

# **GRASSLAND PASSERINE MANAGEMENT SYSTEM**

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## INTRODUCTION

This document describes the process used by the Department of Inland Fisheries and Wildlife (MDIFW) to implement research and management programs for obligate grassland songbirds. The species composition of this group of birds was defined by Hodgman (1998) in an assessment of research and management needs. From that assessment, a public working group, convened during summer of 2000, established goals and objectives for management of Maine's grassland Passerines. In addition, an evaluation of the desirability, feasibility, capability of the habitat, and possible consequences have been identified, and a series of problems and strategies for overcoming limitations of the goals and objectives has been drafted.

Among the approximately 120 Passerines that occur in Maine at various times of the year, only a small percentage (about 7%) can be considered grassland obligates. These include 7 species covering 2 families; 4 species occur in Maine only during the breeding season (Vesper Sparrow, Savannah Sparrow, Bobolink, and Eastern Meadowlark), whereas 2 species (Lapland Longspur and Snow Bunting) occur only during the winter. Horned Larks occur in Maine throughout the year, however, most wintering birds are of the *alpestris* subspecies migrating to Maine probably from eastern Canada. Two species, Grasshopper Sparrow and American Pipit, are not directly addressed by this system as they are both Endangered in Maine and consequently warrant individual plans. Probably more than for any other group of songbirds, the

management of habitat for grassland Passerines would have direct benefits for other grassland birds, several of which are either Endangered, Threatened, or of special concern in Maine. In addition to Grasshopper Sparrow and American Pipit, species such as Upland Sandpiper, Short-eared Owl, and Northern Harrier will assuredly benefit from the habitat management and outreach that will result from this system.

## **MANAGEMENT GOALS AND OBJECTIVES**

The strategic planning process employed by MDIFW solicits public input in the development of goals and objectives for species management. The following were developed for grassland Passerines:

**Goal: Increase the populations of grassland birds, and increase the understanding and appreciation of grassland birds and their habitat requirements in Maine.**

**Population Objective 1: Identify grassland Passerines whose populations are declining in Maine and stabilize and begin to reverse the decline by 2017. Priority should be given to those species that have greater than 5% of their global populations breeding in Maine.**

**Population Objective 2: Through 2017, maintain and monitor grassland Passerines whose populations have been stable or increasing since 1980.**

### ***Assumptions***

- Meaningful objectives can be set at the state level for long-distance migrants given their complex life histories.

- When using North American Breeding Bird Survey (BBS) data to indicate population trend, assume that trend estimates based primarily on counts of singing males are representative of trends for the entire population.
- Sufficient BBS data exist for all species, but especially “priority species” (e.g., those with >5% of their global breeding population in Maine).
- The threshold of 5% is indeed appropriate.
- For species with declining trend or evidence of a declining trend, assume that management activities in Maine can contribute to reversing trend even though the most limiting factor may not be known.
- 1980 is an appropriate date from which to base population change.
- For species in decline for which evidence of cause is closely linked to forces outside Maine, assume detailed monitoring of the population is Maine’s greatest contribution to conservation of the species.

**Habitat Objective 1: Identify all priority grassland habitats in Maine and improve habitat quality at 50% of these sites by 2007.**

**Habitat Objective 2: By 2017, improve management practices to enhance grassland bird populations on at least 100 additional grassland sites.**

***Assumptions***

- Priority grassland habitats can be identified based on existing data and technology.
- Determinants of habitat quality for all priority species are known or can be determined.

- Limitations in either amounts or quality of habitat (including management practices) in Maine are influencing population trend.
- 100 additional sites can be identified and landowners contacted to pursue recommendations that will benefit grassland Passerines.
- The amount of conservation land currently in Maine is inadequate to ensure long-term protection of all species in this group at desired levels.

**Outreach Objective: By 2005, develop and begin implementing an outreach program that increases the understanding and appreciation of grassland birds and their habitat requirements in Maine.**

***Assumptions***

- “Understanding” refers to an individual’s knowledge of a species life history, niche, and conservation status in Maine.
- “Appreciation” refers to an individual’s awareness of the difficulties involved in managing a species population or habitat, given current social, political, and financial constraints.
- An appropriate (and receptive) audience can be identified and targeted by above plan.
- A formal outreach plan, however brief, is actually needed.

**MANAGEMENT DECISION-MAKING PROCESS**

The following three-part management system provides the framework for managing populations and habitats of grassland Passerines in Maine. Further, it

identifies a system for improving public understanding and appreciation of this group of birds.

## **POPULATION MANAGEMENT SYSTEM**

### **Decision Criteria**

The following criteria determine the sequence of procedures used to conserve grassland Passerine populations in Maine (Fig. 1). Although this system applies to all species described above, it operates on an individual species basis (i.e., each species is to be run through each population criterion separately). Furthermore, this approach is to be carried out in the form of an annual review, because of the dynamic nature of species priority/special concern lists, population trend estimates, etc.

#### **Criterion A:** *Have all species been reviewed for priority status?*

This criterion addresses whether each of the 7 species addressed by this system has been reviewed by this agency to determine the relative urgency of conservation action. The Passerine Working Group simply recommended using a threshold of 5% of global population breeding in Maine as one criterion for prioritization. However, various organizations and agencies since the 1980s have developed, sometimes elaborate, ranking systems to focus attention on certain species (NESWDTC 1999, Carter et al. 2000). These lists of priority

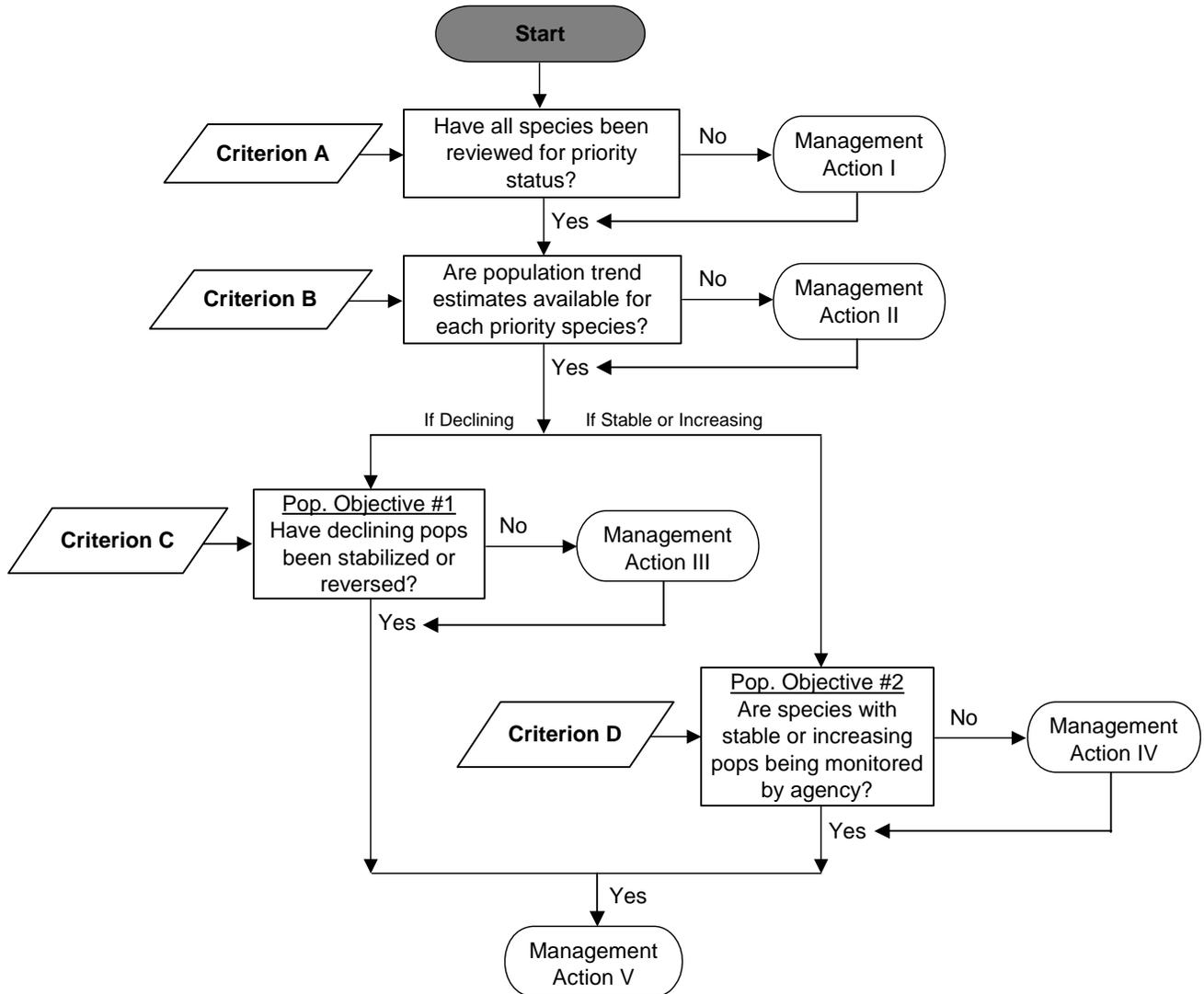


Figure 1. Flow diagram depicting decision criteria for Population Management System for grassland Passerines in Maine.

birds, in addition to the 5% threshold, are the source of “data” to respond to this criterion.

Rule of Thumb: Species will be considered a priority, and thus addressed by this management system, if upon annual review:

1. They are recognized by Partners in Flight (PIF) as priority birds in categories IA, IB, IIA, IIB, and IIC for either the Northern Spruce-Hardwood Forest (Rosenberg and Hodgman 2000), Northern New England (Hodgman and Rosenberg 2000), or Southern New England (Dettmers and Rosenberg 2000) Physiographic Regions, or,
2. They are listed as a priority within Bird Conservation Regions (BCR) 14 or 30 by the North American Bird Conservation Initiative, or,
3. They are listed by the U.S. Fish & Wildlife Service (USFWS) as a species of management concern, or,
4. They are listed by the Northeast Endangered Species and Wildlife Diversity Technical Committee as a species of conservation concern (NESWDTC 1999), or,
5. They are considered by MDIFW to be a species of special concern, or if,
6. >5% of their global population occurs in Maine.

An affirmative response will require that all appropriate prioritization lists (see “Rule of Thumb” above) and population data have been reviewed (annually) to determine if any of the species in this group qualify. A list of these species will be prepared annually.

**Criterion B:** *Are population trend estimates available for each priority species?*

This criterion addresses the adequacy of current monitoring programs in Maine. Currently, the North American Breeding Bird Survey (BBS) provides the only reliable data and trend estimates for Passerines breeding in Maine. Also, National Audubon’s Christmas Bird Count (CBC) provides data and trend estimates for winter residents.

An affirmative response will require statistically reliable trend estimates based on BBS and/or CBC data.

*Rules of Thumb:* *If species trend estimates are only available from the*

*BBS:*

Trend will be based on at least 14 routes in Maine with  $P \leq 0.10$  from the most recent half of the BBS period (i.e., currently 1980-2003). If <14 routes are available for Maine in that time period, use trend estimates (same  $P$ -value and time frame) for Northern New England or Eastern

Spruce/Hardwood regions (switch this to BCR 14 or 30 when available) if based on  $\geq 30$  routes for either region.

*If species trend estimates are only available from the CBC:*

Trend will be based on  $\geq 10$  circles for Maine.

*If species trend estimates are available from both BBS and the CBC:*

Use estimate with greatest power according to geographic rule described above.

Trends not conforming to one of these rules of thumb are not reliable.

Rule of Thumb: A declining trend is a statistically significant ( $P < 0.10$ ) estimate of negative (-) population change.

**Criterion C:** *For species with declining populations, have declines been stabilized or reversed??*

This criterion addresses whether species with documented declines are no longer in decline. Trend estimates from the BBS and CBC will be the primary sources of data for this criterion.

An affirmative response will require statistically reliable trend estimates.

*Rule of Thumb:* Populations have stabilized when a species' declining trend ceases to be significant (i.e.,  $P > 0.10$ ) for three consecutive yearly updates to either the BBS or CBC. However, estimates must have been based on at least 14 routes or 10 CBC circles (or 30 routes for Northern New England or Eastern Spruce Hardwood regions when Maine data are unreliable) for 3 consecutive years. Population declines have reversed (i.e., increasing) when a species' declining trend (or nonsignificant trend) becomes positive (+) and is significant at  $P < 0.10$  for three consecutive yearly updates to either the BBS or CBC. Estimates must be based on at least 14 routes (10 CBC circles) for Maine, or if Maine data are insufficient, 30 routes for Northern New England or Eastern Spruce Hardwood regions.

**Criterion D:** *Are species with stable or increasing populations being monitored by agency?*

This criterion addresses whether populations of any of the 7 species covered by this management system are stable or increasing and are considered a priority under Criterion A. Further, it asks if these populations are being monitored by MDIFW Staff or its volunteers or partner organizations or agencies. Sources of data for this criterion arise from the North American Breeding Bird Survey (BBS), the Christmas Bird Count (CBC) or local

monitoring programs. Trend estimates from these programs provide the data to evaluate this criterion.

An affirmative response will require statistically reliable trend estimates (see “Rule of Thumb” under Criterion B) based on BBS, CBC, or other data.

*Rule of Thumb:* A stable trend is an estimate of population growth that is either positive (+) or negative (-), but not statistically significant (i.e.,  $P > 0.10$ ). An increasing trend is one where population growth is positive (+) and statistically significant (i.e.,  $P > 0.10$ ). Note: adequate data (number of routes or circles) are critical to making these judgments, so the “Rule of Thumb” under Criterion B must be followed closely.

### **Management Actions**

The following management actions are the recommended procedures for accomplishing population objectives. Specific management actions result from responses to decision criteria identified in Figure 1.

#### **Management Action I**

- 1) Annually, determine if any species covered by this management system meet priority criteria listed in “Rule of Thumb” under Criterion A.
- 2) Prepare list of species that will be considered a priority for this management system.

## Management Action II

- 1) If possible, improve BBS coverage by:
  - a. Enlisting new volunteers and encouraging long-term commitments.
  - b. Increasing participation among currently assigned routes to  $\geq 90\%$ , or at least 63 of 70 routes run, each year. Participation has declined steadily over the past several years: 1995 (90% of available routes were run), 1996 (100%), 1997 (80%), 1998 (82%), 1999 (70%), 2000 (58%), 2001 (57%), 2002 (49%), and 2003 (41%). Accomplish this via:
    - i. Sending a letter to all observers thanking them for their volunteer participation and explaining the importance of BBS data to monitoring species populations.
    - ii. Making a follow up phone call to volunteers who have not run their assigned route two or more times since 1997. Encourage these individuals to resume survey or relinquish route to another interested individual.
  - c. If possible, increase total number of routes available in Maine. This is not likely for the foreseeable future as the number of routes was recently increased (to 70 routes) for the 2002 survey.
- 2) If priority species is only a winter resident, encourage increased participation in CBC by:
  - a. Determining levels of participation in each Maine circle.

- b. Working to increase participation in circles with few volunteers especially in remote locations.
  - c. Ensuring that data from all circles are submitted for analysis by contacting delinquent compilers (if any).
  - d. Identifying areas that can support additional circles.
  - e. Identifying individuals that can serve as “new” compilers.
  - f. Working with local NGO’s to generate volunteers to count in “new” circles.
- 3) Develop separate monitoring programs for species not adequately monitored by the BBS or CBC if they are recognized as a priority under Criterion A. This will require additional volunteer support and may be coordinated with Maine Audubon.
- 4) If unsuccessful, or deemed to have too little power to detect trends using BBS at state scale, build partnerships in northeast region to:
- a. Expand BBS coverage using above-mentioned steps, and/or
  - b. Develop regional monitoring program specifically targeting poorly monitored species (e.g. Project Mountain Birdwatch).

**Management Action III**

- 1) Determine factors contributing to population decline
- 2) Differentiate between factors that can be affected in Maine and those that cannot.

- 3) For habitat-related factors, establish partnerships to improve habitat for declining species by:
  - a. Identifying stakeholders.
  - b. Seeking consensus among experts regarding highest priority approaches to recovery.
  - c. Referring to the Habitat Management System.

#### **Management Action IV**

- 1) Review BBS and CBC trend estimates for all priority species.
- 2) List each priority species with either reliable nonsignificant trends or significant positive trends.
- 3) Monitor trend estimates annually.
- 4) Develop monitoring program for species inadequately monitored by existing programs, but assumed to be stable or increasing.

#### **Management Action V**

- 1) Reconvene public working group to revise population objectives for priority species.

### **HABITAT MANAGEMENT SYSTEM**

#### **Decision Criteria**

The following criteria determine the sequence of procedures used to conserve habitat for grassland Passerines in Maine (Fig. 2).

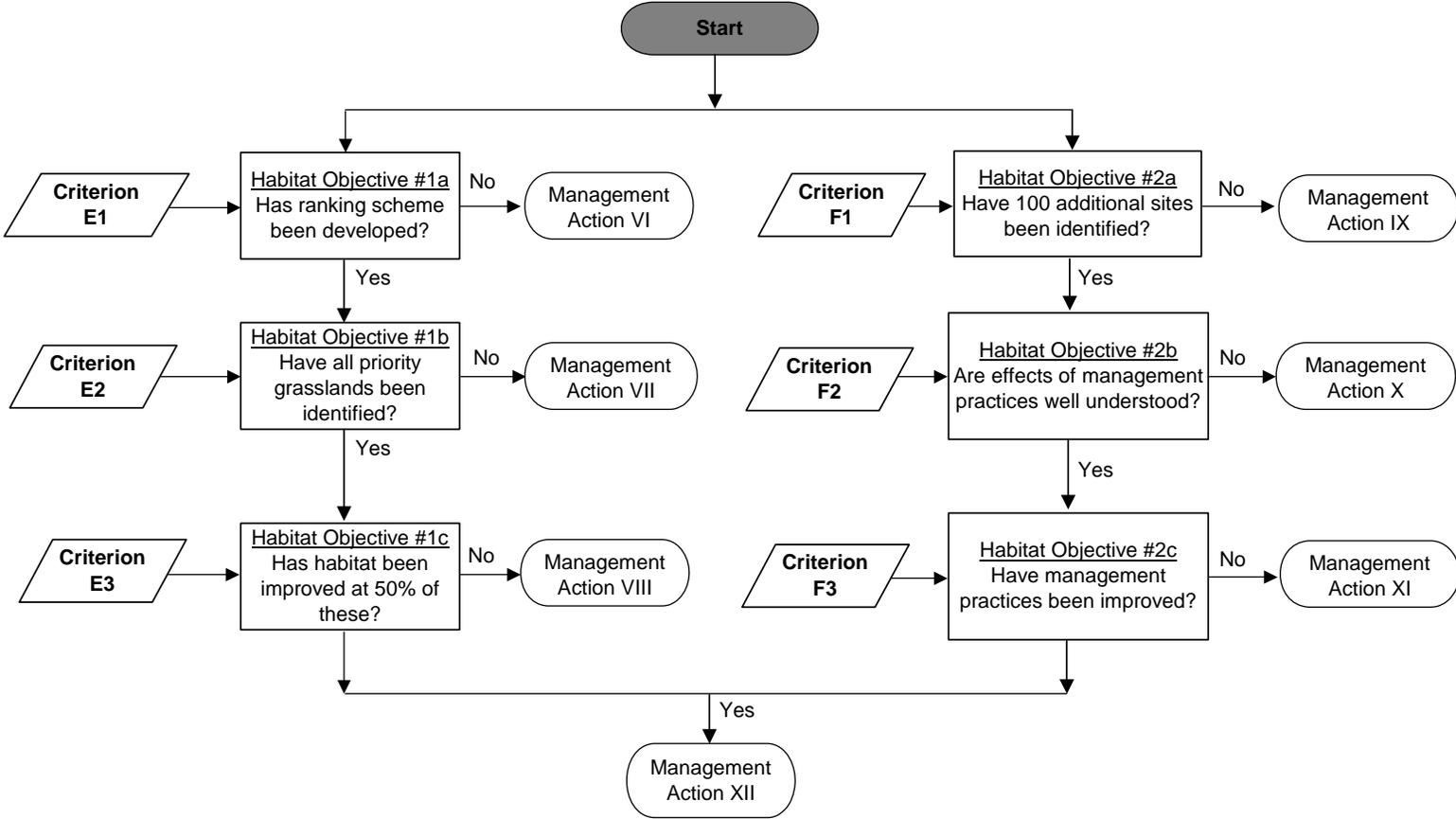


Figure 2. Flow diagram depicting decision criteria for Habitat Management System for grassland Passerines in Maine.

**Criterion E1:** Has a system been developed to prioritize individual grasslands with regard to their importance to grassland Passerines?

This criterion evaluates which factors should be considered when determining which grasslands should be the focus of agency efforts. A review of the literature pertaining to habitat selection of priority grassland Passerines (and E/T grassland species as well), and the ongoing efforts by Habitat Group to identify these, will be the source of information to answer this criterion.

An affirmative response will require that this review has been completed.

**Criterion E2:** Have all priority grasslands been identified?

This criterion evaluates whether the above prioritization scheme has been used and if individual sites have been identified and their locations mapped. Status of the Habitat Group's Grassland Project will be the source of information to answer this criterion.

An affirmative response will occur when a summary document listing the locations of each priority grassland is available and a GIS coverage of their locations has been developed.

**Criterion E3:** *Has habitat for grassland Passerines been improved at 50% of the priority sites?*

This criterion addresses whether management actions to improve habitat at ½ of the sites has been accomplished.

An affirmative response will be achieved when management actions at >50% of the listed priority grasslands has been initiated.

**Criterion F1:** *Have an additional 100 grassland sites been identified for management?*

This criterion addresses whether, in addition to the priority sites, 100 other sites have been identified for potential improvement in management to benefit grassland Passerines.

An affirmative response will require a list of 100 sites, their location, and landowner contact information.

**Criterion F2:** *Are the effects of various grassland management practices on populations of grassland Passerines in Maine well understood?*

This criterion addresses whether agency staff understand the relative importance of various grassland management practices on the persistence and productivity (via either actual nest success data or indices of reproduction) of grassland Passerines. A review of the scientific literature and consultation with experts, as well as results of our own investigations, will form the basis to evaluate this criterion.

An affirmative response can be made when a summary document describing and comparing various management practices affecting grassland Passerines has been reviewed (if outside our agency) or drafted (if done by our own staff).

**Criterion F3:** *Have management practices on these 100 sites been altered to improve conditions for grassland Passerines?*

This criterion addresses whether steps have been taken to alter land management activities to benefit grassland Passerines. A list of past and present land management practices for each of the 100 sites forms the basis for evaluating this criterion.

An affirmative response can be made when a summary table has been developed for each site that describes, in detail, which steps have been taken to improve habitat at the site for grassland Passerines.

## **Management Actions**

The following management actions are the recommended procedures for accomplishing habitat objectives. Specific management actions result from responses to decision criteria identified in Figure 2.

### **Management Action VI**

- 1) Conduct literature review on habitat requirements for all priority grassland Passerines.
- 2) Prepare list of key habitat characteristics that should be used in a ranking scheme.
- 3) Compare results of literature review with information available from Habitat Group project.
- 4) Review data from IFW Grassland Bird survey to determine sites with greatest abundance and diversity.
- 5) Review Heritage database for occurrences of E/T grassland species.
- 6) Develop ranking system based on above information.

### **Management Action VII**

- 1) Create list of sites and generate priority ranks based on scheme described in Management Action VI.
- 2) Create database of priority Grassland sites that includes the following fields:

- a. Priority Score
  - b. Site Name.
  - c. Town(s).
  - d. Landowner information (if available)
  - e. Type of grassland
  - f. Management practices
  - g. Grassland species present
  - h. Element occurrences for E/T grassland species
  - i. Comments
- 3) Create GIS coverage of all priority sites.

**Management Action VIII**

- 1) Use database of priority sites to review current management practices at all sites.
- 2) Identify sites (50% of total number of priority sites) where habitat management, if altered, would benefit grassland Passerines.
- 3) Contact regional biologists and/or landowner regarding willingness to alter current management.
- 4) Meet with NRCS staff to explore whether management at some sites could be funded in part by WHIP.

**Management Action IX**

- 1) Identify 100 additional sites using the following sources:

- a. Any sites with occurrences of E/T grassland species not included in the “50% of priority sites.”
- b. Sites that met a priority score threshold, but were not included in the 50% targeted for management action.
- c. Sites that have low priority score, but have landowners willing to participate.
- d. State-owned properties that would be easy to manage
- e. Sites already enrolled in WHIP, but that may need slight alterations over time.

2) Create database of 100 additional Grassland sites that includes the following fields:

- a. Site Name.
- b. Town(s).
- c. Landowner information (if available)
- d. Type of grassland
- e. Current Management practices
- f. Grassland species present
- g. Element occurrences for E/T grassland species
- h. Comments

### **Management Action X**

- 1) Conduct literature review on grassland management practices and habitat quality for all priority grassland Passerines.

- 2) Identify significant gaps in knowledge and potential consequences.
- 3) Conduct additional research as needed to fill gaps in knowledge.

### **Management Action XI**

- 1) Implement alterations to grassland habitat management (following guidelines in Management Action X) on as many sites as possible.
- 2) Add to database described in Management Action IX the following fields:
  - a. Alterations to current management
  - b. Dates for each
  - c. Area effected
  - d. Landowner perception of benefit to Grassland Birds.
  - e. Associated costs
  - f. Sources of funding.

### **Management Action XII**

- 1) Reconvene public working group and redraft habitat objective.

## **OUTREACH MANAGEMENT SYSTEM**

### **Decision Criteria**

The following criteria determine the sequence of procedures to be used to improve the understanding and appreciation of grassland Passerines in Maine.

**Criterion G1:** *Has an outreach plan been developed?*

This criterion simply addresses whether a plan for increasing the understanding and appreciation of grassland Passerines and their habitat requirements in Maine has been assembled.

An affirmative response will be met when a brief document describing outreach materials and a schedule for their distribution have been drafted.

**Criterion G2:** *Has an outreach plan been implemented?*

This criterion addresses whether a plan for increasing the understanding and appreciation of grassland Passerines and their habitat requirements in Maine has been put in place.

An affirmative response will have been achieved when outreach materials have been developed and distributed.

**Management Actions**

The following management actions are the recommended procedures for accomplishing outreach objective. Specific management actions result from responses to decision criteria identified in Figure 3.

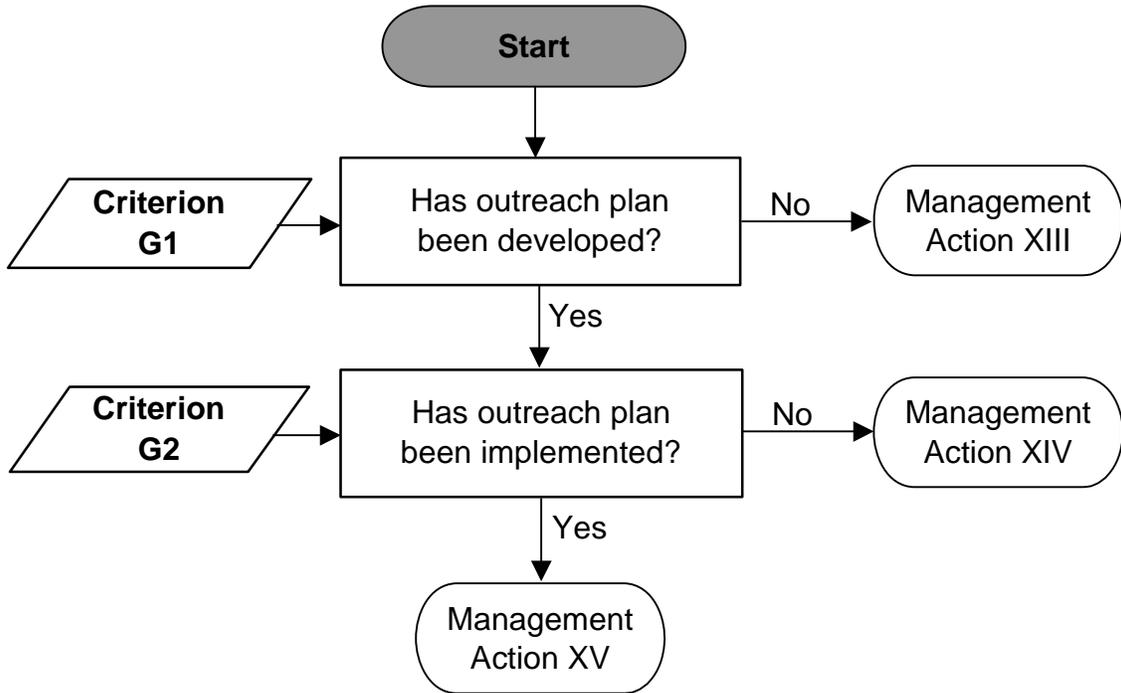


Figure 3. Flow diagram depicting decision criteria for Outreach Management System for grassland Passerines in Maine.

**Management Action XIII**

- 1) Identify target audience.
- 2) Identify components of plan.
- 3) Identify and contact potential cooperators (e.g., Maine Audubon, National Wildlife Refuges, etc.).
- 4) Determine method of delivery (e.g. radio, poster, pamphlet, articles).
- 5) Identify sites for implementation (e.g., specific refuges and nature centers, radio programs, magazines/newspapers/journalists).

**Management Action XIV**

- 1) Prepare outreach materials as planned and scheduled in Management Action XIII.
- 2) Deliver outreach materials as planned and scheduled in Management Action XIII.

**Management Action XV**

- 2) Reconvene public working group and redraft outreach objective.

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