given								x
North Dakota		x			x			x									x		x
Ohio		x			x		x		2	Not given							x		x
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon			Not	given															
Pennsylvania		x			x		x		2	Horticult.				x					x
Rhode Island			Not	given															
South Carolina		x			x			x	0								x		x
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas		x			x			x	0								x		x
Utah		x			x			x	0								x		x
Vermont			Not	given															
Virginia			Not	given															
Washington		x			x			x	0								x		x
West Virginia	x				x			x	0						x				x
Wisconsin	x				x			x	0					x	x				x
Wyoming		x			x			x	0								x		
Puerto Rico		x			x			x	0					x	x				x

TABLE A5 Peat Lands Information and Policy Development Activity

	Inventory		Who Did Survey			Methods Used In Survey						Committee on Research and the use/regulation of Peat		
	Yes	No	SCS	State	No Survey	Field Map	Photo Interpretation	Test Borings	Bulk Sampling	Chemical Analysis	Other	Administrative Committee	Legislative Committee	No Committee
Alabama		x			x									x
Alaska	x		x			Not	given							x
Arizona	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California	x			x		x		x						x
Colorado		x			x									x
Connecticut			Not given											
Delaware			Not given											
Florida	x			x		x		x	x	x				x
Georgia		x			x									
Hawaii	x		x			x								x
Idaho			Not given											x
Illinois	x		x											x
Indiana	x		x	x		x	x	x	x					x
Iowa	x		x			x						x		
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Louisiana		x			x									x
Maine	x			x		x	x	x		x				x
Maryland	x			x		x		x		x				x
Massachusetts		x												x
Michigan	x			x		x		x		x		x		
Minnesota	x			x		x	x	x	x	x		x	x	
Mississippi		x			x									x
Missouri			Not given											
Montana		x			x									x
Nebraska		x			x									x
Nevada		x			x									x
New Hampshire			Not given											
New Jersey	x			x						x				
New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New York		x			x									x
North Carolina			Not given											
North Dakota	x		x											x
Ohio	x			x										x
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oregon			Not given											
Pennsylvania	x			x		x		x						x
Rhode Island			Not given											
South Carolina		x			x							x		
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas	x			x						x				x
Utah		x			x									x
Vermont			Not given											
Virginia			Not given											
Washington	x			x		x		x						x
West Virginia			Not given											
Wisconsin			Not given											
Wyoming		x			x									x
Puerto Rico	x		x						x	x				x

APPENDIX B

Responses to Selected Questions for Peat Producing States

TABLE B1

Table B-1 Responses to Selected Questions for Peat Producing States

PEAT PRODUCTION STATES	76	77	LEGAL STATUS OF PEAT				MECHANISMS FOR REGULATION OF EXTRACTION OF PEAT					MECHANISMS FOR REGULATION OF UTILIZATION OF PEATLAND					REHABILITATION OF MINED PEATLAND REQUIRED		BONDING REQUIRED FOR EXTRACTION OF PEAT	
			MINERAL	FUEL	HORTICULTURAL	NO LEGAL STATUS	LEASE	PERMIT	OUTRIGHT SALE	LAND EXCHANGE	OTHERS	APPLICATION	RENT/ACRE	ROYALTIES	SIZE LIMIT	TERMS	YES	NO	YES	NO
MICHIGAN	1	1		O			X	X	X	X		X	X	X				X		X
FLORIDA	4	2	X						X		X	NOT GIVEN						X		X
ILLINOIS	3	3				N			X			NOT GIVEN					X			X
COLORADO	6	4	X					X	X			VARIES					X		X	
INDIANA	2	5				N	X		X					X				X		X
NEW YORK	5	6	X				X	X	X	X		X		X			X		X	
NEW JERSEY	8	7			X				X			NOT GIVEN					X			X
MINNESOTA	7	8		O			X		X				X					X		X
IOWA	C	9				N	X		X		X		X					X		X
PENNSYLVANIA		10	X					X	X			X	X				X		X	
SOUTH CAROLINA	9	11	X					X							X	X	X		X	
WISCONSIN	11	12			X			X	X			NOT GIVEN						X		X
OHIO	13	13	X					X				X					X		X	
WASHINGTON	10	14			X				X			X		X		X	X		X	
MAINE	12	15	X				X		X			X	X	X			X		X	
MARYLAND	14	16			X		X							X				X		X
MASSACHUSETTS		17				N		X				NOT GIVEN					X		X	
NEW MEXICO*		18																		
NORTH DAKOTA	C	19				N	NOT GIVEN					NOT GIVEN						X		X
CALIFORNIA	C	C	X				X	X	X			VARIES WITH DEPOSIT					X		X	
GEORGIA	C	C	X				X	X	X					X			X		X	
MONTANA	C	C	X				X	X				X	X		X		X		X	

Table B-1 (Cont.)

PEAT PROCUCTION STATES	ENVIRONMENTAL PROTECTION CONSTRAINTS ON EXTRACTION OF PEAT		E.I.S. REQUIRED ON NEW OPERATION		NUMBER OF COMMERCIAL OPERATIONS				PRIMARY USE OF EXTRACTED PEAT							PEAT A SIGNIFICANT RESOURCE		PRESSURE FOR PRESERVATION OF PEATLANDS		PRESSURE FOR DEVELOPMENT OF PEATLANDS		PREFERRED USE OF STATE PEATLANDS							
	YES	NO	YES	NO	STATE	PRIVATE	OTHER	TOTAL	CHEMICAL	COMMERCIAL	PACKAGE-LITTER	FUEL	HORTICULTURAL/ AGRICULTURAL	OTHER		YES	NO	YES	NO	YES	NO	CHEMICAL	COMMERCIAL	FUEL	HORTICULTURAL/ AGRICULTURAL	NATURAL WILDLIFE	OTHER	NO PREFERRED USE
MICHIGAN	X		X			16		16					X			X		X		X						X		
FLORIDA		X		X		9		9					X			X			X		X							X
ILLINOIS		X	X		NOT GIVEN								X				X	X		X								X
COLORADO	X		X		1	8		9					X				X		X	X					X			
INDIANA	X			X		18		18	NOT GIVEN							X			X		X							X
NEW YORK	X		X			9		9					X				X		X		X							X
NEW JERSEY	X		X			6		6		X			X			X		X		X								X
MINNESOTA		X	X		4	2		6					X			X		X		X								X
IOWA		X		X		4		4					X				X		X		X							X
PENNSYLVANIA	X			X		13		13					X				X		X		X				X			
SOUTH CAROLINA		X		X		1		1					X	X		X			X		X							X
WISCONSIN	X		X			4		4					X				X	X			X							X
OHIO	NOT GIVEN			X	NOT GIVEN			6					X				X		X		X							X
WASHINGTON	X		X			10		10					X				X		X		X							X
MAINE	X			X	NOT GIVEN			4		X			X				X	NOT GIVEN		X					X			
MARYLAND		X		X		1		1					X				X		X		X							X
MASSACHUSETTS	X			X		3		3					X	X			X		X		X						X	
NEW MEXICO*																												
NORTH DAKOTA		X	NOT GIVEN		NOT GIVEN			1					X				X		X		X							X
CALIFORNIA	X		X				3	3					X			X			X		X							X
GEORGIA	X			X		2		2		X			X				X		X		X				X	X		
MONTANA	X		X		2	4		6					X				X	X		X								X

*No peat production during the period immediately prior to the survey. Data specify no peat extracted-only humates.

APPENDIX C

Responses to Selected Questions for States with 75,000 or more acres of organic soils (Large acreage Peat States)

TABLE C1

TABLE C1 RESPONSES TO SELECTED ITEMS FOR LARGE ACREAGE PEAT STATES

RANK OF ACREAGE	ACRES OF PEATLAND	LEGAL STATUS OF PEAT				MECHANISMS FOR REGULATION OF EXTRACTION OF PEAT					MECHANISMS FOR REGULATION OF UTILIZATION OF PEATLAND					REHABILITATION OF MINED PEATLAND REQUIRED		BONDING REQUIRED FOR EXTRACTION OF PEAT	
		MINERAL	FUEL	HORTICULTURAL	NO LEGAL STATUS	LEASE	PERMIT	OUTRIGHT SALE	LAND EXCHANGE	OTHERS	APPLICATION	RENT/ACRE	ROYALTIES	SIZE LIMIT	TERMS	YES	NO	YES	NO
ALASKA	27,000,000	X				X						X				X			X
MINNESOTA	7,200,000	SURFACE				X		X				X					X		X
MICHIGAN	4,530,400	SURFACE				X	X	X	X		X	X	X				X		X
FLORIDA	3,000,000	X						X			NOT GIVEN						X		X
WISCONSIN	2,830,000			X			X	X			NOT GIVEN						X		X
LOUISIANNA	1,800,000	X				X		X			NOT GIVEN					NOT GIVEN		NOT GIVEN	
NORTH CAROLINA	1,200,000				X			X			NOT ESTABLISHED					X		X	
MAINE	772,000	X				X		X			X	X	X			X		X	
NEW YORK	648,000	X				X	X	X	X		X		X			X		X	
HAWAII	486,000				X	NONE					NONE						X		X
GEORGIA	430,000	X				X	X	X					X			X		X	
INDIANA	375,000				X	X		X					X				X		X
MASSACHUSETTS	347,000				X		X			X	NOT GIVEN					X		X	
VIRGINIA	312,000	NOT GIVEN				NOT GIVEN					NOT GIVEN					NOT GIVEN		NOT GIVEN	
WASHINGTON	200.000			X				X			X	X	X	X	X	X		X	
CALIFORNIA	166,000	X				X	X	X			VARIES WITH DEPOSIT					X		X	
NEW HAMPSHIRE	151,00	NOT GIVEN				NOT GIVEN					NOT GIVEN					NOT GIVEN		NOT GIVEN	
OHIO	122,00	X					X				X					X		X	
IOWA	118,000				X	X		X		X		X					X		X
ALABAMA	115,000				X	X		X					X			X		X	
NEW JERSEY	113,000			X							NOT GIVEN					X			X
MONTANA	110,000	X				X	X				X	X		X		X		X	
ILLINOIS	104,000				X			X			NOT GIVEN					X			X
CONNECTICUT	100,000				X	NOT GIVEN					NOT GIVEN					NOT GIVEN		NOT GIVEN	
MISSISSIPPI	75,000				X	X	X	X				X	X			X		X	
SOUTH CAROLINA	75,000	X				X								X	X	X		X	

TABLE C1 (CONT)

RANK OF ACREAGE	ENVIRONMENTAL PROTECTION CONSTRAINTS ON EXTRACTION OF PEAT		E.I.S. REQUIRED ON NEW OPERATION		NUMBER OF COMMERCIAL OPERATIONS				PRIMARY USE OF EXTRACTED PEAT						PEAT A SIGNIFICANT RESOURCE		PRESSURE FOR PRESERVATION OF PEATLANDS		PRESSURE FOR DEVELOPMENT OF PEATLANDS		PREFERRED USE OF STATE PEATLANDS							
	YES	NO	YES	NO	STATE	PRIVATE	OTHER	TOTAL	CHEMICAL	COMMERCIAL	PACKAGE-LITTER	FUEL	HORTICULTURAL/ AGRICULTURAL	OTHER	YES	NO	YES	NO	YES	NO	CHEMICAL	COMMERCIAL	FUEL	HORTICULTURAL/ AGRICULTURAL	NATURAL WILDLIFE	OTHER	NO PREFERRED USE
ALASKA	X			X	NOT GIVEN			3					X			X		X		X							X
MINNESOTA		X	X		4	2		6					X		X		X		X								X
MICHIGAN	X		X			16		16					X		X		X		X						X		
FLORIDA		X		X		9		9					X		X			X		X							X
WISCONSIN	X		X			4		4					X			X	X			X				X	X		
LOUISIANA	NOT GIVEN		NOT GIVEN		X#NOT GIVEN				NOT GIVEN							X		X		X							X
NORTH CAROLINA		X		X	NOT GIVEN				NOT GIVEN						X		X		X		NOT FORMALIZED						
MAINE	X			X	NOT GIVEN			4		X			X			X	NOT GIVEN		X					X			
NEW YORK	X		X			9		9					X			X		X		X							X
HAWAII	X		X					0	NONE							X		X		X							X
GEORGIA	X			X		2		2		X			X			X		X		X				X	X		
INDIANA	X		X			18		18	NOT GIVEN						X			X		X							X
MASSACHUSETTS	X			X		3		3	NOT GIVEN							X		X		X						X	
VIRGINIA	NOT GIVEN		NOT GIVEN					0	NONE						NOT GIVEN		NOT GIVEN		NOT GIVEN		NOT GIVEN						
WASHINGTON	X		X			10		10					X			X		X		X							X
CALIFORNIA	X		X				3	3					X		X			X		X							X
NEW HAMPSHIRE	NOT GIVEN		NOT GIVEN					0	NOT GIVEN						NOT GIVEN		NOT GIVEN		NOT GIVEN		NOT GIVEN						
OHIO	NOT GIVEN			X	NOT GIVEN			6					X			X		X		X							X
IOWA		X		X		X		4					X			X		X		X							X
ALABAMA	X		X					0	NONE							X		X		X							X
NEW JERSEY	X		X			6		6		X			X		X		X		X								X
MONTANA	X		X		2	4		6					X			X	X		X								X
ILLINOIS		X	X		NOT GIVEN								X			X	X		X								X
CONNECTICUT	X		NOT GIVEN					0	NONE							X	NOT GIVEN		NOT GIVEN		NOT GIVEN						
MISSISSIPPI	X			X				0	NONE							X		X		X							X
SOUTH CAROLINA		X	X			1		1					X	X	X			X		X							X

APPENDIX D
DATA COLLECTION

EXHIBIT 1 DNR cover letter which accompanied all questionnaires

EXHIBIT 2 Cover letter to DNR or equivalent agencies

EXHIBIT 3 Cover letter to DNR agencies previously contacted by Minnesota DNR

EXHIBIT 4 Cover letter to U.S. Geological Survey Directors in each state

EXHIBIT 5 Cover letter to State Conservationist. (SCS) in each state

EXHIBIT 6 Questionnaire used to collect data for the study

EXHIBIT 1.

STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
CENTENNIAL OFFICE BUILDING • ST. PAUL, MINNESOTA • 55155

August 4, 1977

DNR INFORMATION
(612) 296-6157

TO : To Whom It May Concern

FROM : Elwood F. Rafn, Director
Minerals Division
Minnesota Department of Natural Resources

SUBJECT: Dr. William Fleischman's Peatlands Questionnaire

Currently Minnesota is studying its peat resources and the potential social, economic, and environmental impact of developing them. Minnesota has recognized a need in our state to formulate a Peatlands Policy to give direction to the protection and utilization of peatlands. In order to do this many types of information must be gathered and assimilated.

I am requesting your cooperation with Dr. William A. Fleischman of the University of Minnesota who is working with the Department and has prepared a questionnaire concerning peatlands in your state or province. The results of the questionnaire will be most helpful to us in providing a framework for the formulation of our own management strategies.

EXHIBIT 2.

UNIVERSITY OF MINNESOTA
DULUTH

Lake Superior Basin Studies Center
413 Administration Building
Duluth, Minnesota 55812

Dear :

The Minnesota Department of Natural Resources is in the process of refining its policy and regulations related to the management of the peatlands in the state. One part of that process involves obtaining information from other states having peat regarding their peatland management policies and practices. We feel that there is much to be learned from the experiences of others and are therefore contacting all of the states with peat resources.

In order to systematically obtain the information we have developed a list of items that represent the information that we are interested in having you provide us.

We would appreciate your consideration on this request for information. If you have any questions please do not hesitate to contact me. I will be contacting you in two to three weeks regarding the questionnaire.

Thank you for your assistance.

Sincerely,

William A. Fleischman, Ph.D.
Associate Professor

218/726-7528 or 726-7551

EXHIBIT 3.

UNIVERSITY OF MINNESOTA
DULUTH

Lake Superior Basin Studies Center
413 Administration Building
Duluth, Minnesota 55812

Dear :

Some time ago you received a letter and questionnaire from Mr. Phillip Pippo of the Minnesota Department of Natural Resources regarding peatlands in your state. The information that you provided at that time was primarily concerned with regulation of peatland development.

In order to complete the survey of peatlands management policies and practices it would be helpful if you could take the time to provide us with some additional information. I have enclosed a list of the items that represent the additional information we would like to have you provide. (PLEASE IGNORE PAGE 1 -- you have already provided us with that information.)

I look forward to the return of the questionnaire. The information that you provide will be most useful to the refinement of the management of peatlands in Minnesota. If you have any questions regarding the items on the questionnaire please do not hesitate to call me.

I will be contacting you within two weeks to see if you have any questions regarding the additional information requested.

Feel free to contact me before I call if you prefer.

Thank you for your assistance.

Sincerely yours,

William A. Fleischman, Ph.D.
Associate Professor

218/726-7528 or 726-8542

Enclosure

EXHIBIT 4.

UNIVERSITY OF MINNESOTA
DULUTH

Lake Superior Basin Studies Center
413 Administration Building
Duluth, Minnesota 55812

Dear :

Minnesota is currently in the process of refining its policies and regulations related to the management of the peatlands in the state. As part of that process we are contacting all of the States and the Canadian Provinces that have peat deposits.

A questionnaire has been developed to obtain the kind of information that will be useful for Minnesota's policy refinement process. We will be sending a questionnaire to each of the Departments of Natural Resources or equivalent agencies in each of the States and Provinces and the State Conservationist in each State.

In order to assure that we get the most complete information the Director of the Geological Survey in each state is also being contacted.

It would be appreciated if you or some member of your staff would take the time to complete the questionnaire and return it.

I understand the busy schedule that you folks must have, but the information that you can provide us in addition to what we will be receiving from the Departments of Natural Resources and the State Conservationist will be of extreme value.

I will be contacting you in two to three weeks to see if there are any questions that you have about the questionnaire or the study. Thank you for your cooperation and assistance.

Sincerely,

William A. Fleischman, Ph.D.
Associate Professor

218/726-7528 or 726-8542

EXHIBIT 5.

UNIVERSITY OF MINNESOTA
DULUTH

Lake Superior Basin Studies Center
413 Administration Building
Duluth, Minnesota 55812

Dear :

Minnesota is currently in the process of refining its policies and regulations related to the management of the peatlands in the state. As part of that process we are contacting all of the States and the Canadian Provinces that have peat deposits.

A questionnaire has been developed to obtain the kind of information that will be useful for Minnesota's policy refinement process. We will be sending a questionnaire to each of the Departments of Natural Resources or equivalent agencies in each of the States and Provinces and the Directors of the Geological Survey of each of the States.

In order to assure that we get the most complete information the State Conservationist in each state is also being contacted.

It would be appreciated if you or some member of your staff would take the time to complete the questionnaire and return it.

I understand the busy schedule that you folks must have, but the information that you can provide us in addition to what we will be receiving from the Departments of Natural Resources and the Directors of the Geological Survey will be of extreme value.

I will be contacting you in two to three weeks to see if there are any questions that you have about the questionnaire or the study. Thank you for your cooperation and assistance.

Sincerely,

William A. Fleischman, Ph.D.
Associate Professor

218/726-7528 or 726-8542

Enclosures

EXHIBIT 6.

PEATLANDS STUDY

UMD
MDNR
1977

1. How many commercial peat operations are currently functioning in your state?
   Number_____

2. Where are the commercial operations located?
   Number on state land_____
   Number on private land_____
   Number on other_____(please specify, e.g. federal, county, etc.)

3. What is the legal status of peat in your state?
   _____(a) mineral
   _____(b) fuel
   _____(c) horticultural product
   _____(d) other
   _____(e) no legal status

4. How is peat regulated in your state?
   (a) Agency name:

   (b) Statute (please cite statute title and number--enclose if available):

   (c) Other (e.g. administrative regulation, etc.--please enclose if available):

5. What mechanism(s) enable(s) peat to be extracted in your state?
   _____(a) lease
   _____(b) permit
   _____(c) outright sale
   _____(d) land exchange
   _____(e) other (please specify)

6. What are the details of the mechanism(s) employed in the utilization of peat in your state?
   _____(a) application fees
   _____(b) rent per acre
   _____(c) royalties
   _____(d) size limit to area applied for
   _____(e) terms of mechanism (e.g. renewability)

7. A. How is the revenue distributed that is generated by the peat harvesting/mining? (e.g. general fund, special funds, etc.)

   B. What percent of the revenue is returned directly to the local area?
   _____% returned to local area

8. A. Is rehabilitation (reclamation) of the harvested/mined peatland required?
   _____Yes _____No

   B. If so, is there a bonding requirements?
   _____Yes _____No _____No rehabilitation required

9. What kinds of administrative sanctions are available for management? (e.g. fines, permit extensions, monitoring reports, etc.)

10. Is there pressure for preserving the peat resources?
_____Yes _____No

11. Is there pressure for developing the peat resources?
_____Yes _____No

12. A. Are there applications pending for developing the resource?
_____Yes _____No

B. How many applications and for what uses?
Number of applications_____
Uses:

13. Are there environmental protection constraints placed on the harvesting/mining of the peat resources (e.g. drainage restrictions, etc.)?
_____Yes _____No

14. Is an Environmental Impact Statement required for new operations or applications?
_____Yes _____No

15. Does the State/Province have a long-range strategy for the development (or non-development) of the peat resource?
_____Yes _____No

16. What is the primary use of the peat currently being harvested/mined?
_____(1) chemical
_____(2) commercial (packing material, litter, etc.)
_____(3) fuel
_____(4) horticultural/agricultural
_____(5) other
_____(6) none harvested/mined

17. Which of the following types of peat are being harvested/mined in your State/Province?
_____(1) peat moss (sphagnum)
_____(2) reed-sedge
_____(3) peat humus
_____(4) none harvested/mined

18. Does the State/Province have a preferred use for the peat resource?
_____(1) chemical
_____(2) commercial
_____(3) fuel
_____(4) horticultural/agricultural
_____(5) natural wildlife area
_____(6) other (specify)_____
_____(7) no preferred use

19. Is peat considered a significant resource in your State/Province?
_____Yes _____No

20. Has a peat inventory been done in your state, i.e. to what extent has the resource been described (location, amount, type, etc.)? Please reference available information--send copy if available. Send location map if available.
_____Yes _____No

21. A. If a survey has been or is being made, who did it?
_____(1) Soil Conservation Service (USDA)
_____(2) State agency (specify)_____
_____(3) No survey

B. What methods were used?
_____Field Mapping _____Test Borings _____Chemical Analysis
_____Photo Interpretation _____Bulk Sampling _____Other (specify)_____

22. Are there any committees or departments either in the legislative branch or in the administrative branch of government in your State/Province which have done or are currently doing research regarding the use and/or regulation of peat?

_____Legislative committee(s) [specify committee(s) and contact person]

Committee/Department	Contact Person	Phone No.
1.	1.	1.
2.	2.	2.

_____Administrative committee(s) [specify committee (s) and contact person]

Committee/Department	Contact Person	Phone No.
1.	1.	1.
2.	2.	2.

_____none

23. A. If someone were to come to your State/Province to observe the various peat operations what would be the best place(s) for them to visit?

B. Who would they talk with about those operations?

24. Who would they talk with in your agency about the management of the peat resource?

Name_____ Phone_____
Address_____
_____
_____

RETURN TO:

Professor William Fleischman
Lake Superior Basin Study Center
413 Administration Building
University of Minnesota-Duluth
Duluth, Minnesota 55812

Thank you for your time and assistance.

APPENDIX E

REFERENCES

REFERENCES

A number of studies, reports and statutes were included or referred to in the materials returned with the questionnaires. Those references have been organized into two categories. First, General--meaning the material did not apply to a specific state or applied to more than one state. Second, the references are by state. It should be noted that the list should in no way be taken as an exhaustive set of reference, but rather an information base to use and upon which to build additional references.

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APPENDIX F

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