

SWALLOW MANAGEMENT SYSTEM

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TABLE OF CONTENTS

	Page
INTRODUCTION	3
MANAGEMENT GOALS AND OBJECTIVES	3
MANAGEMENT DECISION-MAKING PROCESS	5
POPULATION MANAGEMENT SYSTEM	6
OUTREACH MANAGEMENT SYSTEM	13
REFERENCES	17

LIST OF FIGURES

FIGURE 1. Flow diagram depicting decision criteria for Population Management System for swallows in Maine.....	7
FIGURE 2. Flow diagram depicting decision criteria for Outreach Management System for swallows in Maine.....	14

INTRODUCTION

This document describes the process used by the Maine Department of Inland Fisheries and Wildlife (MDIFW) to implement research and management programs for swallows. 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 these species. In addition, an evaluation of the desirability, feasibility, capability of the habitat, and possible consequences have been identified. 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, only 6 of these are members of the Family: Hirundinidae. Interestingly, these 6 species represent 6 different Genera and include: Purple Martin, Tree Swallow, Bank Swallow, Northern Rough-winged Swallow, Barn Swallow, and Cliff Swallow. None of these species regularly winters in Maine, however, Tree Swallows are among the first migrant Passerines to return in spring.

MANAGEMENT GOALS AND OBJECTIVES

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

Goal: Maintain the diversity and abundance of swallows, and increase the understanding and appreciation of swallows and their habitat requirements in Maine.

Population Objective: By 2003, develop and implement a monitoring system for Purple Martins and Bank Swallows that will have a 90% probability of accurately detecting population trends to within 15% by 2013.

The Passerine Working Group deviated from their typical approach when setting objectives for Swallows. In this case, they 1) decided which species were the highest priority, 2) decided that monitoring was the most needed course of action, and 3) gave specific parameters for which a monitoring program would be operated. In developing this system, I deviated from their strict population objective in that I used both their two priority species in combination with my traditional approach of using PIF and other priority species. In keeping with their monitoring directive, I identified the steps in drafting a monitoring program, but stopped short of addressing other management options.

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 that are suspected to be in decline, assume that management activities in Maine can contribute to reversing trend even though the most limiting factor may not be known.

- 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.
- Levels of precision stipulated by Passerine Working Group are appropriate and achievable within specified time frame.

Outreach Objective: By 2005, develop and begin implementing an outreach program that increases the understanding and appreciation of swallows 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 two-part management system provides the framework for managing populations of swallows 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 swallow populations in Maine (Fig. 1). Although this system applies to all members of this group of birds, it operates on an individual species basis (i.e., each species is to be run through each population criterion separately). Furthermore, this approach should 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 6 species covered by this system has been reviewed by this agency to determine the relative urgency of conservation action. The Passerine Working Group focused on Purple Martins and Bank Swallows, however, other species may warrant conservation action (e.g., stepped up monitoring) prior to conclusion of the current 15-year planning window. 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.

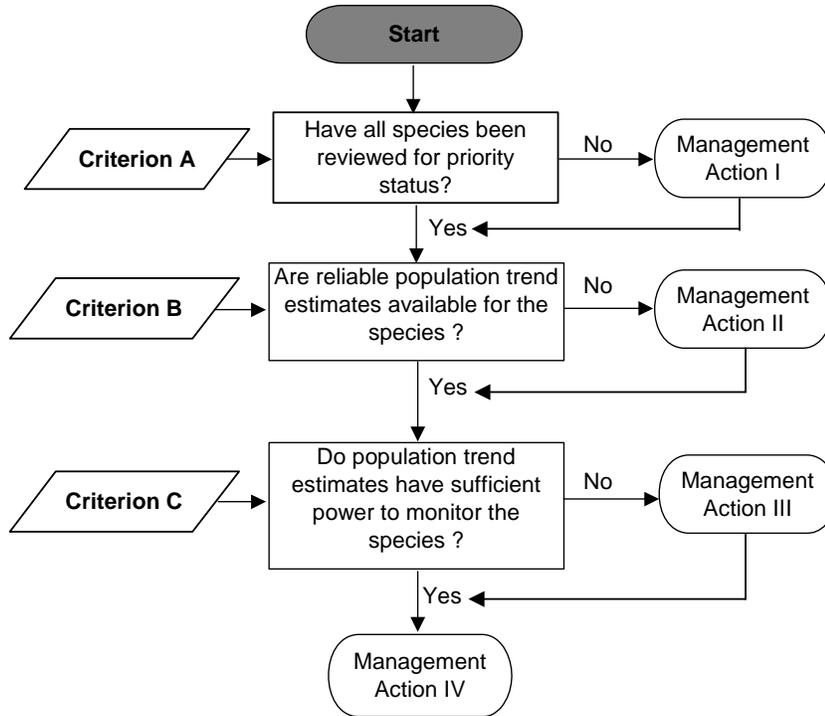


Figure 1. Flow diagram depicting decision criteria for Population Management System for swallows in Maine.

2000). These lists of priority birds, in addition to the 5% threshold, are the source of “data” to respond to this criterion.

Rule of Thumb: In addition to the species identified by the Passerine Working Group, 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 to determine if any of the species in this group qualify. A list of these species should be prepared annually.

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

This criterion addresses the adequacy of data collection for all priority species covered by this management system.

An affirmative response will require statistically reliable trend estimates based on BBS or other data.

Rule of Thumb: 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 ≥ 30 routes for either region.

Trends not conforming to this rule of thumb are not reliable.

Criterion C: *Do population trend estimates have sufficient power to monitor each priority species?*

This criterion addresses whether the BBS and/or some other monitoring program has the power to estimate population trend for all species.

An affirmative response will require that a power analysis be performed for all priority species.

Rule of Thumb: The Passerine Working Group stipulated: a monitoring program for this group of birds must have a 90% probability of accurately detecting population trend to within 15% by 2013.

Trends not conforming to this rule of thumb do not have sufficient power.

Management Actions

The following management actions are the recommended procedures for accomplishing population objectives. Specific management actions result from responses to decision criteria (Fig. 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 (including those stipulated by Passerine Working Group) that will be considered a priority for this management system.

Management Action II

- 1) Review BBS trend estimates for each priority species.
- 2) List each priority species without reliable trend estimates. Monitor trend estimates annually and adjust list accordingly.
- 3) 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. Note: participation had been declining steadily, but has begun to recover: 1995 (90% of available routes were run), 1996 (100%), 1997 (80%), 1998 (82%), 1999 (70%), 2000 (58%), 2001 (57%), 2002 (49%), 2003 (41%), and 2004 (47%). Accomplish this via:
 - i. Identify routes that have not been run for 3 consecutive years, explore reasons for not being completed (insufficient time, too distant from home, etc.), and reassign these to others.

- ii. Create list of routes that are chronically not completed (e.g., remote, difficult to access) and develop strategy (e.g., use seasonal staff, volunteer incentives, randomly select another route) to accomplish these.
 - c. If possible, increase total number of routes available in Maine. This is not likely in the foreseeable future, as the number of routes was recently increased (to 70 routes) for the 2002 survey.
- 4) If BBS data alone are inadequate to reliably monitor population trends for all priority species at the state scale, develop program for monitoring poorly sampled species within Maine:
 - a) Determine whether scope of monitoring effort can be facilitated within MDIFW or would require partnership with another agency or NGO.
 - b) Determine who will collect data (e.g., seasonal staff, volunteers, etc.).
 - c) Identify who will coordinate effort (i.e., assigning routes, answering questions, entering, proofing, and analyzing data).
 - d) Complete technical design and layout for field data collection.
 - e) Design database for storing and archiving each season's data.
 - f) Collect data.
- 5) If unsuccessful, or deemed to have too few birds to reliably estimate trend at state scale, build partnerships in northeast region to:

- a. Expand BBS coverage region-wide using above-mentioned steps, and/or,
- b. Develop regional, species-specific monitoring program specifically targeting poorly monitored, priority species (e.g. Project Mountain Birdwatch).

Management Action III

- 1) Identify alternatives to Program MONITOR for analyzing power of trend data.
- 2) Perform power analysis (according to parameters stipulated by working group), see “Rule of Thumb” under Criterion C) to ensure that all priority species are adequately monitored.

Management Action IV

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

OUTREACH MANAGEMENT SYSTEM

Decision Criteria

The following criteria determine the sequence of procedures to be used to improve the understanding and appreciation of swallows in Maine (Fig. 2.).

Criterion D: Has an outreach plan been developed?

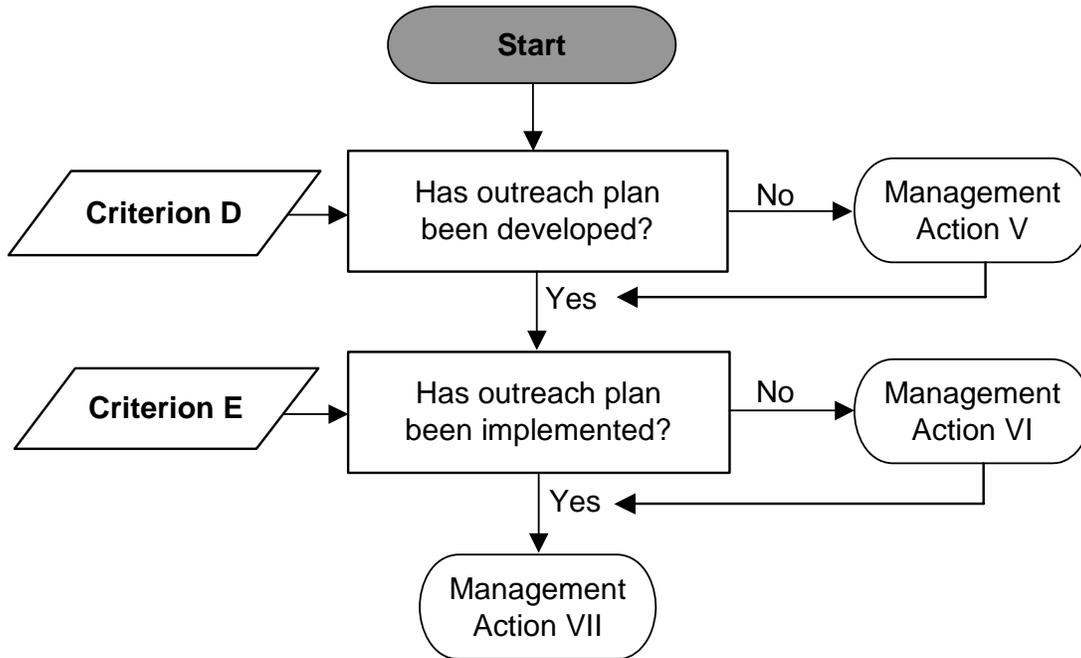


Figure 2. Flow diagram depicting decision criteria for Outreach Management System for swallows in Maine.

This criterion simply addresses whether a plan for increasing the understanding and appreciation of swallows 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 E: *Has an outreach plan been implemented?*

This criterion addresses whether a plan for increasing the understanding and appreciation of swallows 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 (Fig. 2).

Management Action V

- 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, schools, radio programs, magazines/newspapers/journalists, websites).

Management Action VI

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

Management Action VII

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

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