Funding Needs for Implementation of the

Program for Regional and International Shorebird Monitoring (PRISM)

The PRISM Committee
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December 2002

Executive Summary

The Program for Regional and International Shorebird Monitoring (PRISM) is based on the national shorebird conservation plans prepared by Canada and the United States. Both plans identified the need for reliable information on the distribution, abundance, and population trends of shorebirds. This information is largely unavailable because a well-designed program to monitor shorebird numbers over wide geographical areas has never been established.

PRISM has four primary goals:

1. Estimate population sizes.
2. Estimate population trends.
3. Monitor shorebird numbers at stopover sites.
4. Help evaluate shorebird conservation projects.

Four strategies have been developed to achieve these goals:

1. Breeding surveys in arctic and boreal regions.
2. Breeding surveys in temperate regions.
3. Migration surveys in temperate regions.
4. Surveys in neotropic regions.

PRISM will provide comprehensive, reliable, and timely information on the status and trends of shorebird populations in North America. PRISM will employ rigorous statistical methods; it will involve hundreds of federal, State, and volunteer participants; and it will bring together the numerous existing, but currently uncoordinated, shorebird surveys. PRISM will permit early identification of shorebird declines, allowing corrective action to be taken and avoiding the need for more costly remedial programs required when species become endangered. Development and implementation of PRISM will require approximately $1.9 million per year. While PRISM is designed for shorebirds, its implementation will also advance monitoring programs for waterbirds, waterfowl, and landbirds.

Introduction

The public values healthy populations of shorebirds. People are fascinated by the annual migration of shorebirds. Shorebird concentrations provide excellent opportunities to educate the public about the conservation of birds and their habitats. The unique and obvious physical traits of shorebirds make them compelling subjects for teaching children and adults about the natural world. Long-distance migration of shorebirds links communities, countries, and continents in conservation, and emphasizes that human communities throughout the world are connected by shared wildlife resources.

Many shorebird populations are relatively small. More than a third of 74 shorebird taxa recognized in the U.S. Shorebird Conservation Plan are believed to have fewer than 25,000 individuals. Our knowledge of shorebird population size, however, is generally poor (Table 1).

Table 1. Accuracy of surrent estimates of shorebird population size.

Accuracy Rating	No. of species
Poor: based on educated guess	12
Low: estimate within correct order of magnitude	21
Moderate: within 50% of true number	13
Good: estimates on which confidence limits can be placed	5
High: accurate and precise	2

Counts of shorebirds during migration and on the breeding grounds suggest that many populations are decreasing. Seven species or subspecies are listed, or have been considered for listing, as threatened or endangered. One species is probably extinct. Additional data are urgently needed to determine the extent and causes of declines. Investigation of ways to reduce threats is critical before protection under the endangered species legislation becomes necessary. PRISM is an essential element in this proactive approach to conservation.

Development Of Prism

PRISM is a direct response to monitoring needs identified in the U.S. Shorebird Conservation Plan and the Canadian Shorebird Conservation Plan. Both of these Plans emphasized the importance of a comprehensive program to obtain information on the distribution, abundance, and trends for the 74 species, subspecies, and distinct populations of shorebirds that breed in North America. PRISM is the result of a five-year effort by leading shorebird experts in Canada and the U.S. PRISM is administered by a committee of 16 biologists from Canada and the U.S. It is co-chaired by a representative from each of the national shorebird conservation plans. Co-chairs are responsible for reporting to the national plans to ensure that shorebird monitoring is coordinated with all aspects of bird conservation. As PRISM grows this structure may be altered to meet the needs of other nations. Numerous reports describing PRISM have

been prepared by this group. Reasons for developing PRISM are summarized in Table 2.

Table 2. Future conditions for shorebirds with and without PRISM.

If PRISM is implemented	If PRISM is not implemented
• Statistically sound methods will be developed for estimation of shorebird population sizes and detection of future changes in populations.	• Population size and trend data will be of poor quality and will be insufficient to guide conservation actions.
• Declining populations will be detected so remedial action can be taken to prevent listing under national endangered species protocols.	• Declining populations will not be detected in a timely fashion and some species will be listed as threatened or endangered.
• Shorebird monitoring will be coordinated throughout the Western Hemisphere.	• Shorebird monitoring effort will be duplicated and uncoordinated resulting in an inefficient use of funds.
• Consolidated datasets will provide information about shorebird trends, distribution and abundance that can be used managers at all levels.	• Information will remain widely scattered and not readily available for managers and conservation planners.
• Evaluation of shorebird conservation actions will be based on objective criteria and state-of-the are science.	• Evaluation of shorebird conservation actions will be based on subjective criteria that are difficult to defend, especially in adversarial contexts.

Conceptual Framework for PRISM

Purpose: To implement a monitoring and assessment program that provides reliable information on the distribution, abundance, and population trends of shorebirds at local, regional, continental, and international scales.

Vision: Reliable and timely information on the status and trends of all shorebird populations that breed in temperate North America.

Goals:

1. Estimate trends in breeding populations of North American shorebirds.
2. Estimate the sizes of breeding populations of shorebirds in North America.
3. Monitor shorebird numbers at stopover sites to assess habitat suitability.
4. Use monitoring information to assist local managers in meeting their shorebird conservation goals.

Strategies

1. Survey breeding shorebirds in arctic and boreal regions of Canada and U.S.
2. Survey breeding shorebirds in temperate regions of Canada and the U.S.
3. Survey shorebirds at migration and staging sites in Canada and the U.S.
4. Survey migrating and wintering shorebirds in the neotropics.

Description of Strategies

Arctic and boreal breeding surveys

Breeding surveys in arctic regions will include: 1) comprehensive surveys that are conducted during five of every twenty years, 2) regular surveys at a small number of permanent sites, and 3) annual checklist surveys.

The comprehensive surveys will provide statistically rigorous estimates of population size for each species or subspecies. The results will achieve the second PRISM goal (estimate population size) and will provide baseline data for future estimates of changes in population size. These comprehensive surveys will also identify regional differences in population trends which will be useful in designing studies to reveal causes of declines.

Regular surveys from a small sample of permanent sites will provide early warnings of declines. Biologists are present regularly at many of these sites, especially in Alaska, and annual or semi-annual surveys will be conducted at these locations. Other sites, especially in Canada, are remote and will be visited in two of every ten years. Surveys at permanent sites could be combined with other research and monitoring efforts. The estimates from these sites will be suggestive rather than conclusive. If disturbing trends are revealed by surveys at these sites, then the comprehensive surveys will be repeated to confirm or refute these suggested trends.

Checklist surveys will be conducted opportunistically by biologists or birders visiting any location in arctic or boreal regions. Data will be collected on presence and relative abundance of shorebirds. Information on breeding status and presence of predators may also be collected. These data will not only provide updated and enhanced information on shorebird breeding distribution, but will also provide additional information on population trends and other factors affecting breeding success such as predators. The information will supplement the more rigorous programs by revealing major changes in abundance or distribution.

The boreal surveys are in an early stage of development. As with the arctic surveys, a combination of methods will be developed. Helicopter surveys are being investigated in collaboration with Ducks Unlimited. Land-based surveys are being investigated in cooperation with Partners in Flight. A workshop is planned during 2003 to develop a detailed strategy for this component of PRISM.

Temperate breeding surveys

Only a few of the 16 shorebirds that breed in temperate regions are adequately monitored by existing programs. New programs are being developed for the rest of the species. Survey requirements for each species are being described and plans are being developed either to cover the species by modifying existing or emerging multi-species surveys or to develop new species-specific surveys. A workshop was held in November 2002 to develop these plans, a detailed analysis of which species are adequately covered by existing surveys is underway, and an outline for describing needed new surveys has been produced. Completion of the design for the temperate breeding surveys will require two to four years.

Temperate migration surveys

Surveys of migrating and staging shorebirds have been conducted for many years. These surveys have provided valuable information on shorebird population trends (first PRISM goal). They also monitor use of major stop-over locations (third PRISM goal) and may be modified to meet shorebird conservation goals of local managers (fourth PRISM goal). PRISM cooperators have made a substantial effort to develop a rigorous statistical foundation for these surveys. The approach involves preparation of "regional assessments" each of which identifies shorebird concentration sites, describes the habitats and shorebirds present at each site, and discusses possible survey methods. Pilots studies needed to design long-term surveys are also described. Potential stake holders in each region such as Refuge biologists and State nongame specialists then meet to prioritize the pilot studies and develop an action plan for implementing the highest priority tasks. In some regions, development of the shorebird surveys is undertaken with representatives from the other initiatives in an "integrated bird monitoring" approach. Preparation of the regional assessments is expected to take four years after which the complete program of temperate migration surveys will be designed.

Neotropical surveys

Surveys in the neotropics are an essential component of PRISM because surveys in this region will help guard against bias caused by long-term shifts in the timing of migration and because some species will probably be easiest to survey on their wintering grounds. Collaborators in Mexico, Central America, South America, and the Caribbean will be identified, and asked to describe the shorebird conservation goals for their regions. A joint program to achieve the PRISM and host country goals will then be developed, perhaps in association with established programs such as the Neotropical Waterbird Census and Important Bird Areas program. Development of vigorous, well-funded programs that meet the needs of the host countries and of Canada and the U.S. is a major long-term goal of PRISM.

Funding Needs for PRISM

Costs for PRISM will be approximately $1.9 million per year during the development (2003-2007) and implementation phase (2008+; Table 3).

Table 3. Funding ($1000s) needed to implement PRISM.

Strategy	$ needed
Arctic Breeding Surveys	$570
Boreal Breeding Surveys	$330
Temperate Breeding Surveys	$200
Temperate Migration Surveys	$400
Neotropical Surveys	$200
Program Coordinator	$200
Total	$1900

Relation to Other Species

PRISM will provide numerous benefits for non-shorebird species. For example, all species are recorded during the arctic surveys so no other ground-based surveys should be needed in this region. In boreal regions, shorebirds are a minor component of the avifauna, and PRISM surveys are being developed in close coordination with landbird and waterfowl specialists. The regional assessments are often carried out in cooperation with representatives from other initiatives, and the approach has already proven useful for other groups than shorebirds. Surveys in the neotropics will often involve all species or at least all aquatic species. Thus, development and implementation of PRISM will substantially reduce the costs of monitoring programs for other species.

For More Information

For more information about PRISM or the Canadian or U. S. Shorebird Conservation Plans, contact:

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