

PROBLEMS AND STRATEGIES FOR LEAST TERN MANAGEMENT IN MAINE

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Problem 1: Least terns must be intensively managed to attain survival, productivity, and population objectives. Populations must be monitored closely to measure survival and productivity and provide feedback for adaptive management programs.

Strategy 1.1: Maintain an active monitoring and management program at all nesting sites each year.

Strategy 1.2: Monitor population trends and the effects of management by conducting annual surveys of population abundance, distribution, and productivity.

Strategy 1.3: Monitor least tern breeding activities at nesting sites to identify limiting factors.

Strategy 1.4: Develop and maintain a group of agencies, organizations and individuals to actively assist in tern monitoring and management .

Problem 2: Natural coastal beach and dune processes perpetuate high quality breeding habitat. Most beaches in southern Maine are degraded by seawalls, jetties, and development.

Strategy 2.1: Discourage development that will destroy or degrade least tern habitat.

Strategy 2.2: Implement Essential Habitat at all least tern nesting sites.

Strategy 2.3: Develop Beach Management Plans at all sites to help refine management, address limiting factors, and secure partnerships.

Strategy 2.4: Support full implementation of Sand Dune Laws to discourage interference with natural beach and dune processes, and to discourage beach stabilization projects.

Strategy 2.5: To compensate for disruption of natural processes, create and enhance nesting and feeding habitat, especially in the vicinity of existing stabilization projects.

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Problem 3: Disturbance of breeding least terns from humans and pets are limiting least tern nesting success.

Strategy 3.1: Employ symbolic fencing and signs in areas used by least terns, as appropriate.

Strategy 3.2: Implement and enforce pet restrictions.

Strategy 3.3: Prevent disturbance from disruptive recreational activities on beaches where breeding least terns are present.

Strategy 3.4: Reduce disturbance, mortality, and habitat degradation caused by off-road vehicles, including beach-raking machines.

Strategy 3.5: Provide law enforcement officers to facilitate protective measures and enforce “take” provisions of the Maine Endangered Species Act.

Strategy 3.6: Develop public outreach programs to inform landowners and beach users and help limit disturbance to the birds and their habitat.

Problem 4: Predation is reducing least tern productivity.

Strategy 4.1: Remove litter and garbage from beaches. Promote a carry-in, carry-out policy for garbage control.

Strategy 4.2: Deploy night observations of nesting colonies to deter predators where appropriate.

Problem 5: Contamination and degradation of habitat could occur from oil or chemical spills.

Strategy 5.1 Incorporate least tern nesting, feeding and brood-rearing areas into oil spill contingency plans.

Problem 6: Long-term protection of least tern habitat is needed to ensure sufficient habitat is present to support species recovery.

Strategy 6.1: Provide intensive management and protection on state-, federal- and privately-owned conservation lands.

Strategy 6.2: Develop additional land protection options, incentives, and rewards to broaden the array of land protection tools available to protect least tern habitat.

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Strategy 6.3: Acquire important habitat if and when it becomes available.

Strategy 6.4: Ensure Incidental Take Permits issued through the Maine Endangered Species Act contribute toward least tern conservation and habitat protection.

Problem 7: Scientific investigations are needed to support and assess management and recovery efforts.

Strategy 7.1: Develop and test predator conditioned aversion techniques.

Strategy 7.2: Develop and refine nocturnal observations of nesting areas to deter predators.

Strategy 7.3: Develop and test fencing (hard wire and electrical) to deter predators.

Strategy 7.4: Develop and test techniques for removing nest predators from nesting areas.

Problem 8: Population trends and productivity rates need to be documented annually to assess recovery progress.

Strategy 8.1: Produce an annual report of research and management activities that summarizes least tern nesting, productivity, and management actions.

Strategy 8.2: Develop a population viability assessment for Maine's least tern population.

Strategy 8.3: Refine state recovery goals, as needed, with new information on population viability and demographics.

Strategy 8.4: Develop studies to determine factors responsible for limiting least tern productivity and survival.

Problem 9: Recovery of least terns in Maine will be dependent on growth of the population elsewhere in the Northeast. Maine's recovery effort needs to be part of a larger effort to identify, monitor, and manage least terns and their habitat.

Strategy 9.1: Participate in regional least tern planning meetings and workshops.

Strategy 9.2: Facilitate and participate in range-wide research programs.

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Strategy 9.3: Work closely with U. S. Fish and Wildlife Service biologists coordinating least tern recovery and management.

Strategy 9.4: Ensure compatibility of state and regional plans.

Problem 10: New and updated least tern information and education materials are needed.

Strategy 10.1: Develop a public outreach plan containing measurable objectives to increase awareness and promote stewardship of least terns.

Strategy 10.2: Develop and distribute “Living with Piping Plovers and Least Terns - a Guide for Landowners” and hold workshops to help facilitate stewardship.

Implementing a Management Program for Least Terns in Maine

The following Implementation Schedule outlines potential actions and estimated costs for a management program for least terns in Maine. Costs incurred by partner organizations are not included in this table. Only costs incurred by MDIFW for the primary recovery tasks are included. The implementation schedule lists and ranks tasks that should be undertaken during the next 15 years. Much of this schedule will probably be incorporated into the Least Tern Management System, which will be reviewed annually to determine if the goals and objectives are being met. Tasks are presented in order of priority.

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Implementation Schedule and Cost Estimates

Least Tern Assessment

Priority	Strategy Description	Strategy Number	Duration	Responsible Organization	Cost Estimates	Comments
1	Maintain an active monitoring and management program	1.1	annual	MDIFW, MAS, USFWS, DOC/BPL, Wells, TNC	\$20,500	Baseline management needed to maintain current population.
1	Monitor population trends and the effects of management by conducting annual surveys of population abundance, distribution and productivity.	1.2	annual	MAS, USFWS, Wells	Included in 1.1	Baseline data needed to assess population viability and progress toward recovery goals.
1	Monitor least tern breeding activities at nesting sites to identify limiting factors.	1.3	annual	MAS, USFWS, Wells	Included in 1.1	Important feedback to adapt management in subsequent years.
1	Core group of cooperators	1.4	annual	MDIFW	Included in 1.1	Imperative to maintain coordination and communication. Group should meet twice annually.
1	Implement Essential Habitat	2.2	annual	MDIFW	\$1,000	Designate new EHs as needed. Provide regular updates to municipalities and state agencies.
1	Symbolic fencing	3.1	annual	MDIFW, MAS, USFWS, Wells	Included in 1.1	Essential to management of plovers and terns
1	Enforce pet restrictions	3.2	annual	MDIFW, MAS, DOC/BPL	\$500	Signs, outreach and enforcement of pet policies on the beach.
1	Deploy night observations of nesting colonies to deter predation	4.2	annual	MDIFW, MAS, USFWS, DOC/BPL, Wells, TNC	\$7,500	May be an essential management action. Cost is to hire and equip a biologist.
1	Annual report	8.1	annual	MAS	\$1,500	Annual report compiled by Maine Audubon.
1	Coordinate closely with USFWS	9.3	annual	MDIFW, MAS	Included in 1.1	
1	Develop public outreach plan	10.1	By 2004	MDIFW, MAS	\$3,500*	To meet public working group objective
1	Living with Endangered Species – piping plover and least terns	10.2	By 2001	MDIFW, MAS	\$10,500*	Cost for printing, distribution and workshops

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2	Discourage development	2.1	annual	MDIFW, DEP	Included in 2.2	Ongoing permit review, working with landowners, providing guidance to municipalities.
2	Develop Beach Management Agreements	2.3	By 2005	MDIFW, MAS, USFWS, DOC/BPL, Wells, TNC	\$10,000	To meet public working group objective. Very time intensive, but pays large dividends.
2	Off-road vehicles	3.3	annual	MDIFW, MAS, USFWS	Included in 2.3	Most off-road issues in ME concern municipal activities that can be addressed in a Beach Management Plan.
2	Public outreach programs	3.6	Starting ASAP and annually	MDIFW, MAS, USFWS	\$15,000*	The Assessment calls for an outreach plan. Funds are needed to prepare materials and conduct outreach.
2	Intensive management of conservation lands	6.1	annually	MDIFW, MAS, USFWS, DOC/BPL, TNC	\$1,500	Cost to assist conservation partners in management activities.
2	Test nocturnal observations to deter predation	7.2	annually	MDIFW, MAS	Included in 4.2	
2	Test fencing to deter predation	7.3	annually	MDIFW, MAS	Included in 8.4	Test new materials and methods for non-lethal control of predation.
2	Refine recovery goals	8.3	As needed	MDIFW	Included in 1.1	Periodically revisit the Assessment and Management System and revise as needed.
2	Research of limiting factors	8.4	annually	MDIFW, MAS, UMaine	\$5,000	Initiate studies to determine factors limiting the population and effectiveness of management.
2	Participate in regional research	8.4	As needed	MDIFW, MAS, USFWS	Included in 1.1	
2	Participate in regional meetings and workshops	9.1	Annually	MDIFW, MAS	\$500	
3	Implementation of Sand Dune Laws	2.4	As needed	MDIFW, MAS	Included in 2.2	All permitted projects require EH review. MDIFW should work with DEP to ensure project reviews adequately address the needs of plovers and terns, and that laws and regulations are not weakened.
3	Compensation for loss of habitat	2.5	As needed	MDIFW, DEP	Included in 2.2	Compensation has rarely been addressed, but is an important part

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						of the review process for large projects.
3	Law enforcement	3.5	As needed	MDIFW, municipalities	\$2,500	MDIFW has provided up to \$2,500 annually to assist town police to patrol problem areas.
3	Remove garbage from beaches	4.1	As needed	DOC/BPL, municipalities	Cost to be assumed by landowner	Best accomplished as part of Beach Management Plans, 1.23.
3	Oil spill planning	5.1	As needed	MDIFW, DEP, USFWS	Contingent on extent of spill	Provide data to DEP and others developing oil spill contingency plans.
3	Land protection incentives	6.2	By 2004	MDIFW	Contingent on number of landowners cooperating	To meet public working group objective. Cost to help provide incentives for long-term management agreements, easements and other incentives.
3	Land acquisition	6.3	As needed	MDIFW, DOC/BPL, TNC, USFWS	Contingent on availability of land	Cost to help acquire new conservation lands in beach and dune environments.
3	Incidental take permits	6.4	As needed	MDIFW	Contingent on complexity of project	Cost for MDIFW staff to develop an Incidental Take Plan with applicant.
3	Develop and test predator aversion techniques	7.1	Annually	MDIFW, MAS	\$3,000	Cost to develop and test new non-lethal techniques for controlling predation.
3	Test predator removal	7.4	As needed	MDIFW, DOC/BPL	\$1,500	Cost for Animal Damage Control Agent
3	Population viability assessment	8.2	As needed	MDIFW	\$3,000*	Contract to develop a Maine PVA to refine recovery objectives and management.
3	Support research endorsed by regional plans	9.2	As needed	MDIFW, MAS, USFWS	Included in 8.4	
3	Compatibility of state and regional plans	9.4	As needed	MDIFW, USFWS	Conducted as part of routine planning.	
	TOTAL				\$55,000 annual costs \$32,000 one-time costs	Current budget for piping plover management is < \$25,000 annually. This does not include MDIFW biologist staff time.

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Priority 1: Those actions that must be taken to prevent species extirpation or to prevent the species from declining irreversibly in the foreseeable future.

Priority 2: Those actions that must be taken to prevent significant declines in the species' population, or some other significant impact short of extirpation.

Priority 3: All other actions necessary to provide for full recovery of the species.

MDIFW – Maine Inland Fisheries and Wildlife

USFWS – U. S. Fish and Wildlife Service

MAS – Maine Audubon Society

DEP – Department of Environmental Protection

DOC/BPL – Bureau of Parks and Lands

TNC – The Nature Conservancy

Wells – Town of Wells