

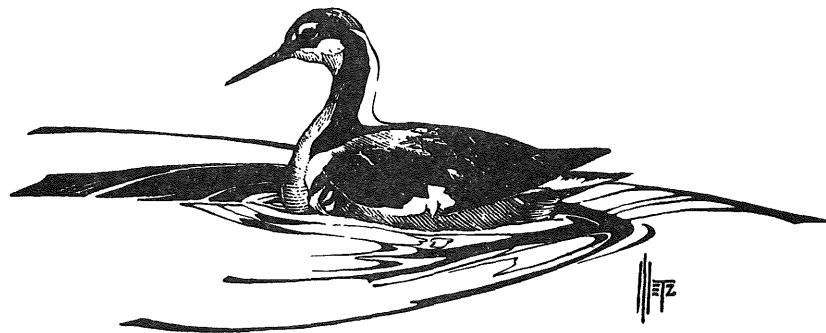
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PLAN FOR THE MANAGEMENT OF NONGAME WILDLIFE IN MINNESOTA

VOLUME 4 - GOALS AND STRATEGIES

(review draft)



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DATE - May 30, 1985

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Plan Volumes

Vol. 1 The Planning Concept - issued 2/83

Vol. 2 Resource Analysis - draft issued 9/15/83

Vol. 3 Issues - issued 10/84

Vol. 4 Goals and Strategies - draft 6/85

Vol. 5 The Operational Plan

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Plan for the Management of Nongame Wildlife
in Minnesota

Volume 4 Goals and Strategies (draft)

Date: May 30, 1985

Minnesota Department of Natural Resources
Division of Fish and Wildlife
Nongame Wildlife Program
St. Paul, Minnesota

Funded by: Minnesota citizens through their donations to the
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Table of Contents

	Page
Introduction	i
Mission Statement.....	iii
Department of Natural Resources Goal.....	iii
Comprehensive Planning	1
Goal.....	1
Discussion.....	1
Alternative Strategies 1-4.....	3
Opportunities.....	8
Coordination to Enhance Resource Conservation	10
Goal.....	10
Discussion	10
Alternative Strategies 1-4	11
Opportunities	16
Public Awareness and Appreciation	19
Goal	19
Discussion	19
Development of a Public Education and Participation Plan ...	21
Alternative Strategies 1A-4A	21
Implementation and Evaluation of a Public Education and Participation Plan	27
Alternative Strategies 1B-4B.....	27
Opportunities.....	31
Data Acquisition.....	34
Goal.....	34
Discussion.....	34
Alternative Strategies 1-4.....	35
Opportunities	42
Information Management.....	44
Goal	44
Discussion.....	44
Alternative Strategies 1-4.....	45
Opportunities.....	50
Endangered and Threatened Species	52
Goal	52
Discussion.....	52
Alternative Strategies 1-3	54
Opportunities	60

	Page
Wildlife Habitat	62
Goal	62
Discussion	62
Alternative Strategies 1-4	62
Opportunities.....	69
Nongame Wildlife Program Funding	73
Goal	73
Discussion	73
Alternative Strategies 1-4	74
Opportunities	79
Literature Cited.....	82

INTRODUCTION

Volume 4 - Goals and Strategies is the most important component of the five-part Plan for the Management of Nongame Wildlife in Minnesota. It constitutes the Strategic Plan for the operation of the Nongame Wildlife Program. As such, it will describe the Nongame Wildlife Program's purpose, policies and management philosophy and direction.

Volume 4 is based on the three preceding planning documents which have described the scope and content of the planning process (Volume 1 - The Planning Concept), the condition of the nongame resource (Volume 2 - Resource Assessment) and the eight major resource management issues (Volume 3 - Issues). The final version of Volume 4 will tell the public and other government agencies how the Nongame Wildlife Program intends to respond to these resource issues.

The purpose of this present document, the draft version of Volume 4, is to provide you with an opportunity to assist Nongame Wildlife Program personnel in selecting the management strategies or courses of action the Program will undertake to resolve the issues and achieve the Program's goals. There are eight Goal Statements presented in the following chapters which correspond to the eight issues identified in Volume 3. These goal statements were developed by the Technical Advisory Committee and are based on legislative mandates, public input and professional judgment. Each goal statement represents the basic, long-term management policy of the Nongame Wildlife Program in response to the issue.

Each goal statement is followed by a number of Alternative Strategies or plans of action which the Nongame Wildlife Program might undertake. The

costs, benefits and feasibility of each alternative are analyzed and opportunities to attain the goals are presented.

Your thoughts on the appropriateness of the goals and the preferred approach for resolving each issue are important. Please take some time to consider the alternatives and express your opinion on the worksheet provided.

The Department of Natural Resources Goal

To achieve optimum and beneficial natural resources planning, protection, and development responsive to public need, consistent with resource potentials, and for the social, spiritual and economic well being of both present and future generations through an effective and efficient organization.

Policy Directive No. 19

May 22, 1972

Mission Statement
Nongame Wildlife Program

- * To conserve Minnesota's native nongame wildlife resources for their functional value in ecosystems so that genetic diversity and richness of the natural world are maintained.
- * To enhance, maintain, and/or restore self-sustaining populations of endangered and threatened wildlife to prevent their extinction. To prevent the decline of additional wildlife populations to endangered or threatened status.
- * To enhance citizen awareness, appreciation, understanding and concern for wildlife so that constructive actions will result on behalf of the nongame resource and citizens will derive greater pleasure and enjoyment from the presence of that resource.
- * To foster comprehensive stewardship for all natural resources through programs that recognize the interdependence and limits of the natural environment.

COMPREHENSIVE PLANNING

Issue: LONG RANGE COMPREHENSIVE PLANNING IS NECESSARY FOR OPERATION OF THE NONGAME WILDLIFE PROGRAM IN A MANNER CONSISTENT WITH RESOURCE NEEDS AND CITIZEN INTERESTS.

Goal: To develop, implement and maintain an integrated system of Nongame Wildlife Program operation and resource management that will guide decision-making, facilities establishment of priorities, and monitor the Program's progress in the attainment of quantified objectives for the conservation of Minnesota's resources.

Discussion: The Nongame Wildlife Program's responsibility extends statewide and encompasses 455 species or approximately 67% of the vertebrate species for which the Division of Fish and Wildlife has management jurisdiction. Yet a program budget of \$650,000 annually constitutes only 4.5% of the Division's budget. A current staff of 8 represents only 1.9% of the Division's personnel. The Regional Nongame Specialist position for the combined metropolitan and southeast portion of the state (DNR Regions 5 and 6) has remained vacant pending completion of the Program's comprehensive plan.

Clearly, funding and staffing for the Nongame Wildlife Program are not sufficient to simultaneously undertake all actions important for the conservation of Minnesota's nongame resources. Therefore, long-range management planning is being implemented as the most realistic way to establish priorities and operate a Program which first addresses the most important aspects of resource management.

Three considerations underlie the alternative strategies delineated to maintain a planned operation. First, a planned program, once implemented, requires ongoing input to monitor, evaluate, revise and update the activities to ensure their applicability, cost effectiveness, and relevance to resource needs and public services offered or desired. Second, accomplishment of such ongoing planning will necessitate restructuring of the Nongame Wildlife Program's staff with a reassignment of duties and responsibilities. Third, planning for the Nongame Wildlife Program's operations can best be accomplished within a framework of Division-wide comprehensive planning for all Minnesota's wildlife resources.

The alternatives presented below focus on staffing considerations. A Division planning team is being assembled. The alternative strategies address how the two efforts might be integrated to ensure ongoing Program planning.

Additionally, the need to assign a nongame specialist full time to the southeast region is addressed. This is the most complex staffing question as it is related to the appropriateness of splitting resource management responsibilities for the Twin Cities metropolitan area (Region 6) from the existing vacant specialist position.

The alternatives also propose a Nongame Wildlife Program administrative unit of at least one Program supervisor and a clerk/typist. Responsibilities of the unit would include:

- * Development of Program policy and management philosophy within the scope of the Division's legal mandates and consistent with resource needs identified by research and planning.
- * Identification of Program needs in coordination with other staff.

- * Development and implementation of annual operational plans consistent with strategic plan directives.
- * Identification and coordination of interagency agreements for endangered species management or other actions such as legislative initiatives necessary to implement Nongame Wildlife Program objectives.
- * Conduct promotion for the Nongame Wildlife Management Account, monitor checkoff performance, and implement additional revenue alternatives.
- * Assist in evaluating research proposals for funding.
- * Produce annual Program performance reports.
- * Assure nongame planning efforts and Program operations are consistent with requirements of the Fish and Wildlife Conservation Act of 1980.
- * Serve as the Nongame Wildlife Program's liaison with the Division's comprehensive planning team.

Each strategy incorporates all the opportunities so far delineated to resolve the issue. The strategies differ in assignment of personnel responsible for accomplishing the various opportunities.

Alternative Strategy #1: This alternative requires the nongame planner to complete the first cycle of Program planning as outlined in Vol. 1 - The Concept Document. The actions remaining to be accomplished include development and implementation of the first 4 year Operational Plan (Volume 5) and revision of the draft Resource Assessment (Volume 2).

Once volumes 2 and 5 were completed, the planner position within the

Nongame Wildlife Program would be eliminated. The planner would be re-assigned as a nongame specialist with full time regional resource management responsibilities in the combined metropolitan/southeast region of Minnesota.

Responsibility for maintaining the Program's planning initiative would then be divided between the Nongame Wildlife Program's administrative unit and the Division of Fish and Wildlife's planning team. Updates or revision of the strategic plan and resource assessment and systematic evaluation of Program performance would be assigned to the Division's planning team. The team would also be assigned the responsibility for assessing public interest and desires relative to all wildlife and evaluating the Nongame Wildlife Program's provision of public services within the scope of overall Division-wide efforts. The planning team would also develop a Division-wide evaluation system, including mechanisms for cost/benefits assessment on a project basis which would also involve the Nongame Wildlife Program.

This alternative proposes an administrative unit for the Nongame Wildlife Program consisting of one supervisor position serving as a staff specialist and supported by a clerk typist. Planning responsibilities for the supervisor would include: 1) development of Program policy, management philosophy and annual operational plans, 2) monitor compliance of the Program's plans with state and/or federal planning guidelines and 3) serve as the Program's liaison with the Division's planning team.

Analysis: This strategy involves opportunities 1-10. No new staff would be required. Therefore, no new costs would be incurred. This alternative is predicated on the creation of a fully operational planning team within the

Division of Fish and Wildlife by July 1985. A Program administrative unit of one staff specialist (the Program supervisor) in the St. Paul office is consistent with staffing for other Section of Wildlife resource management programs such as the private lands and furbearer programs.

Alternative Strategy #2: Maintaining the Nongame Wildlife Program's planning initiative will be accomplished by retaining the full-time planner position within the administrative unit of the Nongame Wildlife Program.

Documentation of both the strategic and operational aspects of Nongame Wildlife Program planning would remain the responsibility of the planner. The planner would also document policies and priorities and would monitor project implementation and evaluate Program progress. New responsibilities for the planner would be to serve as Nongame Wildlife Program's liaison with the Division's planning team, assess public interest through user surveys, and evaluate the Program's provision of public services.

This alternative would require the addition of one new position. A full-time Regional Nongame Specialist would be added to fulfill regional resource management responsibilities in the metropolitan and southeast regions.

Analysis: This strategy also involves opportunity 1-10. Implementation of this alternative would result in a central office staff of two, a supervisor and a planner, within the Program's administrative unit. This arrangement reflects the vast scope of Program jurisdiction. It would relieve the supervisor of day-to-day planning responsibilities, freeing the supervisor to focus on Program coordination, liaison, funding and promotion, annual performance reporting and general administration.

Addition of a full-time Regional Nongame Specialist in the metro/southeast region would result in the consolidation of regional nongame resource management responsibilities. In the absence of a specialist, these activities are currently being covered by the area wildlife managers, St. Paul research staff and the Regional Nongame Specialist in the southwest region. An additional specialist would increase the Nongame Wildlife Program's administrative costs by approximately \$50,000 annually for salary, office rental, vehicle and other operational expenditures.

Alternative Strategy #3: As in alternative #1, the planner position would be converted to a regional specialist position upon completion of the first planning cycle. However, under this alternative, the regional specialist position would retain certain planning responsibilities as periodic or part-time assignments. The position would have continuing responsibility for updating the resource assessment and strategic plan. Ongoing planning functions would include Program evaluation and progress monitoring, including priority establishment and operational planning.

Analysis: This strategy also encompasses opportunities 1-10 and reflects the continuous nature of successful planning. It is based on a desire to maintain the Program's administrative costs at a low level by minimizing the number of full-time staff and by anticipating the ultimate transfer of most planning functions to a Division team. As with alternatives #1 and 2, this strategy reflects the need to assign metro/southeast regional nongame resource management responsibilities in a manner consistent with the other regions. This strategy represents an approach mid-way between the two previous alternatives at no new costs to the Program.

Alternative Strategy #4: As in the three previous strategies, this alternative requires the planner to complete the first cycle of Program planning by July 1, 1985. Once the first four year operational plan has been implemented, the Program's strategic planning, program monitoring and evaluation would be assigned to the Division's planning team. Ongoing operational planning would become the responsibility of the Nongame Wildlife Program's administrative unit.

This alternative proposes to convert the planner position to a regional nongame wildlife specialist located in the metropolitan area (DNR Region 6). This specialist would be assigned to the Program's administrative unit in order to also assist the Program Supervisor with administration, planning, and promotion. A new position for an additional nongame specialist with full-time regional resource management responsibilities would then be created in the southeast portion of the state (DNR Region 5).

Analysis: This strategy assumes that strategic planning for the Program will be satisfactorily incorporated into a Division planning effort. It focuses instead on addressing an anticipated need for assistance in the administration unit with promotion, educational activities, annual operational planning, policy development, cost accounting and budgeting, program monitoring, and evaluation. As in alternative #2, a central office administrative unit of two personnel more reasonably reflects the vast scope of Program jurisdiction and administrative effort.

This strategy acknowledges the importance of focusing promotional and educational efforts on the state's metropolitan residents. Implementation of this strategy would provide the Program with an opportunity to concentrate

on the unique aspects of resource management in a highly urbanized environment without continuing to detract from or dilute efforts to manage nongame resources in the southeast region as has been the circumstance to date. Creating an additional position would add \$50,000 in salary and operating costs.

Opportunities to Resolve the Issue:

1. Adopt an official definition for the term "nongame." Consider the term "nongame fish and wildlife" as defined in PL96-336-Sept. 29, 1980, as an alternative to reduce proliferation and complications of inconsistent legal definitions.
2. Prepare a general statement on behalf of the Division that:
 - 1) officially defines the term "nongame,"
 - 2) delineates the Nongame Wildlife Program's responsibilities within the scope of the Division's obligations to wildlife, invertebrates, and native plants,
 - 3) sets forth the Program's philosophy and establishes policies on the management of invertebrates and other resource considerations.
3. Continue an ongoing planning effort for the Nongame Wildlife Program that:
 - a) establishes Program goals and strategies for goal attainment,
 - b) develops Program policy and priorities,
 - c) suggests actions for other agencies, and
 - 4) monitors Program direction.
4. Encourage the Division of Fish and Wildlife to conduct comprehensive long-range planning which would clarify Division policy and

the relationship of the Nongame Wildlife Program to other Division and Department programs and responsibilities.

5. Maintain flexibility in the current Program organization so that adjustment of personnel and funding can easily be made if recommended by the plan.
6. Assure that future legislative mandates which may be initiated to adjust Nongame Wildlife Program priorities remain consistent with Program goals and strategies.
7. Seek expansion of the U.S. Fish and Wildlife Service and other agencies' interests and activities on behalf of nongame species.
8. Initiate an effort with other agencies and organizations to jointly design and implement a course of action for the conservation of the nongame wildlife resource in Minnesota and nationally.
9. Encourage the U.S. Fish and Wildlife Service and U.S. Forest Service to implement their management plans in a timely manner and in coordination with the Nongame Wildlife Program.
10. Seek citizen review of the Nongame Wildlife Program's planning effort and ongoing participation in the determination of future Nongame Wildlife Program direction and priorities.

COORDINATION

Issue: IMPROVED COMMUNICATION AND COORDINATION AMONG PUBLIC AGENCIES, PRIVATE ORGANIZATIONS AND INDIVIDUALS IS NEEDED TO MAXIMIZE NONGAME RESOURCE CONSERVATION EFFORTS.

Goal: Establishment of an integrated and coordinated approach to the management and conservation of Minnesota's nongame resource.

Discussion: There are three aspects to this issue: 1) intra-agency coordination within the Department of Natural Resources, 2) interagency coordination between governmental agencies and 3) coordination with private organizations or individuals. To date, the Nongame Wildlife Program has assumed responsibility for coordination of all three aspects on most matters related to the nongame resource. The Program's approach has been informal (see alternative strategy #1), involving other agencies or organizations on a project-by-project basis as the need arises. The only exception has been the adoption of formal cooperative agreements with the U.S. Fish and Wildlife Service, the States of Missouri, Wisconsin, Iowa, Illinois, Michigan, and the Minnesota Zoo in regard to endangered species management.

Two considerations underlie the alternatives. First, the Nongame Wildlife Program is small and alone cannot accomplish all necessary management actions. Consequently, a coordinated effort involving the many agencies and organizations interested in the nongame resource is needed. Second, the Department of Natural Resources' legal mandates to conserve all wildlife resources necessitates that the Division of Fish and Wildlife assume a

leadership role in statewide nongame resource management and coordination efforts.

The alternatives differ in the degree of formalization of the process and mechanisms of coordination. Instead of "rallying the troops" after a crisis arises, a more effective approach might be to formalize joint ventures that are future oriented. The intent of these alternatives would be to foster cooperation for the long term through formal agreements and other mechanisms which would continue to operate despite personnel changes or fluctuations in commitment of funds or personnel.

Alternative Strategy #1: Except in regard to the formal endangered species management agreements, this alternative would retain the Nongame Wildlife Program's informal approach to inter-agency coordination. Currently, 20% of the regional nongame specialist's time is allocated to providing technical assistance to other professionals. This would continue as part of an informal intra-agency coordination process. The Regional Nongame Specialists would also continue to establish their individual network of public and private contacts with minimum coordination from the St. Paul office or attempt at centralization to establish a formal statewide interagency network.

Analysis: This alternative maintains the "status quo" relative to the Program's approach to coordinating statewide nongame resource management. It is predicated on the assumption that current efforts are effectively allocating the available manpower, monies, interest, and capabilities of the public and private sector to efficiently address resource needs. It also assumes that all important agencies or organizations have been identified and

are already contributing positively to the resource management effort. This alternative encompasses opportunities 3, 4, 12 and 17 as activities already initiated which would be maintained.

Alternative Strategy #2: The numerous agencies and organizations which conduct activities that affect the nongame resource have previously been identified in Volume 2. This strategy requires that the Nongame Wildlife Program develop formal procedures and a systematic program to interact with all these agencies in order to encourage or enhance their participation in resource conservation. Such a program would involve an analysis of the current contributions of the agencies with the intention of identifying specific mechanisms to foster and coordinate future initiatives to conserve the nongame resource. This strategy would necessitate joint planning sessions with all agencies which would identify capabilities and areas of mutual interest or responsibility in order to delineate opportunities for cooperative endeavors and to assign leadership responsibilities.

The administrative unit of the Nongame Wildlife Program would be primarily responsible for these statewide liaison and coordination efforts with intra and inter government agencies. Regional personnel would focus their efforts on liaison with the private sector.

Analysis: This strategy would involve all opportunities 1 through 17. It reflects the consideration that there is room for improvement and increasing participation in statewide nongame conservation efforts through enhanced coordination and communication. The strategy requires that the Nongame Wildlife Program take the initiative in realizing this potential by systematically identifying and implementing mechanisms to formulate management

activities with other agencies.

Implementing this strategy would require an increased commitment of time and effort on behalf of the Program's administrative unit to identify, implement and maintain cooperative efforts with numerous other agencies and organizations. The increased costs associated with an expanded time commitment are not quantifiable at this time. The implementation of this strategy could conceivably involve the creation of regional or statewide working groups of agencies' representatives which would meet periodically to identify management needs and assign tasks.

Alternative Strategy #3: This strategy represents an alternative midway between the two previous strategies. It reflects the need to intensify current efforts, yet recognizes that the Nongame Wildlife Program can't touch all bases at once. Therefore, the Nongame Wildlife Program should proceed to foster involvement with other agencies and organizations in a step-wise manner.

This strategy proposes that the Nongame Wildlife Program's administrative unit maintain a directory of agencies, organizations, and individuals involved with the nongame resource. Further, it necessitates that the administrative unit identify the agencies with the greatest potential to impact resource management and target a select few with which to formally establish cooperative involvement. Emphasis would be placed on implementing opportunities 1, 4, 5, 6, 10, 12, 13, 14 and 15 by focusing particularly on opportunity 17 and on intra-agency coordination. Informal contact would continue to be maintained with all other agencies and individuals already involved in resource management.

Analysis: If implemented, this strategy would necessitate increased action to establish and maintain regular contact with certain key programs within the Department of Natural Resources and with other agencies in order to facilitate joint ventures in resource management. Formal cooperative agreements, policy statements or other declarations of joint interest would be implemented to delineate the agencies' respective responsibilities, avoid duplication of effort, and focus on needed new actions. Accomplishment of such actions would be the responsibility of the Program's administrative unit. The increase in time needed for these tasks would be somewhat less than needed to accomplish alternative #2, but is also not quantifiable at this point.

Alternative Strategy #4: It is proposed that Nongame Wildlife Program personnel focus primarily on intra-agency coordination within the Department of Natural Resources. This would be accomplished through enhanced efforts to provide technical assistance to others within the Department of Natural Resources by implementing joint planning sessions, workshops or training programs and/or by formal cooperative agreements, letters of understanding or Division policy statements. Such activities by Program personnel would involve opportunities 1, 4, 5, 6, 7, 9, 10, 12, 13, 14, 16 and 17.

Coordination on nongame resource matters with private organizations or agencies outside the Department of Natural Resources would then become the responsibility of the Division of Fish and Wildlife. The Section of Wildlife, in particular, would work to implement opportunities 2, 3, 4, 6, 7, 8, 11, 13 and 15. Exceptions to this division of responsibility would relate to matters of endangered species management where the Nongame Program Supervisor has

been designated as the Division's representative and coordinator with the U.S. Fish and Wildlife Service.

Analysis: This strategy is based on the premise that the nongame resource is only a portion of a larger wildlife resource base. The most effective, efficient, and biologically meaningful approach to inter-agency coordination is therefore for one agency, the Division of Fish and Wildlife, to serve the statewide leadership role for the entire wildlife resource, not just a few selected species or habitats.

This strategy further recognizes that nongame resource management is affected by other activities within the Department of Natural Resources or which the Department regulates such as timber management, outdoor recreation, wetland protection and minerals exploration. Incorporation of considerations for nongame resources into these aspects of the Department's management or regulatory activities will be essential for successful nongame resource management. A concentrated effort needs to be made by Program personnel to assure that the nongame resources will not be discounted or forgotten in the day-to-day operation or planning within the Division of Fish and Wildlife and other Department programs.

This strategy proposes that the resolution of the coordination issue necessitates that the Division of Fish and Wildlife expand its inter-agency coordination activities to encompass nongame resources, thereby providing the Nongame Wildlife Program with the opportunity to concentrate primarily on intra-agency coordination through provision of technical assistance to other DNR personnel.

Opportunities to Resolve the Issue:

1. Focus initial attention on coordination with the Division of Fish and Wildlife's other programs, particularly the Natural Heritage Program and the Scientific and Natural Areas Program.
2. Initiate joint planning sessions with other agencies/organizations to delineate areas of responsibility and interest, establish goals, cost share operational costs where appropriate, and cooperatively initiate actions to preserve and manage the nongame resource in a coordinated manner.
3. Encourage and assist, to the extent possible, the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service in conserving native wildlife habitat as provided by legislation or cooperative agreements.
4. Participate in the ongoing review of the Forestry/Wildlife Coordination Policy and Habitat Guidelines and other similar policies and cooperative agreements with DNR divisions, other state agencies, and public or private organizations to encourage integration of efforts.
5. Conduct special orientation programs and joint training sessions to familiarize other agency personnel with the Nongame Wildlife Program goals and activities such as the endangered species law and listing process; and conversely, to familiarize Program personnel with other agencies' responsibilities and activities.
6. Jointly initiate and fund studies with other agencies or individuals in resource management considerations of mutual interest.

7. Identify areas where duplication of effort is occurring (e.g., handling nongame wildlife control problems and preparation of extension education material) and develop strategies to cooperatively proceed in a more efficient manner.
8. Work directly with agricultural organizations, the timber and mining industries, and private landowner associations to increase their awareness of nongame wildlife resources, the Nongame Wildlife Program, and opportunities for joint initiatives of mutual benefit.
9. Promote an understanding within the private groups mentioned in opportunity 8 of the extensive citizen interest and support which exists in Minnesota for nongame resource conservation.
10. Encourage a Division of Fish and Wildlife planning effort to more clearly delineate the relationship between the Nongame Wildlife Program and other Division programs within the context of the Division's overall responsibility for statewide wildlife resource management.
11. Seek out specific opportunities to work with county and municipal government agencies on cooperative projects of research, inventory, or management and to provide technical assistance to their personnel for nongame management on county lands.
12. Implement mechanism through the existing interagency network to assess any nongame concerns which may be identified in the environmental review process of other government agencies (EQB, PCA, etc.).
13. Improve the Division's knowledge of the economic value of the state's wildlife resources. Agencies, legislators and

individuals are generally familiar with dollar value. When the Division can present wildlife in economic terms, others may develop a greater appreciation for the resource.

14. Meet regularly and work jointly with selected District Foresters, Park Managers, private landowners, and others on innovative, cooperative nongame management projects to demonstrate coordinated management. Publicize these efforts at appropriate public meetings.
15. Identify opportunities for other agencies, organizations, or individuals to implement actions to benefit the nongame resource.
16. Initiate a public relations effort to create a general public awareness. A receptive public can make it easier to gain cooperation of groups and agencies.
17. Maintain a directory of agencies, organizations, and individuals conducting nongame resource-related activities.

PUBLIC AWARENESS AND PUBLIC APPRECIATION

Issue: PUBLIC AWARENESS, UNDERSTANDING AND APPRECIATION OF WILDLIFE NEEDS AND VALUES MUST BE ENCOURAGED IN ORDER TO ENHANCE PUBLIC PARTICIPATION AND INSURE FUTURE WILDLIFE RESOURCES.

Goal: The improvement of public awareness, understanding and appreciation of wildlife resources in order to enhance human-wildlife interactions, dispel inaccurate perceptions of the resource, and result in actions that maintain wildlife habitats and enhance resource conservation.

Discussion: The need to improve public awareness and appreciation for wildlife through education is a complex and long-standing issue. Many groups and agencies have been involved in its resolution. Nevertheless, the provision of public education and public participation opportunities has been repeatedly suggested as a primary obligation for the Nongame Wildlife Program.

Program personnel agree that public education should be an important component of the Program's activities. They also feel that the Program's responsibilities in addressing the public awareness issue must first be defined relative to the Department of Natural Resources' commitment and capability to foster resource conservation through education.

The extent of the Nongame Wildlife Program's participation in public education activities should also be defined, well designed and coordinated so as to complement existing educational efforts. In particular, the Nongame Wildlife Program's relationship with the Department's Bureau of

Information and Education and the Minnesota Environmental Education Board should be clarified in this strategy setting process.

The strategies presented below constitute a two-part approach to the issue. The first, or "A" designated strategies propose alternative ways to define the Program's relative role and responsibilities through development of a public education and participation plan.

Strategy A₁ takes the strongest position on these points by proposing that the resolution of the public awareness and education issue is first a Department responsibility. The future of the State's wildlife resources is intimately linked to timber, water, soil and air quality, all of which are beyond the scope of the Division of Fish and Wildlife's legislatively mandated responsibility.

The second, or "B" designated strategies, consider how to allocate money and personnel to implement the Program's education plan. The Nongame Wildlife Program's overall approach to the issue will result from the combination of an A and a B alternative into a final strategy.

Regardless of the strategies finally selected, decisions will have to be made at each of several steps that can be defined as follows:

- 1) identification of the educational shortcomings to be addressed,
- 2) clarification of the messages to be taught and identification of the desired changes in action or attitude,
- 3) delineation of the audiences to be targeted for specific educational messages,
- 4) identification of the techniques that most effectively deliver the message to the chosen audience.

- 5) assignment of personnel to coordinate and/or implement the Program's educational effort, and
- 6) a subsequent evaluation of the effectiveness of each educational effort.

The alternative strategies consider who will be responsible and how the decisions for the steps will be made. The alternatives do not specifically address which problems or audiences will be targeted. These are decisions that should follow after a framework has been selected and responsibilities have been delegated.

Development of an Information, Education and Public Participation Plan for the Nongame Wildlife Program

Alternative Strategy #A1: It is proposed that a working group of agency personnel within the Department of Natural Resources develop a comprehensive natural resource information and education plan over the next biennium. Such a plan will identify the role of the Department's Bureau of Information and Education, the Nongame Wildlife Program, the Divisions, and outside agencies and organizations in providing the public with educational materials, learning recreational opportunities and reasons for caring about wildlife and natural resource conservation. The working group would recommend the activities and the techniques to be undertaken by the various agencies to satisfy the diverse public education and information needs. Opportunities for funding the education, recreation and public participation projects would also be defined as a part of the working group's final report. Once the Department's plan is finalized, the Nongame Program would develop and implement an operational plan to carry out its responsibilities.

Until the plan is finalized, the Nongame Wildlife Program's educational efforts would continue to focus on the implementation of Project WILD throughout the state's public and private elementary and secondary school systems. Program personnel would continue to provide technical assistance to other professionals and extension services to the general public. Each Regional Nongame Specialist would also develop one new educational program annually, as required in their position description.

Analysis: The existence of an Information and Education Bureau within the Department of Natural Resources acknowledges the agency's long standing recognition of public education as an important tool in natural resource conservation. There also already exists within the Department's Division of Parks, Minnesota Environmental Education Board, and Volunteer Services Program, a considerable network of personnel and volunteers involved in providing educational opportunities. In the last decade, however, the effectiveness of such efforts has been curtailed by budget cutbacks, a need for stronger leadership within the Bureau, and a general absence of priorities and goals.

In an attempt to fill the gap, the Divisions have been conducting independent and uncoordinated and sometimes conflicting public relations and education efforts. This has created an identity problem and weakened the Department's public image.

In order to remedy these problems, a Department Information and Education Task Force was recently formed and charged with assisting a newly revitalized Information and Education Bureau in planning for the future. The Nongame Wildlife Program Supervisor is a member of this task force and represents both the Program and the Division of Fish and Wildlife in these matters.

The intent of this strategy is to fashion the Nongame Wildlife Program's information and education activities within the newly-emerging Departmental framework in order to maximize the Program's contribution by participating in a larger and more comprehensive effort. Such a cooperative approach on behalf of the Nongame Wildlife Program would initially focus on Task Force activities and on Project WILD which is already an intra-departmental effort between the Minnesota Environmental Education Board and the Nongame Wildlife Program.

This strategy is based on the recognition that: 1) improvement in public awareness and appreciation for all natural resources is needed, and 2) that attainment of a broader public appreciation for natural resource conservation is an agency-wide responsibility which necessitates a well designed and coordinated education program that presents a consistent message.

This strategy involves opportunities 2, 4, 9, 13, 14, 15 and 16. Opportunities 5, 7, 8, 10, and 11 may also be implemented by the Nongame Wildlife Program if identified as priority actions. This alternative could be implemented by reallocation of existing staff time at no additional cost to the Program.

Rather than operating within a Departmental framework, the three following alternatives (A₂, A₃, and A₄) propose that the Nongame Wildlife Program continue to act independently in addressing the public awareness and public participation issue.

Alternative Strategy #A₂: After consulting with Program staff, Department personnel and environmental education experts, the Nongame Wildlife Program Supervisor would develop a plan that identifies the educational problem

and establishes a priority on messages to be taught and audiences to be reached by the Program's educational effort. Also included in the plan would be an outline of education programs or materials to be developed or acquired by the Nongame Wildlife Program over the next two biennia to meet the priority needs. As in alternative A₁, other Program staff would continue to provide technical and extension services and concentrate on the implementation of Project WILD until a long-term educational effort is finalized.

Analysis: This strategy is basically a status quo approach that builds on past accomplishments. To date, the Nongame Wildlife Program has shown considerable initiative and success in developing or acquiring quality education materials and programs.

Nevertheless, these efforts have been primarily opportunistic with limited attention given to targeting audiences with specific messages. Concern has been expressed that these educational efforts are reaching the same audience of people already concerned about wildlife. Consequently, these efforts might not be as effective as needed to motivate enhanced resource conservation.

This strategy redirects existing efforts to be more future-focused and results oriented by incorporating a planned and thoughtful assessment of long-range needs. However, it perpetuates inefficiency by continuing to diffuse the Department's education efforts. By emphasizing an independent approach, it may also contribute confusion on the part of the general public regarding the Program's relationship to both the Section of Wildlife and the Department of Natural Resources.

This strategy focuses on opportunities 2, 4, 9 and 13. Development of an educational plan would also involve assessment of the appropriateness

of the Nongame Wildlife Program implementing opportunities 3, 5, 7, 8, 10, 11, 12, 15 and/or 16 as priority actions. As in A₁, implementation would require reallocation of staff time, not input of additional monies.

Alternative Strategy #A₃: Before an organization can effectively motivate its audiences, it must first understand the interest, needs, opinions, desires, and knowledge of the members of those audiences. The organization must also define the problems to be addressed, messages to be presented and desired changes in attitude or actions. Only then can a course of action be determined.

This strategy proposes that the Nongame Wildlife Program contract with an opinion research and marketing specialist to conduct an attitude survey and problems assessment as a first step in the development of the Nongame Wildlife Program's educational effort. Based on such assessments, it is further proposed that the marketing specialist, and/or an education program development specialist provide information and recommendation to the Nongame Wildlife Program on the most effective methods to reach target audiences with priority messages. These specialists, in conjunction with Program personnel, would then jointly design the Nongame Wildlife Program's public education and participation plan. The strategy envisions that the Nongame Wildlife Program Supervisor would coordinate that effort, supervise the contract specialists and be responsible for the development of a multi-year public education and public participation plan for the Nongame Wildlife Program.

Analysis: This alternative reflects the consideration that the Nongame Wildlife Program personnel are resource management specialists and are not

trained as sociologists or public relations experts. However, the complexity of the public education and public participation issue necessitates the incorporation of such expertise in the development of a plan for the resolution of this issue. This alternative acknowledges the existence of such expertise outside the Program and proposes a mechanism to incorporate it in a cost-effective manner through a one-time or short-term expenditure of Program funds to purchase such services at a maximum cost of \$35,000 to \$45,000.

Opportunities 1 and 2 serve as the centerpoint from which this alternative would evolve. As in alternative A₂, actions identified in opportunities 3, 4, 5, 7, 8, 10, 11, 12 and 13 may be implemented once a plan has been developed.

Alternative Strategy #A₄: The alternative proposes the creation of an additional position within the administrative unit of the Nongame Wildlife Program to serve as a regional nongame specialist for the Twin Cities metropolitan area (see Comprehensive Planning Alternative #4). A primary duty of this position would be to develop and implement a statewide education and public participation plan for the Nongame Wildlife Program. The plan could call for either a coordinated intra-agency undertaking or an independent program effort. In either case, both the development of the plan and the coordination of its implementation would be an assigned responsibility of a new, full-time employee. It is anticipated that such an employee would have training and expertise in environment education, public relations, and the human dimensions of wildlife management. It is possible that this position would also be responsible for developing an urban wildlife aspect to the

Nongame Wildlife Program, if it is determined that such an emphasis is appropriate and would assist the supervisor in promotion of the tax check-off (see Comprehensive Planning Alternative #4).

Analysis: The greatest number of program supporters and citizen participants are located within the Twin Cities metropolitan area. Also, due to the concentration of citizens, the urban areas of the state are, not surprisingly, where most problems of human-wildlife interactions occur. Consequently, the urban areas may be where the most opportunity lies to enhance human-wildlife interactions. This alternative acknowledges these considerations by centering the development of the Program's public education and participation efforts within the Twin Cities metropolitan area.

At a minimum, this alternative involves opportunities 1, 2, 5, 6, 7, 8, 10 and 13. It represents the most extensive commitment of Program personnel and funds so far proposed to address the issue. Financing a full-time employee would cost an additional \$35,000 in salary and overhead annually. The cost would most likely be in addition to 20% of the existing staff time already assigned to the public education function.

Implementation and Evaluation of a Public Education and Public Participation Plan

Alternative Strategy #B1: The Regional Nongame Specialists will implement the designated education and public participation activities under the direction of the Nongame Wildlife Program Supervisor or an education coordinator. This coordinator might be either a contract consultant as described in alternative A₃, or a full-time employee (see Alternative A₄).

Although there may be coordination and cooperation with other environmental educators and groups, the Regional Nongame Specialists shall be personally responsible to carry out the designated activities such as radio and television appearances, development and presentation of slide tape programs, extension information and news releases, participation in Project WILD and other workshops, as well as evaluating the effectiveness of the activities. Evaluation of the Program's educational accomplishments at the statewide level would be the responsibility of the Program supervisor.

Analysis: This alternative is essentially a continuation of the way the Nongame Wildlife Program has both developed and implemented its educational activities for the past 2 1/2 years. To date, Program personnel have developed and implemented some creative and very successful projects. However, if personnel are to complete their duties as well, there is a limit to the amount of time and other resources that can be devoted to educational activities.

If the Regional Nongame Specialists are to act as the exclusive implementors of any significantly expanded educational effort, the proportion of their time allocated to the information and education functions would be increased. This would occur at the expense of other job responsibilities such as habitat management or census and survey. Under this alternative it becomes the responsibility of the Regional Nongame Specialist to personally implement opportunities 3, 4, 9, 10, and 13.

Alternative Strategy #B2: As in Alternative B₁, the Regional Nongame Specialists shall be the primary implementors of the Program's public

education and participation activities. Rather than developing programs and presenting them personally however, the specialists would acquire and utilize programs prepared by other agencies, private businesses or individuals. They would then focus their efforts on coordinating the dissemination of such materials and information to groups and agencies within the state's existing environmental education network.

Special emphasis would be placed on utilizing the expertise of the Department's Bureau of Information and Education for technical assistance in modifying acquired materials to better meet the designated needs and/or in distribution of the materials. Particular emphasis would be given to coordination with the Minnesota Environmental Education Board, the private and public environmental interpretive centers, state park naturalists and the environmental education coordinator of the Department of Education. These personnel would be encouraged to use and further distribute the materials provided by the Nongame Wildlife Program.

Under this alternative, evaluating the effectiveness of the education or public participation activities would be the responsibility of the Nongame Wildlife Program's administrative unit, as would working with the Information and Education Bureau on technical matters.

Analysis: This alternative is based on the belief that the resolution of the public education and participation issue is larger than the Nongame Wildlife Program's independent capabilities. As in alternative A₁, the Nongame Wildlife Program's contribution to the solution is seen as being most effective when combined with the efforts and capabilities of an already existing network of concerned and involved participants. This

alternative designated the primary responsibility for the implementation of public education and public participation activities to the Department of Natural Resources. Specifically, the Nongame Wildlife Program would work in conjunction with the Bureau of Information and Education, the Minnesota Environmental Education Board, the Volunteer Service Program, and the Park Naturalists to accomplish the nongame wildlife portion of the agencies' education agenda.

Relative to alternative B₁, this alternative reduces the Regional Nongame Specialists' responsibilities to develop educational products and would focus their efforts instead on distribution and evaluation. It is not clear that this would alter their existing time commitment to educational activities. Program personnel would focus on implementation of opportunities 4, 8, 9, 13, 14, 15 and 16, under this alternative.

Alternative Strategy #B₃: It is proposed that implementation (including material distribution) and evaluation be accomplished by supplementing the Nongame Wildlife Program's existing staff with one additional full-time position or by the utilization of several contract specialists assigned short term to particular projects. The Regional Nongame Specialist's involvement would be refocused almost exclusively on extension, technical services and seasonal promotion of the tax checkoff. All other education or public participation activities would be centralized within the administrative unit.

Analysis: The alternative is an extension of the approach proposed in strategy A₄. It is the most expensive alternative necessitating an additional \$50,000 in salary and annual operating costs, but it would provide

for considerable expansion of the Program's existing educational effort. It would free the Regional Nongame Specialists to spend a greater percentage of their time on other activities such as habitat management and data acquisition.

Opportunities to Resolve the Issue:

1. Delineate public, public groups and their information needs. Survey public attitudes toward and knowledge of various wildlife species and their needs. Identify the type of wildlife experience preferred by these public groups (Kellert 1980). Design Nongame Wildlife Program actions to focus on providing for those perceived needs and interests by expanding existing facilities and programs.
2. Identify areas of misinformation, lack of information and negative attitudes, and acquire and utilize educational products to correct such problems.
3. Conduct public education programs to increase awareness and appreciation of nongame species and their habitats. These programs should stress the importance of habitat and focus on basic ecological principles such as food webs and predator-prey relationships. They also should inform the public of the DNR projects that involve nongame species.
4. Develop or acquire educational materials and programs which make it easy for educators to provide information about habitat and

ecological principles. The most effective methods for reaching and influencing the most people should be employed. The general public and the school systems should be targeted. Youth groups like Future Farmers of America, 4-H, and Scouts should be considered.

5. Promote awareness and understanding of the economic benefits and values of wildlife and the ecological advantages of retaining habitat for wildlife.
6. Develop an urban wildlife component for the Nongame Wildlife Program that would concentrate on increasing public awareness and appreciation of wildlife in Minneapolis/St. Paul and other metropolitan areas.
7. Simplify and promote usable and understanding wildlife regulations. Repeal bounties on venomous reptiles and upgrade wildlife possession regulations as needed for native and exotic species.
8. Encourage development of new methods/information systems to deal with nuisance wildlife complaints in a cost-effective manner.
9. Promote community environmental programs and distribute nongame information through MEEB and the existing environmental network, or through purchase of materials such as movies and slide-tapes for local use and distribution. Work closely with local conservation and sportsmen's groups.
10. Develop opportunities for public participation through a well-planned volunteer program. Possible activities include loon and heron colony observations, bird houses and feeder observations,

or backyard wildlife habitat programs.

11. Promote citizen support for legislative actions on environmental issues.
12. In order to enhance citizen involvement, consider the creation of a citizen advisory body for the Nongame Wildlife Program.
13. Encourage private landowner interest and concern for nongame resources by providing technical services relative to:
 - a) understanding and controlling nuisance wildlife situations
 - b) avoidance of actions which degrade wildlife habitat
 - c) mitigation of habitat loss
 - d) improvement of habitat including urban and backyard habitats and woodlots.
14. Clarify responsibility for promotional activities and delineate opportunities for cooperative efforts between the Bureau of Information and Education and the Nongame Wildlife Program.
15. Seek the cooperation of such offices of the University of Minnesota such as Agriculture Experiment Station and the Agricultural Extension Service in the use of their communication network to distribute educational and technical materials.
16. Consider semi-annual working sessions of DNR personnel with private individuals and representatives of agencies and organizations to inform them of DNR projects and plans.

DATA ACQUISITION

Issue: INFORMATION ON THE ECOLOGICAL AND ECONOMIC VALUES OF NONGAME SPECIES IS ESSENTIAL TO ADEQUATELY PRESERVE AND PROTECT THE NONGAME RESOURCE.

Goal: To obtain all information necessary to properly monitor, manage, utilize and maintain Minnesota's nongame resource.

Discussion: The Nongame research program should be designed to provide understanding at a level appropriate to current or anticipated problems or needs. Consequently, the current effort is focused on those species listed as endangered, threatened or special concern rather than on common species. All four alternatives build on the considerable advances in resource knowledge that have been forthcoming since 1981 from the Nongame Wildlife Program's research efforts. Specifically, they all propose to continue the small grants program which has proven an effective and cost efficient means of increasing knowledge and appreciation of the state's nongame resources. Additionally, all alternatives incorporate some combination of opportunities 5, 6, 9, 10 and 14, thereby focusing the Program's efforts more directly on applied research and the socio-economic aspects of resource management.

The alternatives differ in the extent of funding for the small grants program based on the extent to which Division personnel will become involved in future data acquisition activities.

The alternatives also differ in focus. The first three address the "who" and "how" of data acquisition. The fourth alternative focuses first on a determination of "what" data gaps need priority attention.

It has been repeatedly suggested that the Nongame Wildlife Program recruit volunteers to collect information. Past experience has shown, however, that volunteers are usually short-term generalists in data acquisition. Except for the most enthusiastic the extent of their participation is often limited (1-2 years) and focused on one or two species. Coordination of many volunteers is time consuming. The inexperience of most volunteers and their lack of technical background usually precludes their involvement in any scientifically rigorous efforts unless they receive special training. The Nongame Wildlife Program is presently not prepared to provide such intensive direction and coordination. Consequently, none of the alternatives emphasize volunteer involvement as a mechanism to resolve this issue.

Alternative Strategy #1: This alternative accomplishes the data acquisition functions by continuing the existing process which has been evolving since 1981 when the Nongame Zoologist joined the staff and checkoff revenue provided for an expanded effort of research and inventory. Currently, the data acquisition effort is administered by the Nongame Zoologist who is responsible for determining the priority, design and management of all statewide nongame wildlife survey, census or research projects so that the status, distribution, abundance, natural history, management needs and economic values of nongame species may be determined. Guidance in the determination of priorities has been provided by members of the Endangered Species Technical Advisory Committee (Mn. Dept. Nat. Resources, 1983). Technical expertise in statistical design is available through consultation with the Division's biometrician and research staff.

The Regional Nongame Specialists participate in the data acquisition effort by submitting annual up-dates on existing colonial waterbird rookeries, submitting observation reports on selected nongame species, and conducting surveys on species of regional significance. Their efforts have focused exclusively within their region and are supplemented by solicitation of reports from the general public and other agency personnel. The specialists are also charged to identify research and inventory needs and to review research proposals and monitor the performance of certain research contractors within their respective regions.

Since 1981, almost all new short-term initiatives in research and inventory have been accomplished by outside contract biologists. To date, 35 short-term projects have been funded through an annual competitive small grants research program managed by the Nongame Zoologist. A number of major research or inventory projects have also been accomplished by outside contractors funded separately from the small grants program.

This alternative proposes to continue the data acquisition functions by employing contract biologists to accomplish all new research initiatives of statewide significance as related to endangered, threatened or special concern species. The Regional Nongame Specialists, supplemented by volunteers, will continue to participate in ongoing censuses or surveys within their region. The specialist might identify and initiate new research or inventory projects directed at regional resource considerations. Actions needed to acquire wildlife economic data or user demand and attitude data would be the responsibility of the Nongame Wildlife Program's administrative unit or the Division's planning team.

Analysis: All activities outlined in this alternative are to be accomplished

under the supervision of the Nongame Zoologist at an annual administrative cost of \$27,800.

Additionally, \$120,000 is currently allocated for professional contract services to annually fund approximately 15 short-term survey and research efforts and 5-6 major research projects. This funding would be continued, as would the assignment of 10% of the Regional Nongame Specialists' time to census and survey.

The use of contract researchers acknowledges the expertise available in Minnesota outside the State wildlife agency. The small grant research program encourages increased efforts within Minnesota by university personnel on behalf of resident nongame wildlife, and has identified research needs not previously considered by nongame personnel. It has also provided opportunities to train future wildlife professionals who will have a broader scope of interest and capabilities. The use of contract biologists has proven to be a cost effective means of acquiring specific data.

This alternative represents a centralized data acquisition effort with a species-specific focus emphasizing endangered, threatened or special concern species. To date, it has involved opportunities, 1, 2, 3, 4, 5, 10 and 13. Within the next biennium, the Nongame Zoologist would investigate the need for at least one new statewide research project and one new statewide survey project, thereby implementing opportunity 6.

Alternative Strategy #2: Traditionally, the inventory, life history research and population monitoring activities necessary for successful resource management have been conducted in-house by professional personnel employed by a state's wildlife management agency. Currently, research and inventory activities for game species are primarily conducted in-house

by personnel of the Division's Wildlife Research Unit and Fisheries Research Unit, supplemented by field personnel who conduct the annual censuses and surveys.

This alternative proposes to continue and expand this traditional approach by adding full-time nongame specialists to the Wildlife Research Unit and/or Fisheries Research Unit as needed to accomplish nongame inventory, monitoring, or research activities. It would be expected that such new positions would supplement existing staff capabilities through expertise in herpetology, mammalogy, invertebrate zoology, or ichthyology with particular emphasis on nongame species and/or the socio-economic aspects of wildlife resources. Personnel would be responsible under the Zoologist's direction, to design and coordinate an expanded program of censuses and surveys to monitor both rare and common species through such actions as establishment of atlas projects. Addition of new personnel would allow for expanded efforts of applied research on the development of monitoring or management techniques. Alternatively, any new research staff might be assigned on a habitat basis to supplement research effort at the Forest, Farmlands and Wetlands research stations. They would be directed by the Nongame Zoologist.

This alternative does not propose to eliminate the small grants program or the use of contract biologists.

Analysis: This alternative also presumes a basic research staff of one, the Nongame Zoologist, to effectively administer the data acquisition effort. New research personnel would be in addition to the existing position and would increase administrative expenditures and operating costs by a minimum of \$50,000/position for salary, fringe and expenses necessary to conduct research. Funding for such positions could be obtained either from

increased allocation of checkoff revenue to research and/or reallocation of some monies currently funding contracted services.

This alternative would be most efficient and cost effective if it is anticipated that the Nongame Wildlife Program's data needs require complex, long-term or large scale efforts which could only be accomplished by highly skilled professionals employed by the Division of Fish and Wildlife. This alternative would eliminate the Regional Nongame Specialists' involvement in research activities but should increase participation by Division field personnel in census and survey work. Addition of new personnel would expand capability to implement opportunities 6-9, 11 and 12 as well as continue efforts described in opportunities 1-5. Additional personnel, available to coordinate and train volunteers, might provide expanded opportunities for volunteer participation in Nongame Wildlife activities.

This alternative may reduce the number of contracted projects but would result in an increase in the number of in-house initiatives and speed the development and implementation of new inventory and monitoring efforts. Implementation of this alternative would shift nongame research efforts to focus more on applied research and population monitoring. Depending on the background of the new personnel, it might provide expertise on the economic and sociological aspects of resource management within the Wildlife Research Unit rather than in the Nongame administrative unit or Division planning teams as described in alternative #1.

Alternative Strategy #3: This alternative proposes to expand the data acquisition efforts by redefining the scope of duties of the Division's existing research and management personnel to include census, survey or

research activities related to the nongame resources. Currently, the Wildlife Research Unit includes nine personnel involved with research on wolves, waterfowl, bear, deer and other game species. Under this alternative, the current effort on game species would be cut back and a portion of the existing research capability would be refocused to conduct basic or applied research on nongame topics and/or to develop and manage inventory and monitoring of nongame populations.

As is currently done with game surveys, existing field personnel would implement the field aspects of any new inventory projects. Specifically, the Regional Nongame Specialists would increase their involvement in inventory work to 25% of their time and might be assigned to manage statewide population inventory or monitoring projects. Manpower needed beyond the specialists' involvement would necessitate participation by area wildlife managers.

As in the previous alternatives, establishment of priorities and administration of the data acquisition efforts would remain the responsibility of the Nongame Zoologist. The use of contract biologists and the small grants program would be continued. This alternative also anticipates that information on wildlife economic and user demand and attitude data would be obtained by the Division's planners or the Nongame Wildlife Program's administrative unit as the Wildlife Research Unit currently has no expertise in this regard.

Analysis: Implementing this alternative would be immediate in cost between alternatives 1 & 2. The major advantage is that it would foster a more comprehensive approach to statewide wildlife research and would reduce the artificial differentiation of wildlife into "game" or "nongame" species. It would, however, reduce the amount of research effort

currently focused on game species. As with alternative 2, the increased manpower available to address nongame research needs would provide for the implementation of all opportunities, with particular emphasis on 1, 2, 6, 9, 10, 12 and 13.

Alternative Strategy #4: In July 1984, the Division of Fish and Wildlife underwent a reorganization and all the research and data management functions within the Section of Wildlife were consolidated within the Wildlife Research Unit. Currently, the administration of a \$150,000 nongame research and inventory effort is the responsibility of one full-time professional, the Nongame Zoologist assisted by occasional student workers. To date, these personnel have focused on updating existing census and survey efforts and managing a small grants research program and other large-scale research efforts. Such activities have involved the full commitment of their time. Selection and development of new initiatives have been limited by such time constraints. This alternative proposes to free the Zoologist to focus, during the next biennium, on determining priorities for future census, survey, and research efforts. This would be accomplished by: 1) hiring a Resource Specialist to manage the small grants program during the 1986-1989 biennium and to undertake all environmental review and technical assistance activities currently accomplished by the Zoologist, and/or 2) initiate only one cycle of the small grants program during the next biennium. The objective is to free 40-50% of the Zoologist's time to plan the future direction of the research effort.

Analysis: Unlike the previous alternatives, this strategy defers decisions on the assignment of personnel to research, census and survey efforts until

such time as priorities are more clearly articulated. The intent of this strategy is to free the Nongame Zoologist from administrative and management activities in order to focus on implementing opportunities 2, 3, 5, 6, and 9.

The addition of one new specialist position would add \$30,000 to the costs of administering the nongame research effort.

Opportunities to Resolve the Issue:

1. Encourage and coordinate with other agencies, organizations or individuals conducting research or compiling data on nongame species or on matters of concern to the nongame resource.
2. Identify the most effective and efficient combination of manpower and dollars available to conduct nongame studies and implement the findings.
3. Seek guidance from other state agencies, the U.S. Fish and Wildlife Service, and other organizations on the most effective survey, census and monitoring procedures and, where practical, coordinate programs to avoid duplication of effort.
4. Remain informed regarding all field nongame studies being conducted in Minnesota.
5. Develop guidelines and procedures which define priority species and management activities.
6. Design and implement inventory and monitoring programs and other studies to provide baseline data for determinations of status management needs and economic value of species of concern in Minnesota.

7. Encourage modification of Phase I and Phase II forest inventories to provide more useful wildlife habitat data.
8. Participate in the State Planning Agency's update of the MLMIS land use data base to assure that information on statewide habitat will be available.
9. Formulate programs of applied research to examine effects of various land management practices or natural resource utilization programs on nongame species and their habitats.
10. In cooperation with other agencies, initiate and fund more forestry and wildlife research projects on the long-term effects of timber and game management on forest ecosystems.
11. Publish findings in professional journals and popular periodicals, or in special status reports on selected nongame species.
12. Incorporate nongame species into game inventory programs.
13. Encourage university personnel to conduct more wildlife research projects within Minnesota.
14. Encourage and participate in efforts to determine and publicize the economic values of the state's wildlife resources.

INFORMATION MANAGEMENT

Issue: INFORMATION MANAGEMENT AND NONGAME WILDLIFE PROGRAM ADMINISTRATION REQUIRE AN UP-TO-DATE AND ACCESSIBLE DATA SYSTEM COMPATIBLE WITH OTHER NATURAL RESOURCE DATA BASES.

Goal: To establish a nongame data management system that is accessible and compatible with other natural resource information systems and to implement a time and accomplishment reporting system for the Nongame Wildlife Program

Discussion: The challenge for the Nongame Wildlife Program research staff is to establish an information system that allows for the conversion of data to actions through the Program's efforts in strategic planning, resource management and technical assistance. To date, the information has been accumulating faster than it can be processed and distributed. Consequently, the data is being under utilized and the staff frustrated in their attempts to plan management actions or respond efficiently to requests for assistance.

Past experience has shown that part-time assistance is not sufficient to remedy these problems in a timely manner. With the expectations that new data acquisition projects are imminent, the options are few. The Program can accept the limitations of existing systems and address them gradually over time as proposed in alternatives 1 and 2, or the Program can take some bold actions as proposed in alternative 3 and commit sufficient resources to resolve many of the problems in the next two biennia.

Alternative Strategy #1: This alternative proposes a continuation of the current data management activities of the existing research staff within the Nongame Wildlife Program. Presently, the Nongame Zoologist supervises the data management activities of a part-time (60%) Natural Resources Technician. The Technician's time is devoted almost entirely to maintaining the existing data based on colonial waterbirds and loons. Previously, during fiscal year 1984, one full-time position equivalent to a student worker, was also assigned to data management. The person served primarily to update the Natural Heritage data base with the sighting records of rare species submitted over the last three years from research projects or as incidental reports. However, this position has been vacant since September 1984, and the data base is no longer being regularly updated. Both support positions conducted searches of both the manual files and the Natural Heritage data base to compile records so that the Nongame Zoologist could respond to requests for information regarding proposed land development projects, the public land acquisitions or exchanges.

Currently, the Nongame Wildlife Program's administrative unit is managing information on revenues, expenditures, and staff time. All three alternatives propose to maintain this responsibility within the administrative unit until a Department-wide cost accounting system is in place. Also, these alternatives do not anticipate that Nongame Wildlife Program research personnel will be directly involved in economic assessments of wildlife resources during the next biennia.

Analysis: If staff remains the same with two permanent personnel and periodic employment of student worker equivalents, the following data management tasks would be accomplished:

1. annual updating of the colonial waterbird records including the geographic information in the Natural Heritage data base and the size and species composition data on each colony in the manual files, and;
2. occasionally updating the existing Natural Heritage data base for selected state listed endangered, threatened or special concern species from reports submitted directly to the Program.

However, accomplishment of these tasks hardly begins to address the short-term need to organize and utilize existing data. Such limited staff precludes: 1) converting existing manual records to computer files; 2) expanding computer files to include state listed fish and additional special concern birds, reptiles, amphibians, mammals and butterflies currently not on file; 3) completing the existing data bases by compiling data from historical accounts or from recent new studies outside of the Program's small grants program; and 4) analysis of existing data and preparation of summaries, status assessments or other technical reports.

This alternative proposes only to continue ongoing activities at a cost of approximately \$25,000 per year. Such activities include those associated with opportunities 1 and 7. It has proven extremely difficult for the existing staff to find time to assess which data acquisition or data management actions beyond the existing efforts are Program priorities. Also, as staff cannot now respond to the existing data management needs, it would be unrealistic to expect them to be able to meet the long-term needs of any new inventory projects that may be developed as future initiatives to address the data acquisition issue.

Alternative Strategy #2: In order to adequately manage and utilize the existing information and maintain ongoing data bases, it is proposed to add one permanent, full-time Natural Resources Specialist (Biologist) to assist existing personnel with data management. Responsibilities of this position would include 1) expanding computer files to include state listed fish and those special concern species currently not on file; 2) completing such new or existing data bases by searching historical accounts and other outside records or data management systems and incorporating pertinent information into Program files; and 3) devising a system to update the Natural Heritage data base monthly.

These tasks must be accomplished in order that the Natural Resource Specialist, Nongame Zoologist, and/or Nongame Wildlife Specialists can efficiently update the status assessments of these resources and document the assessments through published reports. Additionally, the Natural Resource Specialist and the Technician might work to convert existing manual records on all other species to computer files. The Natural Resource Specialist would also be trained to compile and assess records in response to requests for information or technical assistance in the review or preparation of environmental impact documents, proposals for land acquisitions or exchanges, management plans or resource assessments.

Analysis: The intent of this alternative is to enhance the utilization of existing information by improving its accessibility through computerization, summarization, analysis, publication and distribution. Such actions do not happen automatically but depend on qualified personnel. Over the past five years, the Nongame Wildlife Program's data acquisition efforts have surpassed its management capabilities. A backlog of manual records exists which is

poorly organized, cumbersome and time consuming for Program personnel to access. Consequently, existing information is being underutilized and management planning is delayed because the input and demand for biological information is greater than the staff can handle.

Past experience has shown that the most effective way to reduce the data backlog and develop comparable programs is to assign permanent, full-time personnel with biological expertise and training in computer technology to the task. This alternative proposes such a solution at an additional annual cost of \$25,000 for one Natural Resources Specialist position. Under this alternative, it would be possible to implement opportunities 1, 3, 4, 5 and 7.

It is anticipated that selection of this alternative would place additional demands on the biometrician, computer programmer and the Natural Heritage Program data manager within the Section of Wildlife's Research Unit. It would not, however, provide enough staff to support the long-term need for new inventory, census or atlas projects until the backlog of existing data is cleared.

Alternative Strategy #3: The alternatives so far proposed have focused exclusively on the resolution of problems related to management of existing data. It is reasonable to expect that new data acquisition efforts will be forthcoming (see previous chapter). They should be designed to provide information at a level appropriate to current or anticipated needs. However, the Program's current understanding of the needs for nongame resource information within the Division or among private, state or federal agencies statewide is incomplete.

The development of new efforts is the responsibility of the Nongame Zoologist who is currently occupied full time in administering existing data acquisition and management activities. In order to provide the Nongame Zoologist opportunity to move beyond the short-term perspective, it is proposed to combine alternative strategy #2 above with alternative strategy #4 from the previous chapter and add two full-time Natural Resource Specialist positions. Under the Nongame Zoologist's supervision, they would accomplish all the tasks necessary to maintain the existing research effort. The efforts of the Nongame Zoologist could then be refocused to: 1) assess the Division, Department and statewide need of other state or federal agencies for new nongame resource information; 2) evaluate which information not currently available would be provided; 3) design cost-effective projects to obtain and share such information; and 4) supervise the implementation and operation of any new research or monitoring projects.

Analysis: The matters of data acquisition and data management are inter-related. Regardless of which strategies are chosen to address the data acquisition and data management issues, it is reasonable to expect that new inventory, census, and/or survey efforts will eventually be initiated. In order to avoid recreating the same data management problems, it is imperative that the new efforts be well designed and thoughtfully implemented. It may also be necessary that these new efforts have applicability beyond the Department level and meet the needs of other agencies for nongame resource information. The only way that these considerations will be successfully accommodated is for Program personnel to start now to plan new long-term initiatives.

The third alternative anticipates this need by proposing to free the

Nongame Zoologist from direct responsibility for a portion of the tasks associated with existing data acquisition and management and assigning these tasks to two full-time Natural Resource Specialists. This alternative would allow for the implementation of all opportunities 1-8 and would address both the data acquisition and data management issues at an additional annual cost to the Nongame Wildlife Program of \$60,000.

Opportunities to Resolve the Issue:

1. Design data handling systems specific to the Nongame Wildlife Program.
2. Support efforts to conduct a Division-wide assessment of the need for computerized data management systems, including the needs of the Nongame Wildlife Program and the Natural Heritage Program, to enhance the integration and coordination of such systems. Such an assessment should include input from USFWS and USFS.
3. Request assistance from the Wildlife/Forestry Task Force and the Bureau of Management Systems in the assessment and development of the Program's data management system.
4. Define a mechanism for incorporating newly compiled field data into the DNR environmental review process and the administrative, legislative, or management actions of appropriate public or private organizations.
5. Investigate the mechanisms and effectiveness of data management systems developed and existing outside the Division but within the state (Bell Museum of Natural History) or in other wildlife management agencies around the nation.

- a) MAST system - U.S. Fish and Wildlife Service.
 - b) Data star and report systems of Montana.
 - c) Forplan - U.S. Forest Service.
6. Ensure that the data management system selected is compatible with existing data systems within the DNR.
 7. Support the establishment of a library within the Department of Natural Resources.
 8. Encourage and participate in agency efforts to determine and publicize the economic values of the state's wildlife resources.

ENDANGERED AND THREATENED RESOURCES

Issue: THERE IS A NEED TO IDENTIFY AND MANAGE MINNESOTA'S NATIVE SPECIES THAT HAVE DECLINED IN NUMBER AND DISTRIBUTION AND ARE EXTIRPATED, ENDANGERED, THREATENED, OR OF SPECIAL CONCERN.

Goal: To maintain and enhance viable populations of endangered, threatened, or special concern species in order to prevent their extinction and to maintain Minnesota's natural diversity.

Discussion: The mandate to conserve rare plants and animals comes from Minnesota's endangered species law. The law provides a mechanism to identify and designate endangered, threatened, and special concern species through a listing process. This task has been completed (MN Dep. Nat. Resour. 1983). The law also assigns responsibility for the management of such designated species to the Commissioner of Natural Resources. However, the law does not detail how the management will be accomplished.

Currently, three programs within the Division of Fish and Wildlife, the Nongame Wildlife Program, the Natural Areas Program, and the Scientific and Natural Areas Program, are jointly involved in endangered species management. Jointly, their actions constitute most of the Department of Natural Resources' efforts to conserve endangered and threatened resources as mandated by Minnesota Statute 97.488 (Protection of Threatened and Endangered Resources). The assumption of responsibility has evolved informally as previously described. Management actions are divided along

taxonomic lines and, in general, are guided by the recommendations of the Endangered Species Technical Advisory Committee's report (MN Dep. Nat. Resour. 1983) on the need and reasonableness of designating species of wild animals and plants as endangered, threatened or of special concern. All three Programs operate as equal partners with no one responsible for overall supervision or coordination. Personnel from all three Programs, the Commissioner's Advisory Committee on Scientific and Natural Areas, contract researchers and private citizens continue to contribute inventory information to the data base and to make recommendations on status needs and management priority.

Funding for these efforts is derived from the Nongame Wildlife Management Account, State General Fund, Resource 2000 bond monies, the Legislative Commission on Minnesota Resources, the U.S. Fish and Wildlife Service through Section 6 of the federal endangered species law, and administrative support from the Game and Fish Fund. The U.S. Fish and Wildlife Service, the U.S. Forest Service, the National Park Service, The Nature Conservancy, and the Hennepin County Park Reserve District also spend money for management of endangered resources in Minnesota on lands under their respective jurisdictions.

It is the intent of the Nongame Wildlife Program personnel to continue to support this interagency involvement as the task is larger than any one agency can address alone. All the alternatives proposed acknowledge endangered fauna as a Nongame Wildlife Program priority and support the continuation of the existing division of management responsibility within the Section of Wildlife as an effective means of accomplishing the legislative mandate. However, alternatives 2 and 3 propose to strengthen

the current efforts through improved coordination to create a more cohesive and readily identifiable endangered resources conservation effort within the Division of Fish and Wildlife. The two alternatives differ in the level at which this coordination is assigned. Creation of a staff specialist as proposed in alternative 3 or assignment of duties to an existing manager as proposed in alternative 2, would establish endangered resources as a Division priority of equal status with the more traditional game and fish management programs and would also acknowledge the Department's obligation to meet the state mandate.

Alternative Strategy #1: This alternative proposes to maintain the existing division of responsibility which has evolved among the three state Programs. Research, monitoring, and management of listed animals would remain primarily the responsibility of the Nongame Wildlife Program. These actions are accomplished by contractors or Program personnel, often in cooperation with private organizations or citizens. The Natural Heritage Program would continue responsibility for the research, monitoring and management of rare plants and plant communities and maintenance of a data base on rare plants, animals and natural communities. The Scientific and Natural Areas Program would continue to acquire and manage lands for the protection of special resources, including habitat for threatened or endangered species.

Under this alternative, the Nongame Wildlife Program's management approach for endangered and threatened fauna will continue to focus on retaining existing wildlife resources, implementing actions which improve the status of currently designated endangered and threatened species, and preventing the decline of any additional species to endangered or threatened

status. Peregrine falcon and trumpeter swan reintroductions would also be continued.

Administrative tasks associated with the listing process, legislation, and the production of educational materials will be the continuing joint responsibility of the Nongame Wildlife and the Natural Heritage Programs. The Nongame Wildlife Program Supervisor will continue as the Division's designated coordinator with the U.S. Fish and Wildlife Service on endangered species matters.

Analysis: In 1984, Nongame Wildlife Program personnel spent \$75,000 on activities related to research and management of endangered and threatened fauna. Further, the Program spent an additional \$30,000 for rehabilitation of injured or orphaned endangered raptors, approximately \$27,800 for the peregrine falcon restoration, \$30,000 on trumpeter swans, and \$17,500 to support work on rare plants. Total expenditures of \$180,300 represent 30% of the annual Program operating budget and reflect a major commitment to endangered species as a Program priority. This alternative proposes to maintain the same level of commitment and priority of Program actions during the next two biennia.

Specifically, this alternative directs the Nongame Wildlife Program to implement opportunities 5, 6, 7 and 9 as the Program's responsibilities within the Department-wide mandate for endangered and threatened resources. Opportunities 2, 3, 5 and 8 would remain Natural Heritage Program initiatives under this alternative. Unless otherwise delineated in the alternative selected to address the issue of wildlife habitat, land acquisition to protect endangered species habitat would not be a Nongame Wildlife Program action but would be accomplished by either the Scientific

and Natural Areas Program or other Section of Wildlife programs.

Alternative Strategy #2: The Commissioner of Natural Resources has delegated responsibility for management and protection of the state's endangered and threatened resources to the Division of Fish and Wildlife largely through the efforts of three Programs as previously described. This alternative proposes three changes from the current situation.

First, the Nongame Wildlife Program would expand its research and management effort to undertake more actions for designated invertebrate species, as well as for species in all five vertebrate classes. Second, in order to accomplish the first change, this alternative further proposes that the Program suspend initiation of any new reintroduction projects during the next two beinnia. Instead, efforts would focus on development and implementation of statewide atlas projects to monitor nongame species to detect population declines and on management of existing resident endangered, threatened or special concern species. Such actions would be undertaken by existing personnel in the three Programs and would continue to focus on prairie and wetland communities where resource needs are most critical.

Currently, the administrative duties associated with implementation of the State law and coordination with the U.S. Fish and Wildlife Service are dispersed among the three Programs. The third change proposed by this alternative involves consolidation of these duties. They would be assigned to one individual at a manager's level who would have supervisory status with regard to all three programs.

Analysis: Legislative mandates guiding the Nongame Wildlife Program's

efforts are few. One clear mandate, however, is found in the state and federal endangered species laws. The state law declares that the Commissioner may undertake management programs on any resident wild animal or plant designated as threatened or endangered. The intent of the first change is to address the goal of maintaining diversity by considering all species over which the Commissioner has jurisdiction including crustaceans, molluscs and butterflies.

The second change reflects a literal interpretation of the law by focusing the Program's efforts on retaining existing (i.e., resident) resources. As a consequence, new initiatives to reintroduce extirpated species will not be a Program action under this alternative during the next two biennia because such species do not qualify for priority action under this interpretation of the Act. Additionally, reintroductions are expensive and the Nongame Wildlife Program cannot afford any new reintroductions at this time. It is recognized that the high public relations values associated with reintroductions might be lost to the less exciting management of resident species.

Assigning administrative duties at a manager's level is intended to improve the coordination and status of the three program efforts within the Section of Wildlife. This alternative focuses the Nongame Wildlife Program's efforts on opportunities 3, 5, 7, 9 and 10. The administrative duties associated with opportunities 1, 2, 4, 6 and 8 would be assigned to the manager position and opportunity 11 would not be implemented by the Program at this time. Additional costs to the Program beyond current expenditures would be associated with the atlasing effort and might be as high as \$50,000 annually.

Alternative Strategy #3: Preventing the decline of populations of native species is seen by many as a priority of wildlife management. To date, the Minnesota Division of Fish and Wildlife's program initiatives to accomplish such tasks have been diffuse and generally low-key. They have been remarkably effective considering that they are new programs and have been understaffed.

This alternative proposes to formalize these efforts and to give them more credibility by creating a full-time Endangered Resources Coordinator within the Division of Fish and Wildlife. Such a position would:

- 1) foster continued and expanded funding and participation of federal agencies, particularly the U.S. Fish and Wildlife Service and the U.S. Forest Service in endangered species management.
- 2) focus the Division's efforts through development of an annual action plan crossing all three program jurisdictions, and including research activities, in a manner which creates a cohesive and identifiable endangered and threatened resource management effort. Alternatively, a working group of Division personnel, chaired by the coordinator, could be assigned to devise such a plan;
- 3) balance the three program efforts on behalf of endangered resources with other Division mandates for conservation of wildlife resources, and;
- 4) assume administrative duties such as updating the state list, implementing state recovery plans, coordinating Section 6 actions with the U.S. Fish and Wildlife Service and developing

Commissioner's orders on endangered species.

To finance this position and expanded effort, it is proposed that \$170,000 in new monies be provided to the Division of Fish and Wildlife. This is an amount comparable to the Nongame Wildlife Program's expenditures for endangered resources.

Analysis: In enacting Minnesota Statute 97.488 (Protection of Threatened and Endangered Resources) the State Legislature declared that managing rare species to assure their continued existence is an important component of responsible and balanced resource management. In response, the three programs have committed a large portion of their limited manpower and monies to this task. A state listing of 253 species of endangered, threatened or special concern plant and animal species has been prepared and research and management actions are ongoing.

Currently, the three programs are committed to their fullest capabilities in addressing this issue. It is time to seek expanded financial support which would: 1) acknowledge the importance of these resources; 2) grant these resources status on a level with other major components of the resource base for which the Division is responsible; and 3) expand management actions to build on the considerable progress to date.

Creating a full-time endangered species coordinator is one way to accomplish the first two purposes. It would also free existing staff from most related administrative duties and provide them greater time for "on the ground" management projects. Such a position at a Natural Resource Specialist 4 level would cost an additional \$60,000 annually or 1/3 of the proposed matching monies. The other \$120,000 in need monies would be utilized by existing program personnel for expanded research or management

efforts including atlasing projects, or new restoration or reintroduction efforts if called for in the annual action plan.

Under this alternative, implementation of opportunity 1 would be accomplished by designation of the Endangered Resources Coordinator who in turn, would implement opportunities 2, 4, 5, 8, 9 and 11. Personnel from the three existing Programs would be responsible for opportunities 3, 5, 7 and 10.

Opportunities to Resolve the Issue:

1. Assign responsibility for coordination of the Department's endangered species effort, including the definition of goals and scope of the DNR's commitment to endangered species management.
2. Update Commissioner's Order #1901 to reflect the 1981 legislative changes.
3. Promote awareness and appreciation of listed species among other agency personnel and the general public, especially private land-owners. Encourage understanding of causes for these species' declines and the remedial actions needed to restore populations.
4. Develop a priority system to guide allocation decisions for listing, recovery, research and protection activities. See Langer's (1984) discussion of the federal allocation model.
5. Implement the priority activities cooperatively with other programs (particularly the Natural Heritage and Scientific and Natural Areas Programs) which are similarly mandated to protect and manage the species.

6. Adopt cooperative agreements with nongame programs in adjacent states to manage endangered, threatened, or special concern species.
7. Develop Program actions which initiate or support qualified projects for the propagation, management, rehabilitation, or recovery of declining or extirpated species.
8. Identify and implement legislative or policy changes needed to enable the State to qualify for an unlimited authorities cooperative agreement for plants and animals including invertebrates.
9. Identify species which are in need of restoration, assess the feasibility and priority of such restoration and develop a long-term strategy for such actions.
10. Develop ongoing surveys of Minnesota flora and fauna to:
 - a) periodically re-evaluate and update status of species presently on the endangered, threatened or special concern lists;
 - b) update those lists as warranted by current data;
 - c) develop a complete Minnesota checklist for all biota to provide a baseline for further studies.
11. Assess the feasibility and appropriateness of future reintroduction efforts for such species as swallow-tailed kite, woodland caribou, or whooping crane which have been listed as extirpated statewide.

WILDLIFE HABITAT

Issue: HIGH QUALITY HABITAT IS THE KEY TO WILDLIFE SURVIVAL.

Goal: The protection, maintenance, and enhancement of adequate wildlife habitat through an ecosystem management approach that assures the perpetuation of all Minnesota's wildlife species.

Discussion: "Habitat is the Key" to wildlife survival. This slogan has been the theme since the beginning of Section of Wildlife's wildlife lands acquisition program and still motivates that program today. It reflects the belief that acquisition is the only long-term guarantee against habitat destruction.

Similar thinking underlies the first three alternatives. However, the Nongame Wildlife Program currently does not have the funds available to conduct a large-scale acquisition program of its own. Consequently, prevalent throughout all the alternatives is the recognition that the Program must rely on other agencies or organizations to carry out habitat acquisition and most habitat management in the state.

To date, all wildlife habitat protection programs in Minnesota can be differentiated as either direct or indirect. Indirect management involves the protection of habitats through various acquisition programs, either in fee title or easement form. It also involves the adoption and enforcement of laws, rules, regulations, and tax incentives that foster habitat preservation.

Direct management includes any number of techniques that actually alter

the landscape or manipulate the habitat for the benefit of target species. Direct management procedures include such techniques as water level manipulation, controlled burning, and reintroduction of extirpated species. Such methods are designed to directly counteract factors that limit populations of selected wildlife species by "on the ground" actions. This approach is reflected in alternative strategy #4.

In all respects, indirect management is more desirable. Providing it addresses the long-term welfare of a species, the least amount of action sufficient to maintain viable populations is the best management. A stroke of the pen can benefit more species and individual wildlife at little or no cost than all the direct management programs in existence. For example, a change in the national farm bill to make the diverted acres program a three year, instead of an annual, program could provide millions of acres of nesting cover and soil protection at no additional cost.

While direct management is necessary, it benefits fewer species and individuals per dollar expended. Also, direct management without the safeguard of indirect management is likely to be wasted action. It would do little good to reintroduce the peregrine falcon if DDT had not been banned.

Experience has shown that the maintenance of high quality habitat is dependent not only on protection through acquisition, but also on maintenance and enhancement of habitat. Consequently, the final strategy selected by the Nongame Wildlife Program to address this issue will most likely incorporate aspects of both management approaches.

Alternative Strategy #1: Historically, the most effective way to maintain wildlife habitat has been for public or private conservation agencies to

acquire the lands in fee title for the purpose of wildlife conservation. This strategy proposes to set aside a certain proportion (or a set amount) from the annual tax checkoff contributions to the Nongame Wildlife Management Account for the acquisition of nongame wildlife habitat by the Division of Fish and Wildlife. Because even these funds would be limited, the acquisition priorities would most likely include only habitat for endangered, threatened, and special concern species. Should the Nongame Wildlife Program's funding base be expanded or new revenues made available to the Division for wildlife lands, habitats for other nongame species could then be included.

Analysis: Given the present scheme of acquisition priorities, it is unlikely that traditional acquisition monies would be used to buy a bat cave or burrowing owl habitat for incorporation within the Division's Wildlife Management Area system unless the site also had significant value for game species. While nongame values may be considered when judging wildlife management area acquisition priorities, there have been few, if any, tracts purchased solely for nongame resource values. Consequently, it has been repeatedly suggested that the Nongame Wildlife Program set aside revenues specifically for acquisition.

This strategy would provide additional funds that would be utilized for the purchase of nongame wildlife habitat. As such, it involves opportunities 1, 3 and 4. Presently, the Nongame Wildlife Program allocates no funds to habitat acquisition. Therefore, these monies could only be allocated at the expense of other Program efforts such as education or research which would have to be curtailed in order to redirect monies to land acquisition. Realistically, however, one tract of land, depending on the location within the state, could conceivably cost more than the annual checkoff

income. Therefore, it is not reasonable to expect the Nongame Wildlife Program to be the only program responsible for funding nongame acquisition.

Alternative Strategy #2: Nongame Wildlife Program personnel will review and identify tracts that provide important nongame habitat. Once tracts are identified, the Nongame Wildlife Program would work to assure that habitat acquisition would be accomplished by other agencies and organizations that already have established programs for purchasing land. This may involve notifying the agencies that such tracts are available, or convincing these agencies that tracts identified as valuable for nongame resource management also fit their acquisition criteria.

Another equally important part of this strategy would be for Program personnel to review proposed and/or new acquisitions made by other groups and advise them on any nongame potential. Such a review could serve to elevate the acquisition priority of that tract within their program. Additionally, it could prevent sensitive habitat areas from becoming high public use areas once acquired. For example, a public access acquired on a lake unknowingly used by nesting loons or near an eagle nest could cause nest abandonment if proper management actions were not subsequently incorporated.

Analysis: The reality of high land prices and limited checkoff revenues have so far restricted the Program's capability to undertake independent land acquisitions. That does not mean, however, that the Program has no opportunity to act on the premise that the long-term solution to the habitat issue is the acquisition of critical lands and their inclusion in the public domain.

This strategy would ensure that lands with benefits to the nongame resource would receive due consideration for permanent protection through existing acquisition efforts of other programs and organizations. The activities of nongame personnel would not be diverted to the time consuming tasks of appraisal, negotiation and follow-up associated with acquisition. They would instead focus on identifying important land areas and incorporating them as priority tracts within existing acquisition programs.

These mechanisms are actually already in place. Among public agencies, a strong working relationship already exists within the Section of Wildlife between the Scientific and Natural Areas Program and the Nongame Wildlife Program. A number of important sites identified by nongame personnel have already been acquired by the Scientific and Natural Areas Program. Within the private sector, a similar liaison has formed between The Nature Conservancy and the Nongame Wildlife Program. Currently, similar associations need to be strengthened between the Nongame Wildlife Program and other Department programs in the Division of Parks, Trails and Waterways and the Division's own wildlife management areas program. This alternative focuses on opportunities 1, 2, 4 and 12. It does not propose to divert funds from other existing Nongame Wildlife Program activities.

Alternative Strategy #3: This alternative builds on the distinguishing features of the two previous alternatives by combining them. It is proposed that the Nongame Wildlife Program supplement the acquisitions of other programs by establishing a contingency fund to purchase important tracts that other agencies either could not or would not acquire through their own existing programs. This contingency would be financed by smaller annual

appropriations from the Nongame Wildlife Management Account than under alternative #1. Under this present alternative, only a limited number of tracts would ever be purchased directly by the Nongame Wildlife Program, since other programs would still purchase the majority of habitat. Matching monies for such acquisitions would routinely be sought from other agencies and organizations.

Analysis: Acquisition is the best and cheapest way to protect habitat in the long term. However, it is extremely expensive in the short-term. The Nongame Wildlife Program cannot, nor should it be expected to, acquire all parcels of significance to the nongame resource in Minnesota. The Program's annual budget could easily be allocated to the purchase of relatively few acres. However, other programs also have budgetary limitations and their own criteria for evaluating potential purchases.

History has shown that there will be valuable nongame tracts which will not meet the acquisition criteria of other agencies. A contingency fund within the Nongame Wildlife Program's operational budget could provide funds for these tracts on a case-by-case basis. The size of the contingency fund would need to be flexible enough to be adjusted whenever the funding base changes. Opportunities 1, 2, 3, 4, and 13 would be implemented under this alternative.

Alternative Strategy #4: This strategy represents the status quo in the Nongame Wildlife Program's habitat protection efforts. It does not involve land acquisition as a direct Program action. Instead, Program personnel would focus on working with regulatory agencies to provide input into the programs or policies of other organizations that affect wildlife habitat.

Program personnel would continue to participate in environmental review of proposed development projects. They would advocate programs that provide tax incentives for habitat protection and enhancement and removal of financial subsidies for land use actions which ultimately degrade wildlife habitat. They would also work for better land use planning regulations and legislation or other actions to resolve problems like acid precipitation and pesticide contamination.

This strategy also involves working with other land management agencies including the federal government and other states to plan, develop and implement wildlife habitat enhancement programs on public lands. Under this strategy, the Nongame Wildlife Program would join with the Section of Wildlife in taking a leading role in fostering habitat management on these areas.

This effort would extend to areas in private ownership as well. Technical services and informational materials would be provided to landowners to inform them of programs available to enhance wildlife habitat on their tracts. Emphasis would include farmland, prairie, backyard, forest and woodlot habitats. An active solicitation of owners of tracts which are known to need habitat management could be made. This portion of the strategy is closely tied to some of the opportunities that are listed under the public awareness and appreciation issue.

All of these actions are currently a part of the Program's activities. A renewed and expanded emphasis on these actions, as well as innovative new actions, would be the focus of this alternative.

Analysis: The Nongame Wildlife Program has management authority over a very limited land base. While this land base could be expanded through

acquisition, there is not enough money to acquire all the habitat that is cut, bulldozed, paved, or plowed under. Thus, in order to address the habitat issue, it is necessary for the Nongame Wildlife Program to work with those groups and individuals that do have authority or ownership of the lands.

Techniques, other than acquisition, that create incentives for habitat preservation need to be formulated. There is a need to focus on processes such as the protection afforded the highly erodible cropland by so-called "sodbuster" legislation, that affect large amounts of habitat.

If the Program implements this alternative, it would mean being a salesman for the needs and techniques of habitat management, as well as sometimes being the provider of management assistance in the form of funds, equipment, and/or labor for seasonal crews to public and private landowners. This alternative would encompass opportunities 1, 2, 4-19.

Opportunities to Resolve the Issue:

1. Identify the location, quantity and quality of habitats important for endangered, threatened, and special concern nongame species as well as other important habitats on a statewide basis. Monitor these habitats in order to quickly respond to negative changes that may occur. Develop a priority system to guide subsequent protection, enhancement, or development efforts.
2. Coordinate the identification of these critical habitats by working closely with the establishment of field inventory priorities for Natural Heritage staff plant ecologists.

3. Establish acquisition criteria and procedures to guide the Nongame Wildlife Program.
4. Implement measures to protect key critical nongame wildlife habitat, focusing on those habitats for endangered, threatened, or special concern species, including fee or easement acquisition or other protection techniques.
5. Use the DNR and other agencies' environmental review processes and procedures to optimize input and alert developers to the significance of nongame species. Focus the review process on alternatives and mitigation to enhance projects.
6. Encourage the Division of Fish and Wildlife to consider a Wildlife Protection Act to establish state policy for the protection and enhancement of wildlife with legislative mandates to implement the policy. As part of this policy effort, assess the legal mechanisms that offer protection to wildlife and its habitats through land use planning regulations, tax incentives for habitat protection or enhancement and land retirement programs.
7. Remove subsidies that ultimately degrade wildlife habitat.
8. Take the lead in promoting the adoption of the necessary regulations and Commissioner's Orders within the Department of Natural Resources to carry out all of the mandates of the state Endangered Species Act.
9. Promote state legislation or regulation to further the control of toxic substances in the air and water, to deal with problems such as lead shot, and to preclude the introductions and/or propagation of undesirable exotic species into Minnesota.

10. Encourage the federal government to assume vigorous toxic shot and acid precipitation prevention programs.
11. Promote the maintenance of a strong federal Endangered Species Act, which provides adequate Section 6 funding to states. Become an advocate for nongame appropriations under the Fish and Wildlife Conservation Act of 1980, and develop working agreements with federal agencies concerning nongame species management on federal lands.
12. Develop agreements with adjacent states concerning nongame species management.
13. Develop and implement formal working agreements and guidelines with other land management agencies or DNR Divisions to provide direction (such as the Private Forest Management Program of the Division of Forestry) and management assistance (technical services, seasonal crews, equipment and management funds) concerning nongame species habitat needs on public and private lands.
14. Whenever possible, promote the implementation of an ecosystem approach to natural resource land management by linking lands under various ownerships through cooperatively designed and implemented acquisition and/or management plans.
15. Participation in a technical services program that can advise private landowners or other agencies on public services (technical assistance guidelines), subsidies available (tax credits), and protection mechanisms (leases, easements) to:
 - 1) avoid adverse actions which degrade or eliminate wildlife habitat or otherwise substantially threaten nongame wildlife

populations, 2) mitigate unavoidable loss of habitats, and 3) improve existing habitat, including urban and backyard habitats and small woodlots. Cooperate, particularly with the U.S.D.A. Extension Service and the U.S. Soil Conservation Service in this regard.

15. Develop, as a part of a broader awareness program, educational materials to promote an understanding of the necessity of adequate habitat for maintaining wildlife populations. This effort should include information on the status of wildlife habitat and what the public can do to positively influence attitudes on the retention and maintenance of wildlife habitat in their own community and statewide.
16. Assess the applicability of the Habitat Evaluation Procedures (HEP) (U.S. Dep. Inter. 1980) or other procedures in order to establish the value of lands maintained as wildlife habitat.
17. Participate in existing programs throughout the state which demonstrate good wildlife habitat management practices, particularly for woodlots and agricultural lands.
18. Encourage the state to maintain an effective prairie and wetland tax credit program and explore opportunities for a woodlot tax credit program in agricultural areas.
19. Consider funding through regional small grant programs or other techniques to set up habitat demonstration areas on public and private lands.

NONGAME WILDLIFE PROGRAM FUNDING

Issue: THE NONGAME WILDLIFE PROGRAM IS FINANCED BY VOLUNTARY DONATIONS TO THE NONGAME WILDLIFE MANAGEMENT ACCOUNT AND HAS GENERATED SIGNIFICANT SUPPORT FROM MINNESOTA CITIZENS. LONG-TERM STABILITY AND SUCCESS WILL DEPEND ON EXPANDED FUNDING TO INCLUDE ADDITIONAL REVENUE SOURCES.

Goal: The goal of the Nongame Wildlife Program is to broaden and maintain the funding base so Program continuity and effectiveness result in long-term benefits to the nongame resource and to the public.

Discussion: In 1984 Minnesota's Nongame Wildlife Checkoff generated the second highest contributions among 32 states with checkoffs. Only New York received more money. However, checkoff programs are vulnerable to long-term declines in revenue because of the addition of more checkoffs, changes in tax forms and tax structure, and problems associated with sustaining the intensity of publicity efforts over the long term. Nevertheless, they remain the single best source of money currently available for nongame species.

With the checkoff as the primary source of revenue for nongame wildlife, no new significant increases in revenue can be expected without new legislative initiatives. Consequently, Nongame Wildlife Program actions to enhance resource management and encourage birdwatching, bird feeding, and other wildlife-oriented recreational opportunities for residents and tourists are not being implemented to their full potential. Such activities could stimulate a significant, but as yet undetermined, level

of economic benefit to the state.

If the Nongame Wildlife Program is to achieve its long-term objectives, creative methods must be employed to broaden and increase the funding base. The four alternatives offered here vary from maintaining the status quo to the establishment of new state and federal legislation for increased nongame funding. The selection among the alternatives requires a thorough review of the political feasibility for such initiatives and of the tremendous level of citizen support for nongame conservation that can help achieve the goals. In all likelihood, the solution will be in a combination of the alternatives offered.

Alternative Strategy #1: This alternative utilizes the existing funding mechanism--the Nongame Wildlife Checkoff on Minnesota's income tax and property tax forms--as the only source of revenue. Matching funds from outside sources would continue to be solicited for special projects. Publicity strategies and techniques to promote public participation in the checkoff would continue at an annual cost of approximately \$20,000.

Analysis: This alternative accepts the current mechanism as adequate for obtaining the funds necessary to accomplish the actions needed to manage the nongame resource. Opportunities involved in alternative #1 are 1, 3, 5, 8, 9, and 11. This strategy would generate approximately \$625,000 annually if current income tax patterns are maintained. If new checkoffs for other purposes are added to Minnesota's tax forms, the annual income to the Nongame Wildlife Management Account would likely decrease by at least 25% (Applegate 1984). This strategy leaves the Nongame Wildlife Program vulnerable to such potential decreases in funding.

The Nongame Wildlife Checkoff is currently the funding source upon which virtually all of the Nongame Wildlife Program is based. Citizen support has been excellent. Nevertheless, this alternative will fall short of the anticipated amount needed to fund the Nongame Wildlife Program at an optimum level.

Alternative Strategy #2: This strategy seeks to maintain the Nongame Wildlife Checkoff as a funding base and to augment it with supplemental funding from existing state and federal sources. Potential sources include Section 6 funding from the federal Endangered Species Act, Pittman-Robertson and/or Dingell-Johnson funding, and/or a Congressional appropriation to fund the Fish and Wildlife Conservation Act of 1980. Additional revenue could also be derived by changing the wording of the Nongame Wildlife Checkoff Line on the Property Tax form to remove the "\$1.00 minimum" reference from the text.

Marketing research and surveys would be carried out regarding Checkoff publicity to pinpoint publics and identify opportunities where additional promotion is desirable and most cost effective. Annual publicity costs of approximately \$25,000 would be provided for an expanded promotional effort as identified in the marketing survey.

Analysis: Opportunities associated with this strategy are #1, 3, 5, 6, 7, 8, 9, 10 and 11. Currently Section 6 funds are applicable for only a few federally listed endangered or threatened species like the bald eagle and peregrine falcon. These funds are undependable from year to year and their allocation is a low federal priority. It is unlikely that more than \$25,000 to \$50,000 can be derived from this source.

Pittman-Robertson monies are not available at this time because all of Minnesota's current federal allocation is expended on existing projects. It is possible that some Dingell-Johnson funds can be made available for future nongame fish research and survey work. This is now being done with the Fisheries Section to fund nongame stream survey work. Other states have done mussel survey work under the Anadromous Fish Act, but this has not been tried in Minnesota yet. Finally, no money has yet been appropriated by the current federal administration to the Fish and Wildlife Act of 1980 and none is expected in the near future.

A change in the wording on the state income tax form in 1984 increased the average donation nearly \$0.40. Similar revisions on the property tax form in 1985 could increase checkoff income about \$18,000 yearly. It is anticipated that a marketing survey could increase checkoff revenue by as much as \$150,000 annually at a one time cost of approximately \$25,000.

Even if all of these opportunities could be realized, it is anticipated that not more than \$100,000 in addition to the existing Nongame Wildlife Checkoff revenue of \$625,000 could be generated annually. Total revenue would still not be adequate to fulfill the Nongame Wildlife Program's potential for benefiting the nongame resource and the public.

Alternative Strategy #3: Alternative #3 involves maintaining the existing Nongame Wildlife Checkoff and promotion program and implementing new initiatives at the state and/or federal level for funding to match or expand the current Checkoff base. These new initiatives could include any one or a combination of the following options:

1. Promotion of the Nongame Wildlife Fund in estate planning.
2. Increase the minimum amount that taxpayers can donate to the Nongame Wildlife Checkoff from \$1.00 to \$2.00 or \$5.00 (Illinois has a \$10.00 minimum).
3. Establish a federal source of revenue (such as a semi-postal stamp or an excise tax on bird seed, bird feeders and field guides and/or other items) to fund the Fish and Wildlife Conservation Act of 1980.
4. Addition of the Nongame Wildlife Checkoff to the state corporate income tax form.
5. Establishment of state legislation that will match checkoff donations 1-1 from the general fund.
6. Establishment of a \$10 million Nongame Wildlife Trust Fund from bonding. Interest from that fund would finance annual program activities.
7. Add the tax checkoff line to the M-1X form for people who amend their M-1 forms.

Analysis: Opportunities involved with this alternative are 1, 3, 5, 6, 7, 8, 9, 10, 11 and 12. These proposed initiatives offer the greatest potential for the Nongame Wildlife Program to achieve its funding goals. Except for the first, they all require legislative action at either the state or federal level. The Commissioner of the Department of Natural Resources can currently accept gifts to support department activities. Donations from estate planning could be accommodated under existing legislative mandates.

Probably the greatest opportunity to immediately increase the Checkoff revenue is to increase the minimum donation from \$1.00 to \$5.00. This could

add as much as \$300,000 to \$400,000 annually and increase revenues to nearly \$1,100,000 annually. Considering inflation and other factors, increasing the minimum to \$2.00 is considered desirable so that current levels of program activities can be maintained. Setting a \$2.00 minimum could increase donations about \$100,000 annually.

Currently, the U.S. Fish and Wildlife Service is evaluating 18 alternative mechanisms to finance the legislative mandates set forth in the Fish and Wildlife Conservation Act of 1980.

The alternative that comes closest to achieving the desired funding is to establish a \$10 million Nongame Wildlife Trust Fund. Assuming a 13% interest rate, such a trust fund could provide income of approximately \$1.3 million per year. This would be a stable source of income that would provide tremendous opportunities for enhancement and protection of the nongame resource. It would provide for greatly expanded opportunities for enjoyment of that resource by Minnesota's citizens. However, no other states have used this technique as a funding source so it is an unproven concept.

Other possibilities, like allowing for a checkoff on the corporate income tax form or establishment of state legislation to match checkoff donations 1-1 from the general fund, also have no precedent and their feasibility is unknown at this time. Implementation of initiatives 1, 2, 4, 5 and/or 6 would be the responsibility of the Nongame Wildlife Program's administrative unit and could require as much as one person year over the next biennia at a cost of \$30,000.

Alternative Strategy #4: Alternative #4 involves new state and federal initiatives that would supplement the Nongame Wildlife Checkoff with

comprehensive funding for all wildlife, including nongame species. This could include establishing a state bonding program or trust fund for all wildlife.

Analysis: Opportunities involved with this alternative are 1, 3, 5, 6, 7, 8, 9, 10, 11 and 12. This strategy is based on precedents which have been set in North Carolina and Missouri where comprehensive wildlife funding is derived, respectively, from the establishment of a trust fund from the sale of lifetime hunting and fishing licenses, and from a percent of the state's sales tax revenues.

The primary option currently being considered is the establishment of a ten-year state fish and wildlife program in which \$60 million in state funds would be "reinvested" in maintaining Minnesota's fish and wildlife resource base. This could easily include \$2 million for nongame purposes. This proposal is now being advocated by the Governor's Citizen Commission to promote hunting and fishing. Alternatives to generate the needed monies are being investigated.

The justification for this alternative is that in the long term, it may serve the best interests of both the citizens and the resource that funding for wildlife programs be comprehensive in scope and financed with matching support from state general funds. Implementation of this alternative strategy would require action by the Division of Fish and Wildlife.

Opportunities to Resolve the Issue:

1. Employ market research techniques in the development of a checkoff promotion strategy based on:

- a. a determination of the most effective promotional techniques;
 - b. a description of the present participants and delineation of new contributors;
 - c. a determination of motivation for current citizen participation;
 - d. an identification of weak links in the existing promotion network and of opportunities for additional organizations/ individuals to participate in promotion.
2. Encourage and participate in agency efforts to determine and publicize the economic values of the state's wildlife resources.
 3. Establish a task force to develop information on the economic values of wildlife for use in benefit/cost analysis and mitigation assessment. (See issues on Wildlife Habitat and Data Acquisition.)
 4. Investigate the applicability of the Habitat Evaluation Procedures or other methods in order to establish the value of lands maintained as wildlife habitat.
 5. Enhance capability of limited dollars by seeking funding from other agencies and organizations to directly finance or cost share particular programs of mutual interest and benefit such as research and habitat protection.
 6. Encourage appropriation and expansion of federal aid funding to states for nongame wildlife management through Section 6 of the Endangered Species Act. Urge Congressional support to fund the Fish and Wildlife Conservation Act of 1980 to provide nongame funds to the states.
 7. Investigate and evaluate new methods to broaden the long-term funding base of the Nongame Wildlife Program, such as General

Fund or corporate monies to match citizen donations.

8. Review the funding strategies of other state agencies for ideas of methods to expand financing of programs which benefit the nongame resource of Minnesota.
9. Keep the Legislature informed about nongame resources, the Nongame Wildlife Fund and citizen interest and participation in these programs through an annual report.
10. Investigate and implement new wording on the tax forms to encourage an increase in average donations up to the national average.
11. Develop a strategy to increase tax preparers' awareness and support for the tax checkoff so that the overall donation rate could be raised to a level characteristic of people who make out their own tax forms.
12. Establish a contingency fund to finance Nongame Wildlife Program activities through any temporary periods of decline in checkoff receipts.
13. Obtain legislative approval to charge a fee to recover the cost of printing and distribution of certain program products such as booklets and educational posters.

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