

S P E C I A L R E P O R T

WATCHING OUT FOR MAINE'S WILDLIFE



MAINE AUDUBON SOCIETY

C O N T E N T S

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INTRODUCTION

What is the problem?

"WATCHING OUT FOR MAINE'S WILDLIFE" began as a Maine Audubon project designed to increase support for Maine's wildlife by reducing conflict between The Maine Audubon Society and the Sportsman's Alliance of Maine.

Working together on solutions, Maine Audubon and SAM soon clarified a much larger wildlife conservation problem: inadequate resources and systems to secure the future of Maine's wildlife legacy. This report, "Watching Out for Maine's Wildlife," discusses the economic value of Maine's wildlife, threats to Maine's wildlife, the role of Maine's wildlife stakeholder groups, current funding and resources for wildlife conservation, and recommendations for securing the future of Maine's wildlife.

In 1997, after the Sportsman's Alliance of Maine testified against adding invertebrates to Maine's threatened and endangered species list, the Maine Audubon Society decided that something was wrong. Maine's two most experienced and active wildlife advocacy organizations were often at odds with each other over the future of Maine's wildlife legacy. Maine Audubon believed strongly that both organizations needed to find a constructive way to explore each other's core missions, histories, and the potential for future cooperation.

Working together both organizations realized that SAM's argument against increasing Maine's list of animals at risk was actually a statement about limited resources for wildlife management. SAM's testimony on the proposed additions

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revealed concerns that increasing protection for invertebrates would reduce protection for game animals SAM's members valued. SAM's executive director told Maine's legislature: "Tell them [the staff of Inland Fisheries and Wildlife] to stick to mammals and fish because with their limited resources that is all we can hope to properly address." He also highlighted the other competitive reason for conflict, "I fear that a future Fish and Wildlife Committee will be asking themselves whatever happened to that species: The Maine Sportsman."

Competition for scarce wildlife conservation resources and the fear that work to protect all the state's wildlife would compromise sportsmen's interests and traditional access was dividing Maine's two most active wildlife organizations. SAM's mission statement "to promote conservation of Maine's wildlife resources and to be an advocate for hunters, anglers, trappers and gun owners," is focused on serving a specific group of sportsmen. Maine Audubon's mission "dedicated to the protection, conservation, and enhancement of Maine's ecosystems," concentrates on the protection of habitat and natural systems. Many other groups who work on wildlife issues in Maine also have different missions and mandates that may have kept them from working together, but the risks of losing Maine's wildlife legacy are now too great to ignore.

If SAM's testimony on species at risk highlighted the problem of scarce resources and unmet wildlife needs, Maine Audubon's legislative testimony on expanding Maine's list suggested a solution: "we only have one Department of Inland Fisheries and Wildlife in Maine and it is responsible for taking care of all wildlife." If inadequate resources and unmet wildlife and habitat needs are placing Maine's wildlife and recreational traditions at risk, then it is time to take a serious look at Maine's wildlife institutions and support system. "Watching Out For Maine's Wildlife" describes Maine's wildlife resource, its current support systems, and recommends actions to protect Maine's wildlife legacy.

SANDRA NEILY

project director

ED BARKER and LOUISA MOORE

project researchers

R E P O R T M E T H O D O L O G Y

"Watching Out for Maine's Wildlife" began as a project to reduce conflicts between the Maine Audubon Society and the Sportsman's Alliance of Maine. The first version of this report reviewed the missions, histories, and records of both organizations and was used to bring both groups together for dialog and problem solving. To research this version, Maine Audubon's project director and research assistant gathered documents, news articles, public testimony, and reports on wildlife issues. They interviewed over 80 people, from Maine's Commissioners of the Department of Inland Fisheries and Wildlife, past and present; to SAM trustees, past and present; foresters and biologists; members of Maine's larger sporting and outdoor recreation community; and representatives of other stakeholder groups. Findings were compiled into a draft and reviewed at a meeting convened by the Board Members, executive directors and staff of Maine Audubon and SAM in October of 1998.

As a result of this meeting, the two organizations came to several joint agreements about more collaborative operations. The first version of the report was not published, but was updated for accuracy and is now available at Maine Audubon as a "Research Draft." The draft's usefulness is its comprehensive review of both organizations' missions and the history of their respective efforts on behalf of wildlife and wildlife recreation issues of concern to both organizations.

As a result of the meeting discussions and participants' suggestions, Maine Audubon decided that a second version of "Watching Out for Maine's Wildlife" should be written and published with a new focus on the importance of Maine's wildlife legacy to Maine's economy, threats to the future of Maine's wildlife, wildlife funding and support systems, and solutions for securing the health of Maine's wildlife species. The project director and a second research assistant compiled recently released data, reports, articles and books on these topics and interviewed recreation industry leaders and Maine state officials. Much of the material in the chapter titled "The Importance of Wildlife," was drawn from Maine Audubon's publication, "Valuing the Nature of Maine," a bibliography detailing the economic contributions of woods, waters, and wildlife. This annotated bibliography is available by request from the Maine Audubon Society.

S E C T I O N A

THE IMPORTANCE OF WILDLIFE



Maine's fish and wildlife-associated recreation is big business. In 1996, fishing, hunting, and wildlife watching produced \$1.1 billion in economic output, supported 17,680 jobs and generated \$67.7 million in state tax revenues.

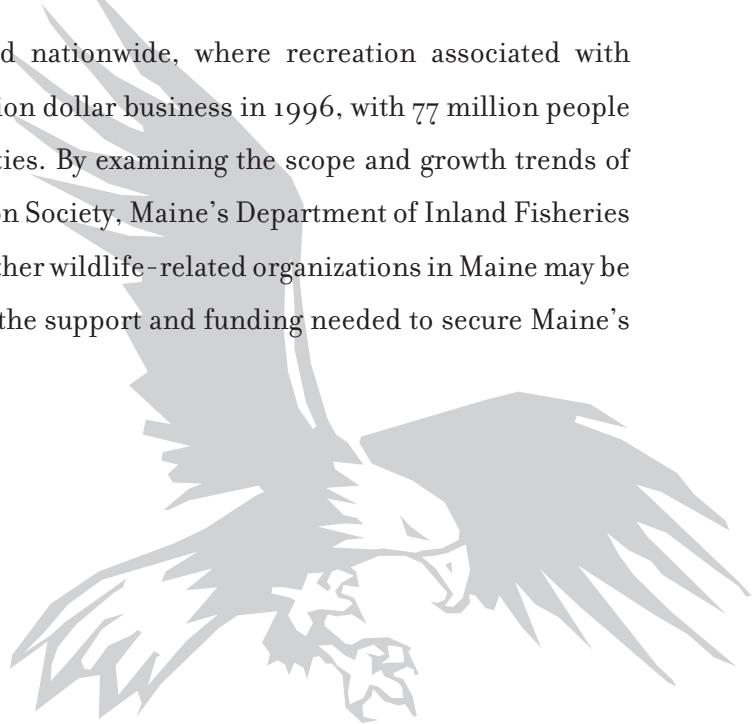


APPRECIATION OF WILDLIFE IS central to Maine residents' love of Maine and travelers' desire to visit Maine. Our wildlife legacy includes hundreds of years of history, generations of family outdoor traditions and countless memorable moments of surprise and pleasure. Wildlife meant survival to Maine's earliest residents and later to its colonists.

The enjoyment of wildlife has now evolved into an impressive year-round recreation industry, generating \$923 million in wildlife recreation-related expenditures in 1996 (the most recent year for which we have data).¹

These expenditures are particularly impressive when compared with the state's best known recreation industry, downhill skiing, which contributed \$149 million in direct expenditures in that same year. This is not to diminish the downhill skiing industry, a strong and growing part of Maine's winter tourism, but to illustrate the magnitude of wildlife recreation, only recently becoming recognized for its significant role in the state's general welfare.

Maine's experience is echoed nationwide, where recreation associated with wildlife in the U.S. was a \$101 billion dollar business in 1996, with 77 million people engaged in wildlife-related activities. By examining the scope and growth trends of wildlife recreation, Maine Audubon Society, Maine's Department of Inland Fisheries and Wildlife, and all of the many other wildlife-related organizations in Maine may be able to find new ways to generate the support and funding needed to secure Maine's



¹ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Results for Maine, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November, 1997.

WILDLIFE MAKES \$1.1 BILLION FOR MAINE

IN SEARCH OF WILDLIFE EXPERIENCES, residents and visitors to Maine leave many economic footprints. They buy gear, licenses, supplies, gasoline, food, and memberships. They also pay for accommodations, equipment rentals, car services, boat rides, float planes, and professional guide services.

The seller of a Maine product or service can spend his or her revenues on another Maine product or service or on wages for an employee of that Maine business. The value of the initial dollar spent is enjoyed in the first expenditure and in many subsequent expenditures with that dollar. Economists measure the sum of all these expenditures as "total economic output."

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These impressive numbers were released by the DIF&W in January, 1999 in a study authored by Mario Teisl and Kevin Boyle of the University of Maine Department of Resource Economics and Policy.³

² National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Results for Maine, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November, 1997.

³ *The Economic Impacts of Hunting, Inland Fishing and Wildlife-Associated Recreation in Maine*, Mario Teisl and Kevin J. Boyle, Department of Resource Economics, University of Maine, Orono. November, 1998. Note: This report reviews Maine data from the National Survey footnoted above, further calculates economic impacts of wildlife-associated recreation and uses the IMPLAN Regional Input-Output model developed by the US Forest Service to describe how sales in one industry impact other industries.

Who's Watching Out for Wildlife?

THIS REPORT BUILDS ON the "The 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation"⁴ which has certain definitions for wildlife watching, angling, hunting, sportsmen and wildlife-associated recreation.

Wildlife Watching Participants include: those who participated in non-harvesting activities, such as observing, feeding or photographing fish and other wildlife. Activities are divided into residential and non-residential activities.

Residential activities happen within one mile of home, involving one or more of the following: **(1)** closely observing or trying to identify birds or other wildlife; **(2)** photographing wildlife; **(3)** feeding birds or other wildlife on a regular basis; **(4)** maintaining natural areas of at least one-quarter acre where benefit to wildlife is the primary concern; **(5)** maintaining plantings (shrubs, agricultural crops, etc.) where benefit to wildlife is the primary concern; or **(6)** visiting public parks within one mile of home for the primary purpose of observing, feeding or photographing wildlife.

Non-residential activities are trips or outings of at least one mile for the primary purpose of observing, feeding, or photographing wildlife. Trips to fish or hunt, or scout and trips to zoos, circuses, aquariums and museums were not considered wildlife watching activities. Secondary wildlife-watching activities, such as incidentally observing wildlife while pleasure driving, are not included.

Hunters include: licensed hunters using common hunting practices, but also those who have no license and those who engaged in hunting with a bow and arrow, muzzleloader, other primitive firearms, or a pistol or handgun. Four types of hunting are reported: **(1)** big game, **(2)** small game, **(3)** migratory bird, and **(4)** other animals.

Anglers include: licensed hook and line anglers, and also those who have no license and those who use special methods, such as fishing with spears. Three types of fishing are reported: **(1)** freshwater, excluding the Great Lakes, **(2)** Great Lakes and **(3)** saltwater. Since many anglers enjoyed more than one type of fishing, the total number of anglers is less than the sum of the three types of fishing.

Sportsmen include all people who fished or hunted.

Wildlife-associated recreation includes all fishing, hunting, and wildlife-watching activities.

⁴ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Results for Maine, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November, 1997.

Wildlife Leads Maine's Recreation Industries			
<i>Values are from 1996 unless otherwise noted, in millions of dollars.*</i>			
INDUSTRY	EXPENDITURES	ECONOMIC OUTPUT	STATE REVENUES
Wildlife Watching, Hunting and Fishing Combined ⁵	923.9	1,078	67.7 (Income tax & sales tax) (Does not include licenses and fees)
Wildlife Watching ⁶	220.2	331.6	21.1 (Income tax & sales tax)
Downhill Skiing ⁷ (1996-97 season)	149.3 (Retail sales at ski resorts)	250.3 (All sales at resorts & elsewhere)	12.4 (Income tax, sales tax, licenses & fees)
Snowmobiling ⁸ (1995-96 season)	150	225	10.1 (Registrations, sales tax & gas tax)
Whitewater Rafting ⁹	12.3		.849

Sources: As Noted in Footnotes

* Due to differences in economic valuation methods used for different industries, the numbers above are not exactly comparable with one another, but they do show various levels of contributions to Maine's economy.

⁵ Teisl and Boyle, 1998.

⁶ Ibid.

⁷ *The Economic Impact of the Ski Industry in Maine*, Davidson-Peterson Associates, Inc., York, ME, prepared for Ski Maine Association, Portland, ME, March, 1998.

⁸ *An Economic Evaluation of Snowmobiling in Maine*, by Stephen Reiling, Matthew Kotchen and Alan Kezis, Department of Resource Economics and Policy, University of Maine, Orono, ME, January 1997, and *An Economic Evaluation of Snowmobiling in Maine: An Update for 1997-98*, Stephen Reiling, Department of Resource Economics and Policy, University of Maine, Orono, ME, (Maine Agriculture and Forest Experiment Station Publication Number 2281). Both publications were prepared for The Maine Snowmobile Association (MSA), 1998. Note: the 1996 state revenues figure includes state sales tax revenues (\$8 Million per Bob Meyers, MSA) plus revenues to the Maine Bureau of Parks and Lands (\$.1.638 M), and to the Maine Department of Inland Fisheries and Wildlife (\$.489 M).

⁹ *Economic Impact of Rafting Expenditures in Maine During 1996*, Davidson-Peterson Associates, Inc., York, ME, prepared for Raft Maine, Bethel, ME, January, 1997.

WILDLIFE RECREATION SPENDING also affects many sectors of Maine's economy such as food stores, car services, professional services and other retail activities. This spending occurs throughout the state, generating jobs that are particularly valuable in rural parts of Maine where employment options are limited.¹⁰

Where Wildlife Expenditures Go in Maine		
<i>Economic Sectors Most Affected</i>		
	WAGES (In millions of dollars)	EMPLOYMENT (In numbers of jobs)
Food stores	\$62.3*	4,070
Auto dealers / service stations	57.0	2,350
Other retail	41.8	2,910
Professional services	33.3	1,240
Other services (no auto / film)	23.0	1,580
Local / state government	17.9	600
Finance, insurance, real estate	16.8	630
Lodging	15.0	1,100
Building, gardening materials	11.3	500
Transportation services	9.7	370
Wholesale trade	9.7	300
Utilities	5.4	90
Agriculture, fish, forest, landscape services	5.2	390
Eating & drinking	5.2	430
Maintenance - industrial	4.0	160

Source: Mario F. Teisl and Kevin J. Boyle, "The Economic Impacts of Hunting, Inland Fishing and Wildlife-Associated Recreation in Maine," November, 1998, p.4.

* Sectors are ranked according to the impact wildlife recreation had on each sector's wages.

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throughout the state, generating jobs, that are
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where employment options are limited.**

¹⁰ Teisl and Boyle, 1998.

IN 1996, THERE WERE 17,680 jobs in the wildlife recreation industry (full and part-time jobs combined). As a point of reference with a familiar, well-known industry, there were 4,421 full time jobs in downhill skiing in the 1996-97 ski season.¹¹

Wages and salaries in wildlife recreation were also very impressive, amounting to \$342.8 million dollars in value, compared with \$81.46 million in wages and salaries in the downhill skiing industry.

Wildlife Puts People to Work		
<i>Recreation Industry Employment in the Maine Economy</i>		
INDUSTRY	JOBS	WAGES AND SALARIES
		(Values are in millions of dollars)
Wildlife Watching, plus Hunting, and Fishing	17,680 (Full & part-time jobs)	342.8
Wildlife Watching	6,020 (Full & part-time jobs)	111.4
Downhill Skiing (1996-1997 season)	4,421 (Full time equivalent jobs)	81.46
Snowmobiling	3,100 (Full time equivalent jobs in 1997-98. No data for 1996)	(No data for 1996 or 1998)
Whitewater Rafting	302 (Full time equivalent jobs)	6.9

Sources: Same as Table above, "Wildlife Leads Maine's Recreation Industries," p. A-4

A billion dollars; more than 17,000 jobs; Maine people and visitors have always valued the fun, adventure and meaning they received from wildlife enjoyment. Now, the wildlife resources that generate this spending and these jobs can be recognized for their significance to the state's economic well-being. Since wildlife's economic contributions surpass or rival more familiar economic sectors, such as the value of the commercial fishing industry, the time is right to evaluate how Maine cares for its valuable wildlife resources.

¹¹ Note: Readers should be aware that downhill skiing jobs were calculated based on direct and indirect expenditures in the industry, a conservative estimate compared with all jobs that might exist due to skiing expenditures moving through the economy.

MAINE PEOPLE LOVE WILDLIFE

ONE MEASURE OF MAINE RESIDENTS' interest in wildlife is our willingness to spend money. Of \$923 million in wildlife recreation-related expenditures attracted to Maine in 1996, Maine people spent \$490 million of that total, up from \$381 million in 1991. This represents a 28.6% rise in wildlife recreation expenditures by Maine residents in five years.¹²

Another measure of Mainers' interest in wildlife recreation is the percentage of residents who participate. According to the Department of the Interior, 53% of Maine residents older than 16 took part in some kind of wildlife-associated recreation (hunting, fishing or wildlife watching) in 1996. That's 511,000 Maine residents. Only three states in the country have higher rates of participation than Maine.¹³

Maine's Wildlife Participation Ranks High	
States with Most Hunting, Fishing, and Wildlife Watching	
STATE	PERCENTAGE PARTICIPATING
1. Alaska	65%
2. Montana	59%
3. Idaho	55%
4. Maine	53%
5. Vermont	53%
6. Wyoming	53%

Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation.

Also impressive is the sheer number of participants in Maine. When Maine residents and non-residents are tallied together there were: 764,000 wildlife watchers, 356,000 anglers and 195,000 hunters in 1996.

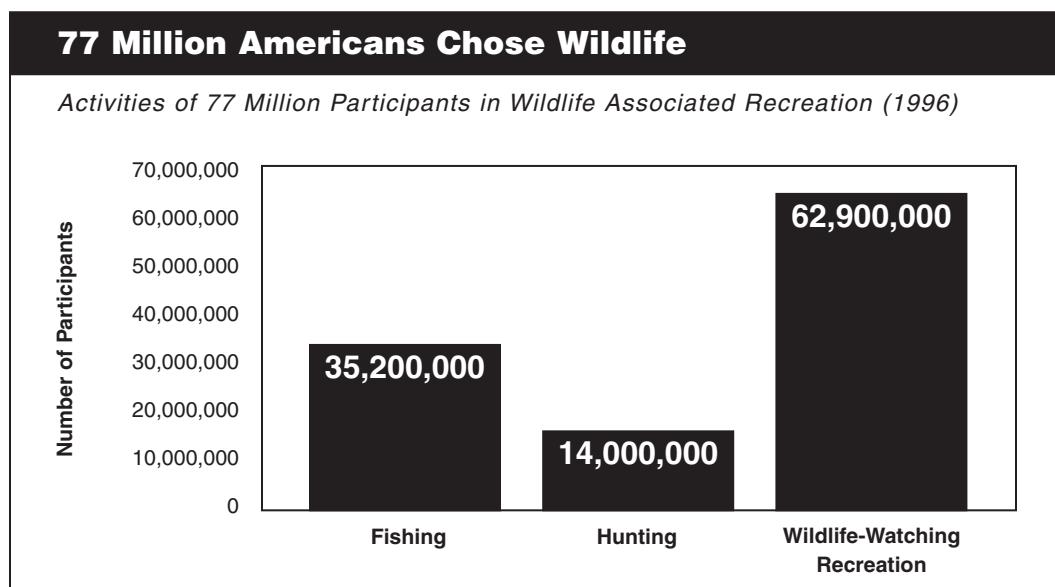
Thousands of Maine drivers also support state wildlife conservation programs through their purchase of the optional loon license plate. Mainers protested strongly against two recent legislative attempts to divert loon plate revenues to other uses that did not benefit wildlife. Maine's conservation license plate program is the most successful program in the country.

¹² National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Results for Maine, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November, 1997.

¹³ Ibid.

AMERICANS LOVE WILDLIFE

MAINE'S WILDLIFE-ASSOCIATED RECREATION accurately reflects a significant national wildlife recreation industry. In 1996, 77 million people over the age of 16 participated in wildlife-associated recreation, according to the US Department of the Interior. Of those 77 million, 35.2 million people fished, 14 million hunted, and 62.9 million participated in at least one type of wildlife-watching recreation – feeding, observing, photographing fish and other wildlife species. In the same year, those 77 million people spent \$101 billion on the activities they pursued.¹⁴



Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation, U.S. Department of the Interior, Fish and Wildlife Service, and US Department of Commerce, Bureau of the Census, November, 1997.

While the number of people participating in wildlife-associated recreation declined between 1991 and 1996, spending per person actually increased. According to the Department of the Interior, the number of participants dropped from 108.7 million in 1991 to 77 million in 1996.¹⁵ In 1991, Americans spent \$59 billion on their wildlife-associated recreation. The 1996 total of \$101 billion in spending represents an increase of 71% over five years.¹⁶ These revenues are important elements of the tourism,

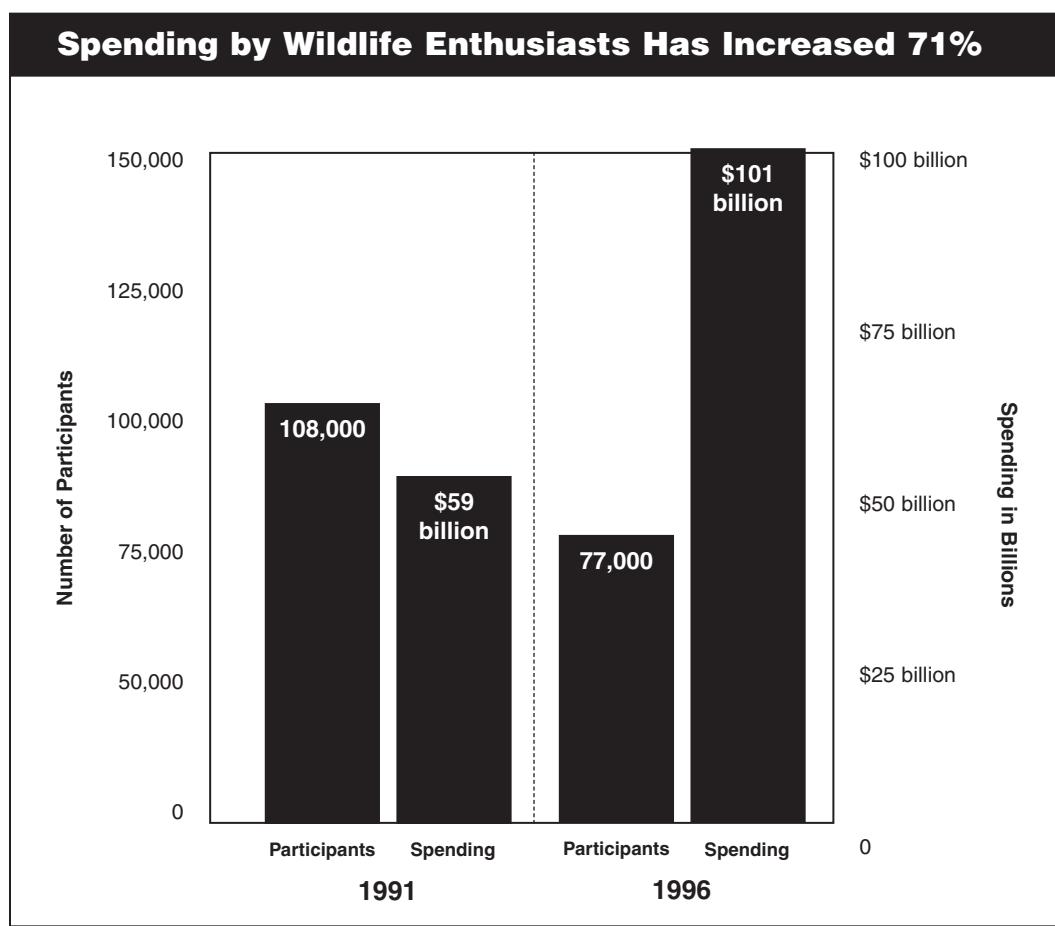
¹⁴ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census. November 1997.

¹⁵ Ibid.

¹⁶ Note that these trends of decreased participation and increased spending have only been observed over one five-year interval.

outdoor recreation, and retail sectors of many state economies. In 1996, wildlife participants spent an average of \$546 per person in the U.S. on wildlife pursuits.

National trends have important implications for the state of Maine. In Maine in the same year, wildlife participants' spent an average of \$703 per person, which was 29% higher than the national average. These numbers suggest that Maine's wildlife generates even more spending than wildlife resources elsewhere. Maine has a high quality wildlife resource that is competitive and attractive to participants and Maine's wildlife as an economic resource may be attracting dollars that might otherwise be spent elsewhere. Further research would be useful to determine the factors at work.

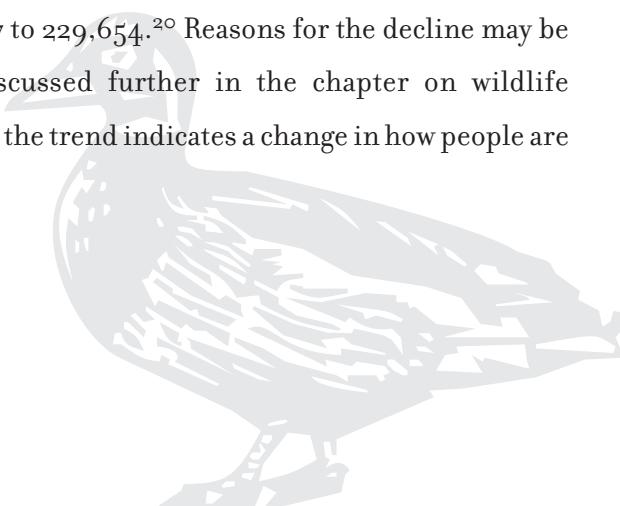


HUNTING AND FISHING ARE IMPORTANT TO MAINERS

A HIGHER PERCENTAGE of Mainers hunt compared to the average U.S. resident. According to the Maine Department of Inland Fisheries and Wildlife, 210,183 hunters purchased Maine hunting licenses or combination licenses in 1996. This number includes non-resident hunters and those under 16 years old.¹⁷ (In contrast, New England had the second lowest hunting participation rate in the nation, at 2% compared with the national participation rate of 7%).

Maine hunters spend more, too. Maine hunters spent more money on the sport than did residents of any other state in the region. Maine hunters and non-resident hunters together spent over \$329.9 million in Maine in 1996.¹⁸ This spending is just part of the total economic output of hunting in that year, estimated to be \$453.9 million.¹⁹

However, a subtle decline in hunting in Maine has occurred over the past 15 years, as measured by the annual number of hunting licenses purchased. From 1982 to 1998, hunting licenses dropped from 258,587 to 229,654.²⁰ Reasons for the decline may be numerous. (Possible reasons are discussed further in the chapter on wildlife funding.) But regardless of the reasons, the trend indicates a change in how people are choosing to appreciate wildlife.

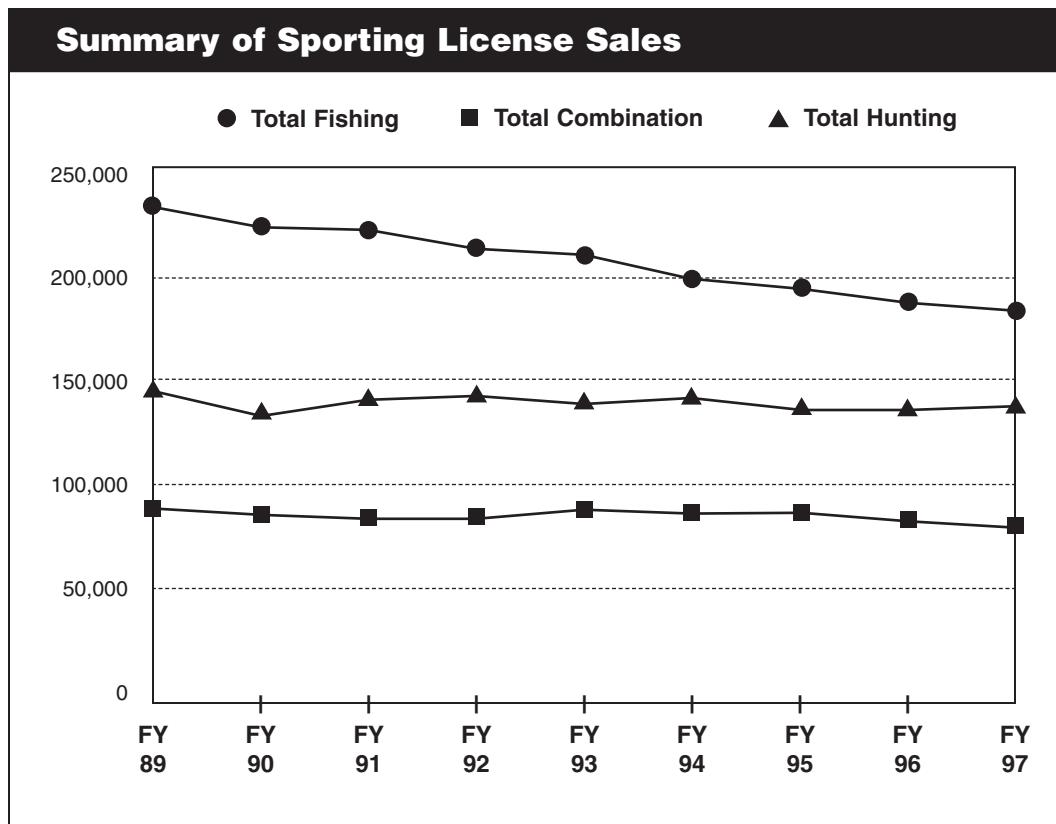


¹⁷ Although this number cannot be compared directly to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation finding, if 20% of the license holders in Maine were non-residents, and 10% of hunters were under 16, this would give an estimate of approximately 150,000 Maine resident license holders in 1996, or 12% of Maine residents.

¹⁸ The Economic Impacts of Hunting, Inland Fishing and Wildlife-Associated Recreation in Maine, Mario Teisl and Kevin J. Boyle, Department of Resource Economics, University of Maine, Orono. November 1998.

¹⁹ Ibid.

²⁰ "Number of state's deer hunters shows significant decline" by Roberta Scruggs, *Maine Sunday Telegram*, Sunday, October 18, 1998, p.1., and "Financial Report, State of Maine Inland Fisheries and Wildlife, Fiscal Year 1998."



Source: Maine Department of Inland Fisheries and Wildlife Program Evaluation report, November, 1997.

RECENT HUNTING TRENDS in Maine parallel hunting trends nationwide. Hunters nationwide increased in number by 41% between 1955 and 1996, although this increase is lower than the rate of population growth. Between 1991 and 1996, numbers of hunters remained flat, but expenditures by hunters in 1996 were higher by 43% than in 1991.²¹ Finally, the number of people participating in hunting of all kinds actually declined by 12.3% between 1982-83 and 1994-95, according to a separate national study by the U.S. Forest Service and the University of Georgia (USFS/ UGA).²²

A greater percentage of Maine residents fished (21%) than did residents of any other state in the region in 1996. State residents fished 4 million days, 77% of all

²¹ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census. November 1997.

²² The Department of the Interior Study concentrated on hunters, anglers, and wildlife watchers over the age of 16 in 1996. The US FS / UGA study surveyed people over the age of 15 in 1994-95. National Survey on Recreation and the Environment, Cordell, et al., US Forest Service and the

fishing days within Maine, while non-residents fished 1.2 million days — 23% of all fishing days in the state. Anglers fished a total of 5.1 million days in Maine — an average of 14 days per angler.²³

Fishing was economically important for Maine, too. According to the U.S. Department of the Interior, fresh water anglers in Maine spent a total of \$348 million in 1996.²⁴ Of these expenditures, \$144 million were for trip-related expenses, and \$36 million were for equipment. The average angler spent \$813 in 1996, of which \$405 were for trip related expenditures, and \$92 were for fishing equipment. However, a 16% drop in fishing license sales over the past decade again speaks to changing use patterns.

Maine's fishing trends mirror national trends. Fishing nationwide grew tremendously in popularity in the last forty years and then showed similar patterns of decline. Since 1955, when federal record keeping began, the number of anglers over age 16 increased at over twice the rate of U.S. population growth. The U.S. population rose by 62% in that 41 year period, and the number of anglers grew by 138%.

In the five-year period from 1991 to 1996, the number of fishing participants over 16 years old in the U.S. declined slightly from 35.6 million to 35.2 million. Fishing expenditures rose substantially, however, in those years, from \$27.6 billion to \$37.8 billion. The number of days spent fishing also rose by approximately 18% between 1991 and 1996, suggesting that fewer anglers were fishing more frequently.

In fact, changes in fishing interests reflect new social choices. During the last ten years, Americans' reasons for fishing have changed. While once people focused on the catch, they now cite relaxation and time with family as their chief reasons for going fishing.

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²³ Detail does not add to total because of multiple responses.

²⁴ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, Results for Maine, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November 1997.

“WILDLIFE WATCHING” IS BIG IN MAINE

QUITE APART FROM hunting and fishing, wildlife watching, or “non-consumptive” appreciation of wildlife, is a critical element of Maine’s economy and its outdoor heritage. Wildlife watching, as defined above, included “those activities whose main objective was to observe, feed, or photograph wildlife. Secondary, or incidental participation such as observing wildlife while pleasure driving was not included in the survey.”²⁵

Wildlife watchers in Maine spent \$224.6 million in 1996;²⁶ over \$99 million was spent by Maine residents.²⁷ The economic impact of wildlife watching activity in Maine in 1996 was \$331.6 million.²⁸ In 1991, bird watching alone generated \$64.8 million in retail revenues in Maine and bird watching represents only a fraction of the wildlife watching activities that generate retail revenues.

**The economic value of
wildlife watching activity
in Maine in 1996 was
\$332 million dollars.**



Maine Ranks High Watching Wildlife

States with most wildlife watching, by percentage of population.

STATE	PERCENTAGE PARTICIPATING
1. Alaska	50%
2. Vermont	48%
3. Montana	47%
4. Maine	46%
5. New Hampshire	44%
6. Colorado	42%

Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation, November 1997.

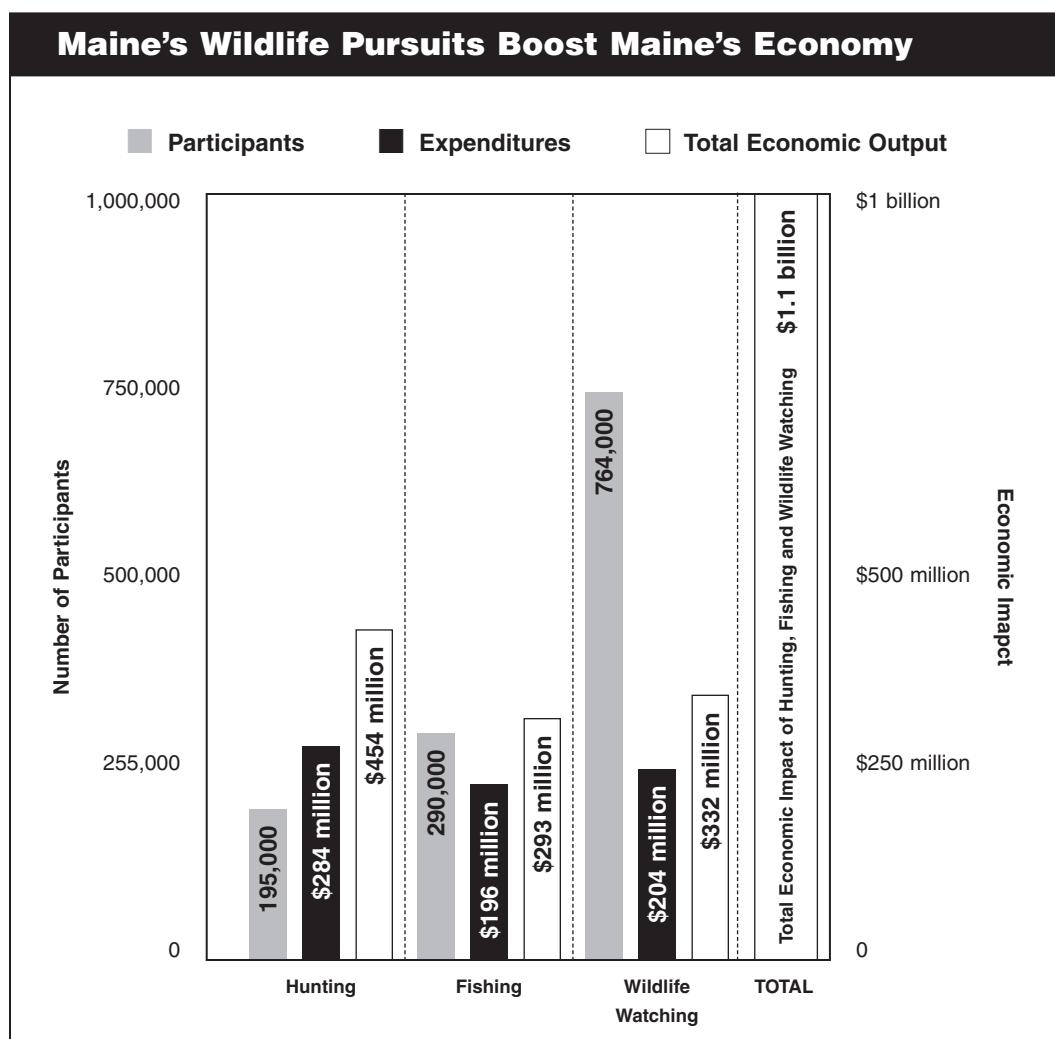
²⁵ 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, US Department of the Interior, Fish and Wildlife Service, and US Department of Commerce, Bureau of the Census. November, 1997.

²⁶ Teisl and Boyle, Op Cit. November 1998.

²⁷ 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, November 1997.

²⁸ Teisl and Boyle, Op. Cit. November, 1998.

FORTY-SIX PERCENT OF Maine's population took part in some kind of wildlife watching, putting the state in fourth place in the nation. Again, Maine is in very select company, finishing behind Alaska, Vermont, and Montana, and ahead of New Hampshire and Colorado. Approximately 764,000 people over the age of 16 were watching wildlife in Maine in 1996; 433,000 were Maine residents.²⁹ According to the Department of the Interior, New England had the highest percentage of participation in wildlife watching of any region in the country: 35% of the population took part in this activity. The national participation rate was 30%.

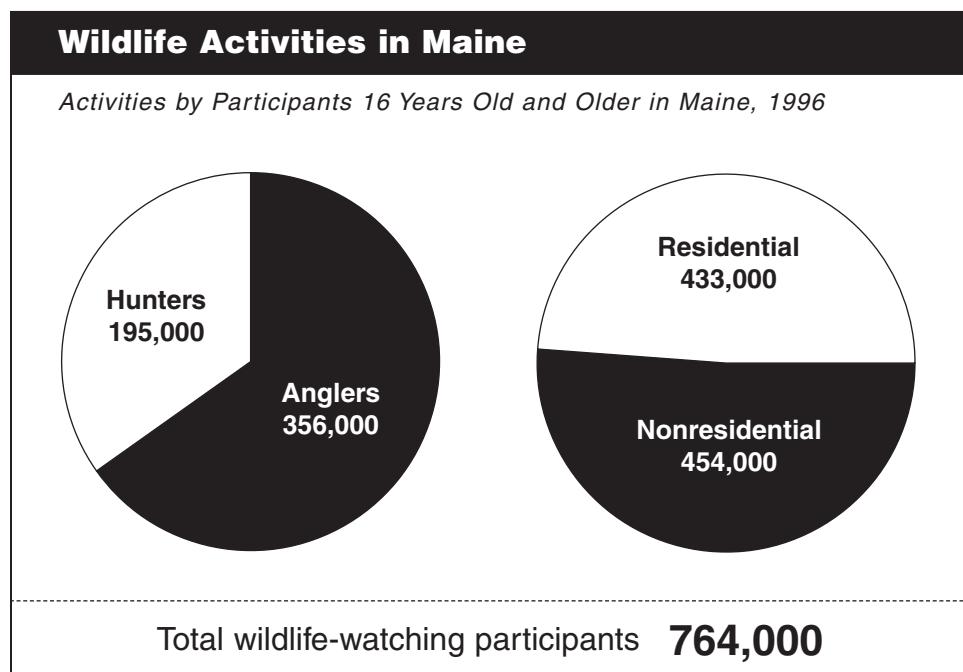


Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation, November 1997.

²⁹ 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, November 1997.

INTERESTINGLY, THOSE PEOPLE who deliberately set out to watch Maine wildlife in 1996 were a much larger group than those who specifically fished or hunted. The wildlife watchers outnumbered the anglers by 2:1, and wildlife watchers outnumbered hunters by 3.9:1. More than half of all wildlife watchers in Maine traveled at least one mile from home to see wildlife. These "non-residential" participants, as they are known, show that wildlife watching is more complex than backyard birdwatching. All these numbers have important implications for Maine's wildlife managers.

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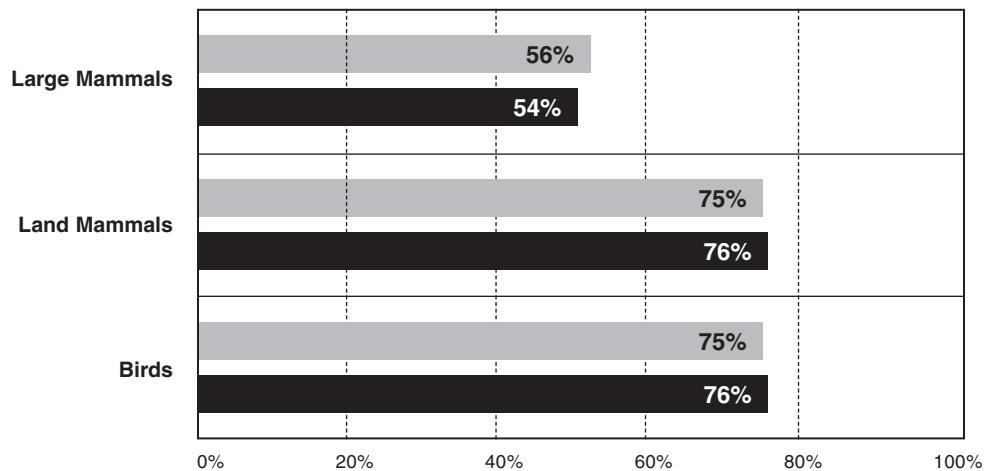


Source: US Departments of Interior and Commerce, 1996 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, Results for Maine, November, 1997. Note: Non-residential wildlife watching was done by participants traveling at least one mile from home.

Wildlife Watchers Seek Animals Large and Small

*Animals sought by non-residential wildlife watchers**

■ U.S. ■ Maine



Source: 1996 National Survey of Hunting, Fishing, and Wildlife-Associated Recreation.

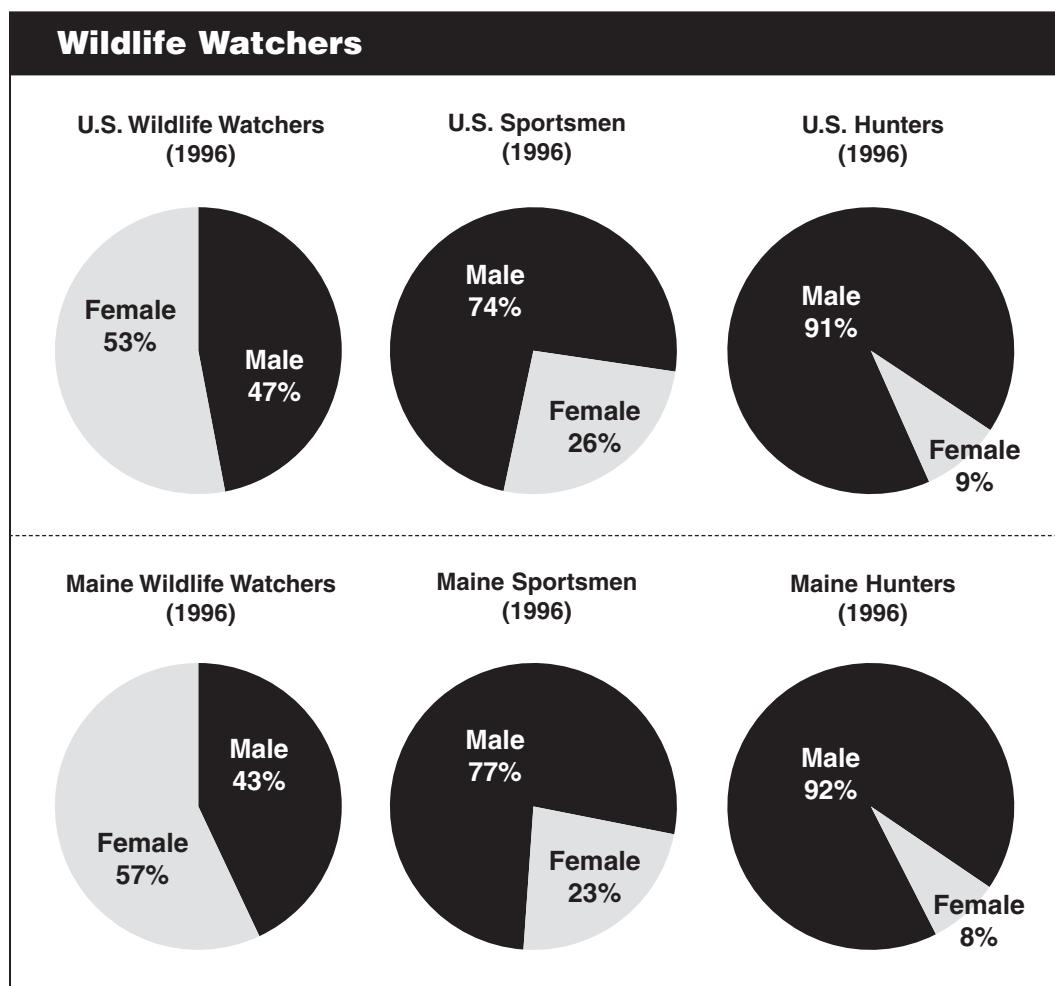
Note: These answers are not mutually exclusive. "Non-residential" refers to those who travel more than one mile from home.

AMONG "NON-RESIDENTIAL" wildlife watchers, birds and land mammals were equally attractive. Seventy-five percent of wildlife watchers observed, photographed or fed birds, and 75% observed, photographed, or fed land mammals. In fact, 56% of all wildlife watchers nationwide were interested in large land mammals such as deer, bear, moose, and wolves. The same is true in Maine, where 54% of all wildlife watchers took part in watching large land mammals. For Maine, this represented 410,000 people in 1996.³⁰ These preferences may help to explain the popularity and economic value of moose watching for both Mainers and out-of-state travelers.

³⁰ 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

MOST SPORTSMEN ARE MEN, WHEREAS WILDLIFE WATCHERS REFLECT THE POPULATION AS A WHOLE

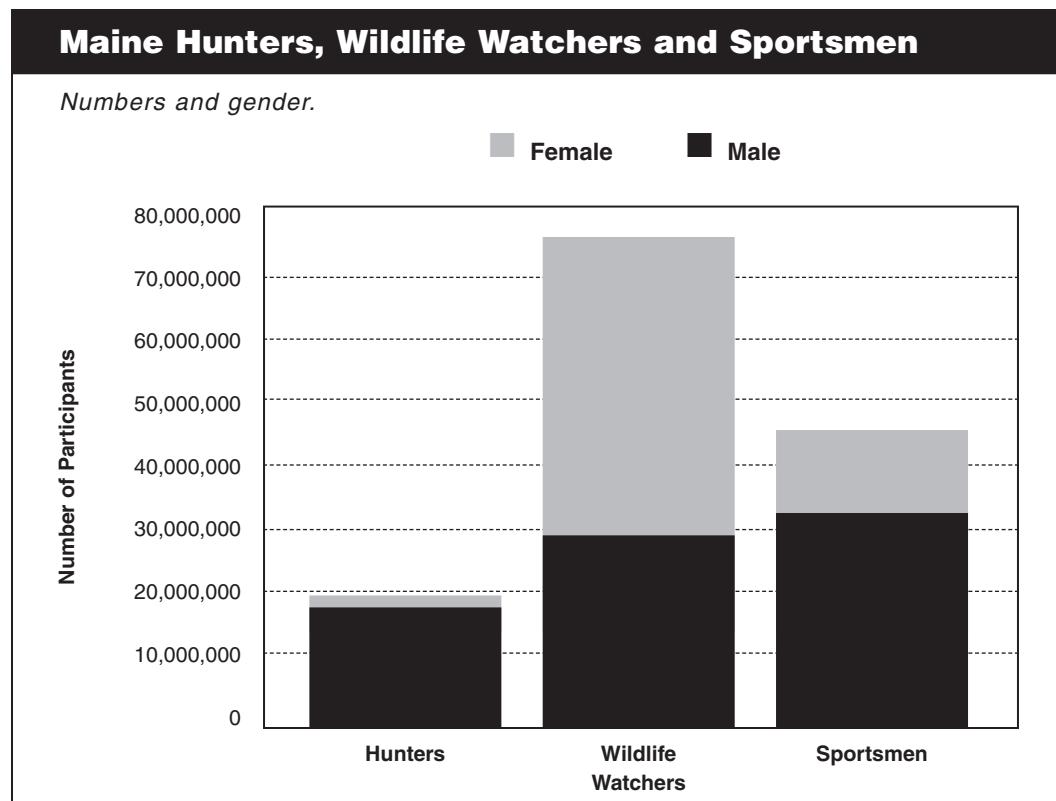
MEN AND WOMEN OFTEN enjoy different types of outdoor recreational interests. Fifty-one percent of wildlife viewers were women in 1991. In 1996, that percentage rose to 53%. In comparison, of those who hunted or fished in 1991, 74% were male. That figure rose by one percent in 1996. Hunters nationwide were 91% male, a figure that has remained unchanged since 1991.³¹



Source: 1996 National Survey of Hunting, Fishing, and Wildlife-Associated Recreation.

³¹ 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, November 1997.

IN MAINE, THE WILDLIFE recreation participation trends among men and women are similar to national trends. Seventy-seven percent of all Maine "sportsmen" participants in 1996 were men and 92% of hunters were men. Of the 765,000 resident and non-resident wildlife watchers in the state of Maine, only 43% were men. That means that while the number of men who hunt or fish is about the same as the number of men who watch wildlife, the number of women who watch wildlife is vastly larger than the number of women who hunt or fish. Women wildlife watchers make up a significant percentage of all wildlife recreationists in Maine, despite their lack of participation in sporting activities.³²

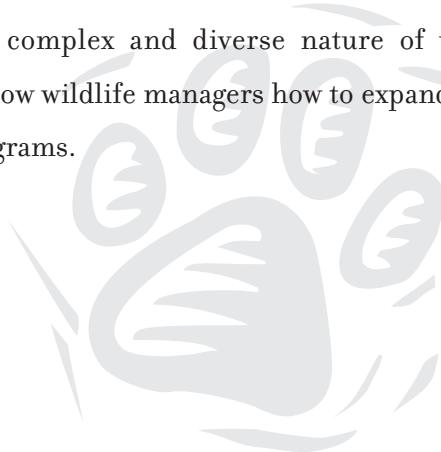


Source: 1996 National Survey of Hunting, Fishing, and Wildlife-Associated Recreation, US Departments of Interior and Commerce, November, 1997.

³² 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation, November 1997.

OTHER REGIONAL STUDIES have reported similar trends. According to the State Task Force on Texas Nature Tourism, "Hunters and anglers in Texas tend to be Anglo males who live in urban areas and are high school graduates or above. Nature tourists involved in outdoor appreciation are more evenly divided between male and female (60% male, 40% female). Texans who use state parks are almost evenly divided between male and female."³³ In Colorado in 1990, gender was the only demographic difference between those who participated in both consumptive and non-consumptive wildlife recreation and those who only participated in non-consumptive activities. Only 31% of those who enjoyed both consumptive and non-consumptive wildlife activities were women; 60% of the non-consumptive users were female.³⁴ Similar results were found in Wisconsin in 1989.³⁵

Gender differences emphasize the complex and diverse nature of wildlife recreation. These differences may also show wildlife managers how to expand public support for science and conservation programs.



³³ *Nature Tourism in the Lone Star State: Economic Opportunities in Nature*, State Task Force on Texas Nature Tourism, 1994?).

³⁴ *Watchable Wildlife in Colorado*. Standage Accureach, Inc. 1990. As reported in Americans and Wildlife Diversity, Mark Duda and Kira Young, Responsive Management, 1994.

³⁵ *Literature review of non-consumptive users of wildlife with special implications for research in Wisconsin*. Petchenik, J. 1989. Wis. Dep. of Nat. Resources, Madison, as reported in Americans and Wildlife Diversity, Mark Duda and Kira Young, Responsive Management, 1994.

FUTURE OUTLOOK: WATCHING RECREATIONAL WILDLIFE TRENDS

WILDLIFE-ASSOCIATED RECREATION IS an important part of nature tourism, the fastest growing segment of the travel industry, averaging annual increases of 30% each year since 1987.³⁶ Several national studies have identified the predominant role of wildlife watching and other outdoor recreational sports now and in the future. According to the U.S. Forest Service, wildlife viewing was the top outdoor recreational sport in the U.S. in 1994 in terms of number of participants.

Wildlife Viewing Leads Top Ten Outdoor Recreational Sports in the U.S.	
ACTIVITY	NUMBER OF PARTICIPANTS (In millions)
Wildlife viewing	76.5
Fitness walking	69.6
Camping	47.1
Fishing	35.6
Hiking	22.7
Hunting	14.1
Canoeing, Kayaking, Rafting	14.0
Backpacking	10.4
Mountain Biking	5.0
Rock climbing, Mountaineering	4.1

Source: US Forest Service Recreation Executive Report, May, 1994

In 1997, another U.S. Forest Service study found birdwatching was the outdoor activity that had grown the most in the thirteen years between 1982-83 and 1994-95, increasing by 155% during that time.³⁷

³⁶ 1992 World Tourism Organization (WTO)/Texas Department of Commerce.

³⁷ National Survey on Recreation and the Environment, Cordell, et. al., USFS / UGA. November 1997.

Birdwatching Grew the Most Among Outdoor Recreation Activities from 1982-83 to 1994-1995

ACTIVITY	1982-93	1994-95	PERCENT CHANGE
Birdwatching	21.2	54.1	+155.2
Hiking	24.7	47.8	93.5
Backpacking	8.8	15.2	72.7
Downhill skiing	10.6	16.8	58.5
Primitive area camping	17.7	28.0	58.2
Attending outdoor concert or play	44.2	68.4	54.7
Off-road driving	19.4	27.9	43.8
Walking	93.6	133.7	42.8
Motorboating	33.6	47.0	39.9

Source: National Survey on Recreation and the Environment, USFS/UGA, November, 1997.

Other projections suggest that wildlife watching activities will continue to increase through the beginning of the next century.

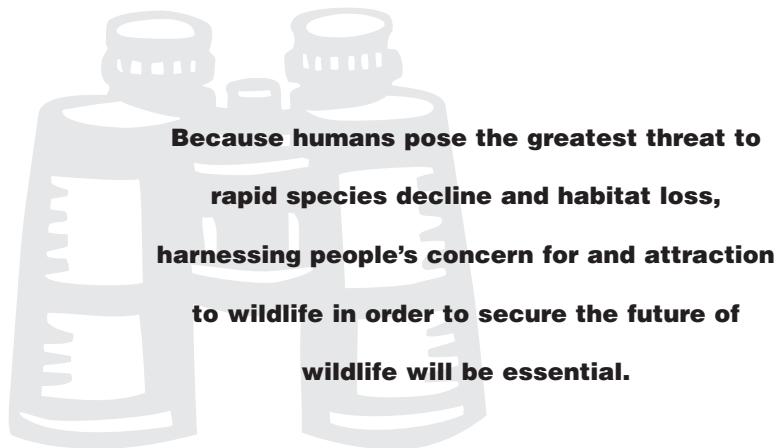
Nature Based Recreation Growth Trends Through the Year 2000

ACTIVITY	PROJECTED INCREASE
Backpacking	+ 34%
Day hiking	+ 31%
Bicycling	+ 25%
Outdoor photography	+ 23%
Wildlife watching	+ 16%
Camping	+ 16%
Canoeing/Kayaking	+ 13%
Rafting/Tubing	+ 11%

Source: Recreation Executive Report, May 1994 from U.S. Forest Service data

RECREATION AND ATTITUDINAL information on wildlife is now an important aspect of wildlife management. A new field of wildlife study known as the "Human Dimensions" of wildlife recreation continues to accumulate information on the relationships and attitudes of people toward wildlife. A 1998 book entitled, *Wildlife and the American Mind*,³⁸ referencing all major national studies on hunting, fishing, trapping, wildlife watching, public policy initiatives and funding issues, signals this new direction in wildlife policy.

Studying the ecological and biological requirements of wildlife is no longer sufficient to ensure the survival of healthy wildlife populations and intact habitat. Because humans pose the greatest threat to rapid species decline and habitat loss, harnessing people's concern for and attraction to wildlife in order to secure the future of wildlife will be essential.



³⁸ *Wildlife and the American Mind, Public Opinion on and Attitudes Toward Fish and Wildlife Management*, by Mark Duda, Steven Bissell and Kira Young, published by Responsive Management, Harrisonburg, VA, 1998.

S E C T I O N B

THREATS TO
MAINE'S WILDLIFE
HERITAGE



Without habitat, there is no wildlife.



AINE'S WILDLIFE MUST LIVE IN a diminished and, in some cases, vanishing natural world. The pressures to alter our natural world and the market forces and technology to do just that, have even greater force and momentum than our relentless tides, mighty rivers, vast forests and granite mountains. Our oceans, bays, rivers, forests, mountains, lakes and the lands that connect them are Maine's primary infrastructure and they are all vulnerable. Maine's outdoors is its primary infrastructure, not its roads, bridges, telecommunications networks or transportation services. This infrastructure is the home of Maine's wildlife, sometimes called its habitat. Without habitat, there can be no wildlife.

DEVELOPMENT AND SPRawl ELIMINATE THE HOMES OF MAINE'S PLANTS & ANIMALS

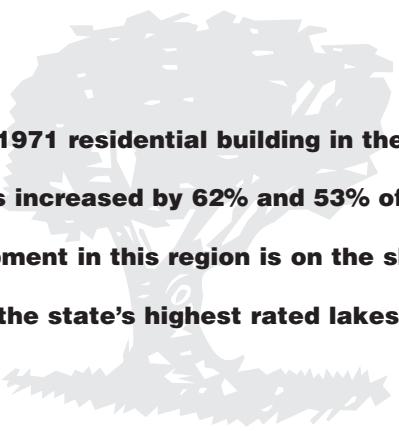
WHAT ARE THE FORCES THAT THREATEN Maine's wildlife legacy, that have the power to so change our world that our great grandchildren may not know the wildlife pleasures we now enjoy? Loss of habitat is the most significant threat. Maine has already recognized development and fragmentation as a serious threat. Maine's State Planning Office report, statewide conference, and regional meetings on the problem of sprawl discussed serious threats to wildlife. In "The Cost of Sprawl," state planners note that "...habitats for wildlife in Maine have been seriously fragmented by development sprawl. Wildlife such as bobcat, owls, hawks, and certain song birds need extended stretches of undeveloped land in order to maintain their populations." Maine's Environmental Priorities project, a statewide citizen process to identify Maine's most serious environmental problems, also warns that sprawl destroys habitat. In the project's booklet, "Designing Communities to Protect Wildlife Habitat," the authors warn that "it is no coincidence that almost all of the non-marine animal species on the Maine Endangered and Threatened List are native to southern and coastal areas of the state, those areas now under the most development pressure." According to a recent study from Witham & Hunter

(University of Maine), in the last 20 years Maine rural residential areas increased by 23% while forest, agricultural and non-forested upland areas (all supporting wildlife habitat) decreased by a total of 28%. Unlike natural processes that once replaced abandoned agricultural lands with new forests, lands converted into residential and commercial development will not revert to diverse wildlife habitat.

HABITAT LOSS IS EVERYWHERE IN SOUTHERN AND NORTHERN MAINE

THE SIGNS OF SIGNIFICANT HABITAT loss are everywhere in Maine.

The town of Ogunquit is working to purchase the last remaining open space within its borders. Maine Audubon's work to restore populations of the endangered piping plover on Maine's beaches consists of fencing individual nesting areas on intensively used beaches. In northern Maine declining deer populations in several counties are blamed on the extensive destruction of winter cover as a result of commercial harvesting. As vast as Maine's woods seem, development trends there also signal habitat loss. Since 1971 residential building in the forest has increased by 62% and 53% of all development in this region is on the shores of the state's highest rated lakes (which make up only 8% of the state's entire lake acreage). Conversion of habitat into lots and building sites also eliminates recreational access to lands and waters, reducing the ability of Maine's sportsmen and wildlife enthusiasts to participate in certain types of outdoor recreation.



**Since 1971 residential building in the forest
has increased by 62% and 53% of all
development in this region is on the shores of
the state's highest rated lakes.**

INTENSE FOREST PRACTICES MAY ELIMINATE RICH, DIVERSE HABITAT

FORESTRY PRACTICES HAVE GREAT potential to enhance or destroy wildlife habitat. Conversion of increasing amounts of commercial forest lands to quick growing tree species that are not native to sites, the creation of tree plantations consisting of single species and the herbiciding that accompanies these methods, all add up to the loss of diverse, natural wildlife habitat. While these sites may encourage some species, should they eventually come to dominate the landscape of northern Maine, rich, diverse wildlife habitat will be eliminated on millions of acres of forestlands.

A 148% INCREASE IN WOODS ROADS INTRODUCES NEW THREATS INTO THE FOREST

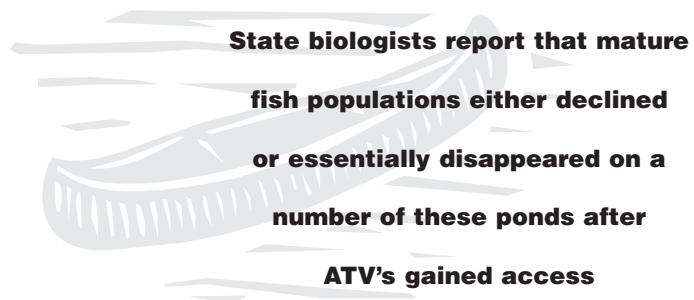
THE ROAD SYSTEM THAT SUPPORTS commercial forestry in Maine's woods has grown from 10,000 miles of roads to over 25,000 within fifteen years, an increase of 148%! Several years ago, pine marten populations west of Baxter State Park experienced a serious decline. Research revealed that intense commercial road building from tree harvesting created extensive access and excessive trapping of marten in this area. No state agency has the authority to oversee the consequences of this road system's affects on the health of our watersheds and wildlife habitat and no state process is responsible for seeing that this commercial road system does not, many years from now, lead to the same type of unplanned sprawl and development that has permanently altered and stressed Maine's southern ecosystems. This extensive road system has also stretched the enforcement abilities of Maine's Warden Service: "agencies such as the Maine Warden Service, who have been stretched very thin for quite some time, have had to provide additional services as outdoor recreation enthusiasts venture into newly accessible areas" ("The Maine Warden Service and The State of Maine, 1999).

POLLUTION AND TOXICS KILL AND POISON WILDLIFE

POULLUTION AND THE AFFECTS OF TOXIC substances are hazards for wildlife. Lead sinkers and jigs used by fishermen account for 50% of all mortality in loons. Mercury contamination in our rivers has made it necessary to post warnings advising fishermen and their friends and family to limit their meals of fish or avoid fish altogether. Pollution in our rivers and estuaries is responsible for the closing of clam-flats and warnings about eating lobster tomalley. Agricultural pesticides are being implicated in the widespread occurrence of deformed frogs. While pollution in water sources often receives the most attention, the amount of pesticide and herbicide use by private gardeners, the state of Maine, and commercial landowners is poorly documented and its long-term effects on wildlife are mostly unknown.

INTENSE RECREATION CREATES PROBLEMS FOR WILDLIFE

OVERUSE OF AN AREA CAN MAKE wildlife management difficult. For example, the increased popularity of sea kayaking and increased motor boat ownership have created problems for nesting shorebirds on what were formerly undisturbed islands. Many sea bird nesting islands now have landing restrictions for all or part of the year. State sponsored boating access sites (ramps, launch sites and parking lots) have increased from 41 sites in 1975 to 295 sites in 1999. While increased access has allowed Maine citizens to better enjoy public waters, the larger implications for wildlife have been poorly considered.

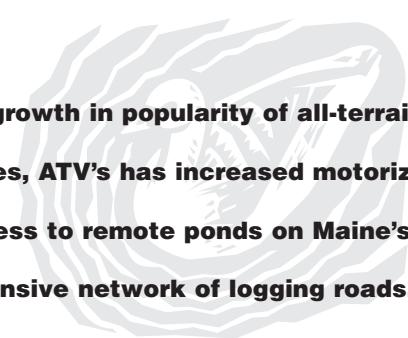


ATV USE AFFECTS WILD TROUT POPULATIONS

RECREATIONAL USE MAY ALSO THREATEN wildlife populations. The growth in popularity of all-terrain vehicles (a 31% increase in 14 years), has increased motorized access to remote ponds on Maine's extensive network of logging roads. This access has affected wild brook trout populations in Maine's "remote" ponds. State biologists report that mature fish populations either declined or essentially disappeared on a number of these ponds after ATVs gained access and they cite declining age class surveys of Ellis Pond and Saddleback Pond as good examples of increased and inappropriate fishing pressure resulting from ATV access.

WARDEN SERVICE RESISTS LAKE PROTECTIONS

PERSONAL WATERCRAFT (commonly known as jetskis) have the potential to affect the breeding success of loons on Maine's waters. Many cases of wildlife harassment from these machines' have been documented and even videotaped. Maine's Warden Service, already stretched by increased vehicular and boating enforcement, testified in November of 1998 against increasing protections on a number of Maine's waters, despite numerous citizen and municipal petitions requesting permission to ban personal watercraft on local ponds and lakes. Citing the lack of resources to handle enforcement, Warden Service testimony actually worked against the mandate of its own department to "preserve, protect and enhance" Maine's wildlife resources.



The growth in popularity of all-terrain vehicles, ATV's has increased motorized access to remote ponds on Maine's extensive network of logging roads.

MAINE'S WARDENS ARE UNDERSTAFFED AND DISTRACTED FROM WILDLIFE ENFORCEMENT

POACHING AND ILLEGAL TAKING of Maine's wildlife are difficult to enforce when Maine's wardens must police millions of acres of land with outdated or inferior equipment and experience incomplete staffing as a consequence of DIF&W budget constraints. In 1998 Maine's Warden Service averaged six position vacancies per month while the Department of Inland Fisheries & Wildlife left staff positions vacant to solve budgetary shortfalls. According to a 1999 DIF&W report, "The Maine Warden Service and The State of Maine," the enforcement of Maine's wildlife laws is now accomplished with 93 wardens, down from the 104 wardens employed in 1975. This smaller force of wardens, who must work fewer hours to comply with state labor laws, must also enforce a great variety of vehicle and boating laws including the 1985 ATV regulations, expanded boating regulations enacted in 1995, the enhanced snowmobile regulations of 1997, and personal watercraft laws enacted in 1997 and 1998. Protection of our wildlife suffers when wardens are stretched by so many other duties.

ECONOMIC DEVELOPMENT WITHOUT WILDLIFE CONSERVATION IS NOT PROGRESS

PUBLIC POLICIES THAT DO NOT INCORPORATE the value of wildlife habitat and wildlife recreation as part of economic development also pose a serious threat to Maine's wildlife legacy. Even as Maine's State Planning Office conducts an active dialogue about how sprawl and unplanned development have affected the quality of life (and intact wildlife habitat) in southern Maine, discussions of a future east/west highway through Maine's north woods have not included consideration of how such a transportation corridor might transform Maine's forest habitat through associated development and future sprawl. The "One Maine" report

detailling how Maine's natural resources will form the backbone of northern economic progress contains no discussion of how these resources will be sustained and conserved and no state natural resource agency is included with other state agencies as a participating partner in the plan to improve northern Maine's economy. Maine's wildlife recreation industry contributes \$1.1 billion to Maine's economy (more than Maine's commercial fishing industry). Securing the habitat necessary for its health should be an essential economic strategy.

WILDLIFE MAPPING AND SCIENCE IS NOT ORGANIZED TO BENEFIT WILDLIFE

LACK OF READILY ACCESSIBLE information seriously threatens Maine's wildlife. Although the Maine Department of Inland Fisheries and Wildlife (MDIF&W) has worked closely with the Maine Natural Areas Program (MNAP) to develop Habitat Consultation Area Maps that generally mark the locations of significant wildlife habitats, rare and endangered species, and rare or exemplary natural communities, MDIF&W and MNAP are reluctant to release these data for direct use by other conservation groups, landowners, municipalities, or the general public. In addition, essential habitat (habitat required by endangered species) has been designated for only three of 34 species. Only one Significant Wildlife Habitat as defined under the Natural Resources Protection Act (including such habitats as deer wintering areas; shorebird feeding, roosting, and nesting areas; heron rookeries; and Atlantic salmon habitat) has been formally mapped and adopted for use during permit reviews by the Department of Environmental Protection (DEP).

The Department of Inland Fisheries and Wildlife and MNAP prefer to work with individual landowners to inform them of the resources present on their properties and to develop management agreements to protect special habitats rather than work through the regulatory route. While this approach is laudable and even preferable in some situations, it requires an enormous input of effort to locate, contact, negotiate, and renew agreements with every landowner. This, quite simply, has been

unattainable to date, so many landowners, developers, conservation groups and municipalities interested in furthering conservation are not able to access the information they need to be effective. Furthermore, while some inventory and mapping efforts have been coordinated between DIF&W and MNAP in recent years, because the two programs are housed in two separate agencies, review of potential conflicts and recommendations for management are often handled independently. Finally, many entities outside DIF&W and MNAP are involved in inventorying and mapping sensitive and important plant and animal habitats, including large forest landowners, the University of Maine, the U.S. Fish and Wildlife Service, and private conservation groups and land trusts. Yet no one has stepped forward to coordinate and direct these efforts towards the conservation of the most important wildlife habitats throughout Maine. A new system needs to be developed that better coordinates inventory, mapping, and review of projects and management activities that may impact wildlife and sensitive habitats.

INFORMATION ON SPECIES THAT ARE NOT HUNTED IS LACKING

■ NFORMATION ON CONTROVERSIAL PREDATORS and other non-game species is lacking, threatening both the survival of healthy populations and the opportunity to have reasoned, scientific planning guide controversial issues. According to Maine's DIF&W 1998 "Research & Management Report" for its Wildlife Division, "little is known about the status of the [lynx] population." Region E biologists "were concerned about the rarity of lynx and the lack of good information on its numbers and distribution." The report also reveals that, "Since 1990 many herpetologists have been concerned that amphibian populations may be declining worldwide. MDIF&W has no data to assess trends in Maine's amphibian populations." Although "regional declines are increasingly evident in a variety of grassland nesting birds," MDIF&W only began to survey these populations in 1997 with the help of a Maine Outdoor Heritage Fund grant. The report's songbird assessment explains that

"Maine is home to approximately 200 breeding birds and numerous other migrants and winter residents. The majority of these species are not hunted, and, as a consequence, have received little management attention. Apparent declines in populations of some songbirds have raised the awareness among national and international conservation groups about a pending crisis in bird conservation." Wetland bird information is also lacking: "Because the distribution and habitat requirements for these species is not well known, current habitat protection efforts may be adequate to ensure long-term viability..."

FUNDING FOR NON-GAME SPECIES CONSERVATION IS MINIMAL

DIF&W'S MANAGEMENT REPORT EXPLAINS that Maine has 34 Endangered and Threatened Species and another 80 species might "warrant listing" but there was "insufficient data...to make...a determination." Voluntary funding (from loon license plates, a check-off option on Maine's tax forms, and grants from lottery ticket sales in the Maine Outdoor Heritage Fund program) provide "the core funding for Maine's Rare and Endangered Species programs." These species of concern receive less than 5% of DIF&W's budget. According to a 1998 DIF&W staff paper on the "Economic Impacts of Hunting, Inland Fishing, and Wildlife Associated Recreation in Maine," "...only a small percent of DIF&W's budget is allocated to conserving non-game species," but "approximately one-third of the economic impacts generated by inland fish and wildlife-associated recreation is due to wildlife recreation" that includes a variety of all of Maine's species.

GAME SPECIES ARE THRIVING (THANKS TO SUPPORT FROM THE SPORTING COMMUNITY), BUT NON-GAME SPECIES ARE AT RISK

THE LACK OF INFORMATION about Maine's non-game animals is a direct result of a funding arrangement where few of DIF&W's funds are dedicated toward wildlife populations that are not hunted. DIF&W's 1998 management report reveals that most of Maine's game species are doing well. Maine has a "growing fisher population." "Marten harvest levels were the highest in 10 years," and "the population appears to be fairly stable." Nearly 92% of all moose-permit holders registered a moose; most were bulls. In the past 15 years, Maine's deer herd "has increased from a mean of 160,000 to more than 255,000 deer." The bear population is "slightly above the Department's objective of 21,000 bears." The 1998 turkey season "ended with a record harvest." North American duck populations "are at high levels for most of the species." Only woodcock and some northern deer populations were of concern to biologists and they cited habitat improvements already underway as solutions. The disparity between available science and stewardship for our most vulnerable wildlife species and our highly valued game species is clear proof that Maine's wildlife funding formula and current state management system is flawed, and it threatens the future survival of Maine's diverse wildlife populations.

DIF&W RECOGNIZES ITS RESOURCES ARE NOT "ADEQUATE"

AND FINALLY, Maine's Department of Inland Fisheries and Wildlife has also identified threats within its own department. In 1997 the Department created a list of numerous "emerging issues" that included its biggest challenges. The list included: "inadequate resources to assess non-game populations and develop appropriate management solutions; inadequate resources to implement cooperative management programs to ensure adequate habitat to support wildlife at desired levels; inadequate funds to have a significant impact on the loss of access to public water; inadequate personnel to carry out needed work; inadequate funds to significantly increase ownership [of habitat]; inadequate staff to purchase lands." Currently a \$100,000 challenge grant from the National Fish and Wildlife Foundation is available to assist Maine's DIF&W with habitat conservation but there has been no available staff to turn this funding into concrete efforts to purchase more wildlife habitat.

LICENSE SALES DO NOT ADEQUATELY FUND DIF&W'S WORK

IN THE DEPARTMENT'S LIST of "emerging issues," the most significant threat to DIF&W's success was listed as "past declining license sales." Rick Record, the department's chief financial officer (quoted in the Portland Sunday telegram, 8/16/98) explained that: "When you have flat license sales and increasing expenses, there's going to come a day of reckoning in terms of providing the same level of service that people want or people need. Hunting license fees make up 35% of the budget at IF&W, the single largest source of income." Yet "not since 1950 has such a small portion – 15.8 percent – of the state's population hunted.... the lowest number in a quarter century" (PPH 9/18/98). Asked to discuss funding for the state's warden

service (which is the same size it was in 1968 despite the addition of many new duties), DIF&W's Deputy Commissioner told Washington County legislators concerned with lack of enforcement that, "...hunting and fishing licenses are the warden's main source of revenue. We are looking for additional sources of revenue. We have found it difficult to fund easy sources of money." (Downeast Coastal Press 12/15/98)

MAINE'S WARDENS CAN NO LONGER SUCCESSFULLY PROTECT WILDLIFE

A 1998 REPORT on Maine's Warden Service finds that "the Service is no longer able to perform its important traditional duties – protecting Maine's fish and wildlife resources and enforcing the fish and wildlife laws of Maine." What greater threat could wildlife have than to lose its protectors?

I N S U M M A R Y

IN THE PAST, MAINE WILDLIFE MANAGERS have successfully solved serious species challenges and today Maine's deer and moose herds have returned as has the bald eagle and the puffin. State and federal programs, private landowners and conservation organizations have protected thousands of acres of high value habitat. However, much of our wildlife heritage is at risk. Of the 34 species of endangered or threatened species on the state list, 9 are found predominantly in the southern or coastal regions of the state, where the effects of sprawl have already degraded much wildlife habitat. Over half of all owl, salamander, frog and toad species that breed in Maine are listed as special concern, threatened or endangered in other northeastern states. In total, 80 species of birds, 16 mammals, 4 reptiles, 3 amphibians, 4 butterflies and moths, and 7 damselflies and dragonflies are known to be declining in Maine. With increased development, local populations are likely to be lost. We need to act now to save these species. Purchasing habitat for unusual, significant, or endangered wildlife and plants is only part of the solution. One of the best ways to ensure that viable populations of Maine's native wildlife will persist into the 21st century is to work with current landowners and municipalities now to protect the remaining blocks of undeveloped forest, wetland, and grassland that remain in our rapidly developing southern and coastal regions. What is needed, however, is a coordinated state wildlife program that includes all wildlife stakeholders, adequate funding mechanisms, and both game and non-game management strategies that are comprehensive enough and strong enough to meet and conquer all threats to all of Maine's wildlife.

S E C T I O N C

WATCHING OUT FOR MAINE'S WILDLIFE FUNDING

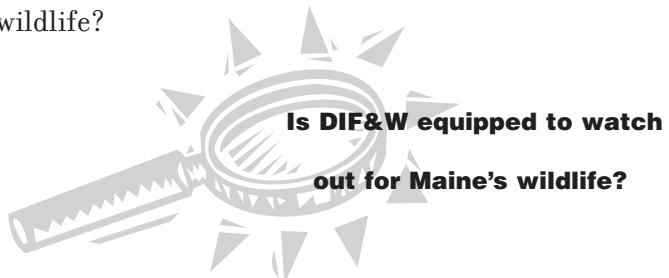


Maine's DIF&W is charged with preserving, protecting and enhancing Maine's inland fisheries and wildlife resources on 17.9 million forested acres, 32,000 miles of rivers and streams, 6,000 lakes and ponds, and approximately 2,000 coastal islands. Deer, eagles, salamanders, or trout cannot be personal property. Maine's wildlife is a public resource, held in trust for all the people of Maine.



NY DISCUSSION OF HOW TO SECURE Maine's wildlife legacy must address the role of Maine's Department of Inland Fisheries and Wildlife (DIF&W) and its resources. While the University of Maine, Maine Audubon, The Nature Conservancy, the Sportsman's Alliance of Maine, conservation organizations, local land trusts and private landowners make significant contributions to the health of Maine's wildlife, DIF&W is the official state agency charged with the "protection" of Maine's wildlife. This state agency is charged with preserving, protecting and enhancing Maine's inland fisheries and wildlife resources on 17.9 million forested acres, 32,000 miles of rivers and streams, 6,000 lakes and ponds, and approximately 2,000 coastal islands. Deer, eagles, salamanders, or trout cannot be personal property. Maine's wildlife is a public resource, held in trust for all the people of Maine.

Because wildlife is so important to Maine's residents and visitors, DIF&W must consider how its programs and decisions affect hundreds of thousands of different users, as well as numerous wildlife stakeholder organizations who have strong interests in Maine's wildlife. (The appendix lists many of these organizations.) Maine's wildlife resources and a great variety of users, generated over one billion dollars in 1996. In 1996, 454,000 people traveled at least one mile from home to view wildlife in Maine; that same year there were 195,000 hunters and 289,800 inland anglers. Despite the fact that DIF&W's budget depends on the sale of sporting licenses, new recreational trends and pressures are clearly shaping Maine's wildlife activities. The responsibility for healthy, intact wildlife populations, the regulations and services that concern all recreational users, the expectation that new science and new recreational needs will receive receptive management, and the viability of Maine's billion dollar wildlife recreation economy are all vested in DIF&W. Is DIF&W equipped to watch out for Maine's wildlife?



ORIGINS AND MISSIONS OF THE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

THE DEPARTMENT HAS ITS BEGINNINGS in the 1880's when the State of Maine made the two Maine Fisheries Commissioners responsible for enforcing the laws that had been enacted to control the taking of moose, caribou, and deer. These wardens were appointed to patrol the State's woods and waters and bring poaching under control. The mission of the department was soon expanded to include the propagation of game fish. Thousands of trout, salmon, and bass were stocked annually across the state to support a rapidly growing tourist industry. Through the early 1900's many new hunting and fishing laws were enacted to conserve fish and wildlife. Hunting and fishing licenses were established to pay for fish and wildlife conservation programs. Detailed studies of the status and needs of wildlife began in the 1940's to guide the management of these resources. Statewide fisheries management programs were initiated in the 1950's.

In 1975 when the name of the Maine Department of Inland Fisheries and Game was changed to Inland Fisheries and Wildlife, the Legislature asked the Department to do little other than what had previously been the Department's mandate: establishing and enforcing fish and game laws for the management of the resource. In 1983, however, the Department was given a new mandate by the Legislature:

*"There is established the Department of Inland Fisheries and Wildlife to preserve, protect and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources."*³⁹

This mandate, a broader and more complex mission that embraces all populations is in effect today for the department. Now DIF&W carries out a wide variety of fish and wildlife conservation programs with greater geographic distribution across Maine

³⁹ State of Maine, Inland Fisheries and Wildlife Laws¹² MRSA Part 10, Chapters 701-811, effective September, 1997.

each year. The Department's mission has also been significantly broadened with responsibilities for white-water rafting; registration of watercraft, snowmobiles, and ATV's; regulation of surface water uses; hunter, trapper and recreational vehicle safety programs; conservation education; extensive enforcement duties for wildlife and natural resource laws; coordination with state and federal agencies on shared programs; and oversight of legislative proposals, averaging over 100 bills each year. DIF&W's resources to meet these requirements depend on adequate funding.

SPORTSMEN HAVE FUNDED WILDLIFE

THERE IS A LONG HISTORY in the U.S. and in Maine of sportsmen funding state and federal wildlife programs through the direct sales receipts from their hunting and fishing licenses and from taxes on equipment purchases. Hunters and anglers have funded the majority of Maine's wildlife program budget for several generations. In FY 1998, license sales brought in approximately 60% of the revenues received by DIF&W. The total revenues from hunting, fishing and other wildlife-related licenses, permits and fees was \$13,791,504, compared with total revenues from all sources including recreational vehicle registrations, federal funds, and other dedicated revenues of \$23,155,634.

Sportsmen support wildlife programs through two federal excise tax programs, the Pittman-Robertson Act and the Dingell-Johnson Act. In 1998, 15 % of DIF&W's revenues came from these funds. Through the Pittman-Robertson Act, hunters and target shooters have contributed directly to wildlife restoration and conservation since 1937, with excise taxes of 10-11% on their purchases of firearms, shells, cartridges, pistols, revolvers, and archery equipment. In that year, Congress determined that 300 years of destruction of wildlife and wildlife habitat had to be reversed by creating a dependable revenue source to restore game species. Congress passed this act which initiated collection of the excise taxes nationwide.⁴⁰

⁴⁰ The official name of the act is the Federal Aid in Wildlife Restoration Act of 1937.

Each year, a portion of the Pittman-Robertson Act Fund is returned to each state. Over \$35 million dollars have been returned to Maine for wildlife conservation since 1937.⁴¹ These funds have supported Maine wildlife population assessments, long range species management planning, development of management recommendations, implementation of management programs, acquisition and management of wildlife habitat, and hunter education.⁴² In 1998, DIF&W received \$2,262,507 from the Pittman-Robertson Act Fund. These funds amounted to 9.8% of the total revenues received by DIF&W.⁴³

Fishermen and boaters have also contributed to wildlife programs through a 10% excise tax on their purchases of fishing rods, reels, lures, fishing line and related fishing equipment. Enacted in 1950 as the "Sport Fish Restoration Act" (also known as the Dingell-Johnson Act), this program supports fisheries management, boating access and other initiatives. In 1984, Congress passed the Wallop-Breaux amendments to the Act, which added a motorboat fuel tax and import duties on yachts.

Each year, moneys are distributed to state fisheries agencies according to the number of fishing licenses sold and the state's size (each state receives at least 1% and no more than 5% of the moneys). In FY 1998, Maine DIF&W received \$1,205,884 from the Dingell-Johnson Act Fund, which amounted to 5.2 % of the total revenues received by DIF&W.

**Hunters and anglers have
funded the majority of Maine's
wildlife program budget for
several generations.**



⁴¹ A Guide to The Federal Aid in Wildlife Restoration (Pittman-Robertson) Act, the Proactive Strategies Group of the International Association of Fish and Wildlife Agencies (IAFWA), Washington, DC, 1997.

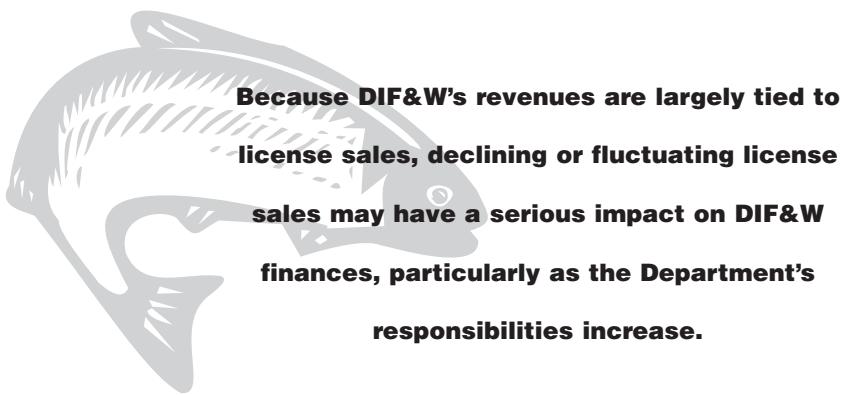
⁴² Summary of Maine Hunting and Trapping Laws and Rules (for 1998), Maine Department of Inland Fisheries and Wildlife, Augusta, ME.

⁴³ Total revenues include revenues to the general fund (state licenses, permits, vehicle fees and all other sales), federal grant funds plus dedicated revenues (such as sales of loon license plates)

LICENSE-BASED FUNDING DEPENDS ON VARIABLE RECREATION TRENDS

BECAUSE DIF&W'S REVENUES ARE largely tied to license sales, declining or fluctuating license sales have a serious impact on DIF&W finances, particularly as the Department's responsibilities increase. From 1989 to 1997, the total number of licenses sold was in decline, with fishing licenses declining the most sharply. An increase occurred in 1998, apparently due to DIF&W's aggressive license sales effort. Over the decade, hunting licenses sales remained largely stable; 147,514 hunting licenses sold in 1998 were close to the number purchased in FY 1989. The same is true for combination fishing / hunting licenses. Fishing licenses, however, dropped by 16%, from 234,352 in FY 1989 to 197,448 in FY 1998. The total number of hunting, fishing and combination licenses sold fell from 464,387 in 1989 to 427,102 in FY 1998, a decline of 8%.

National recreation trends indicate several reasons for reduced fishing and hunting activity. When asked, 65% of anglers nationwide said they did not fish as much as they wanted to in 1996. Sixty-seven percent of all hunters surveyed also did not hunt as much as they wanted to in 1996. In both cases, 64% said that the biggest limiting factor on their ability to hunt or fish as much as they wanted was either "family and work obligations" or "not enough time." Two percent of all hunters considered "not enough access" as a limiting factor; four percent listed the weather as the biggest limiting factor. Among anglers, other limiting factors included "cost too much" (4%), and "pollution or litter" (3%).⁴⁴



⁴⁴ National Survey of Fishing, Hunting and Wildlife-Associated Recreation, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, November 1997.

GROWING RESPONSIBILITIES CREATE VARIED FUNDING SOLUTIONS

IF DIF&W'S RESPONSIBILITIES COULD BE graphed in relation to the department's incoming revenues, the graph would show ever increasing responsibilities on an unbroken upward curve and fluctuating, often declining revenues. At the same time that fishing and hunting numbers have been declining or showing little growth, the Maine DIF&W, along with many other state fish and wildlife departments, is being asked to do more with less. For example, the demands on DIF&W for recreational vehicle enforcement have risen dramatically. Snowmobile, ATV and motor boat registrations are up 65% since 1988. Boating registrations alone are up 118% in the same period. The number of recreation visitors to North Maine Woods has increased 28% from 1976 to 1997. These increases resulted "in increased pressure on fish and wildlife resources and greater need for protection of these resources from exploitation. Additionally...comes an increased demand for services...in the areas of search and rescue and recreational vehicle accident investigation" (1998 report on "The Maine Warden Service").

In light of declining or flat numbers of license sales, the Legislature has attempted to increase revenues by enacting increases in license fees. License fee increases in 1994, 1995, and 1996 increased revenues generated by those sales. License sales numbers however declined.

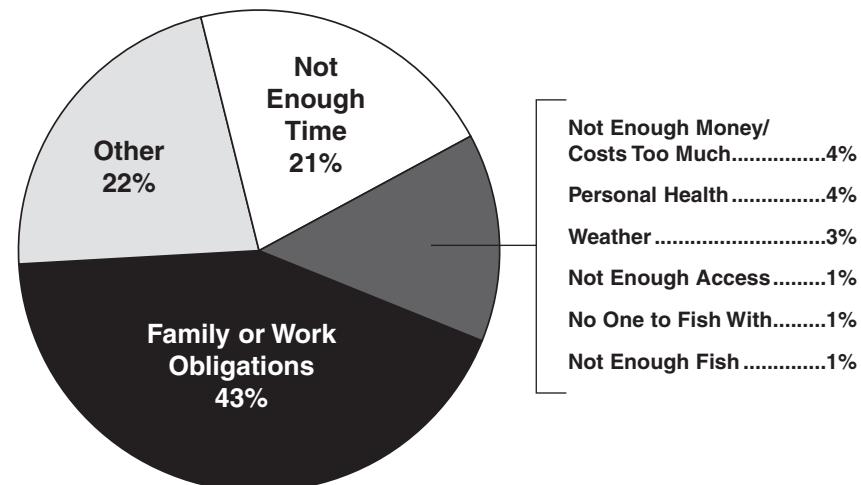
Dedicated funding for non-game programs is a relative newcomer to the wildlife-funding picture. DIF&W finally had state funds to establish an Endangered and Non-Game Wildlife project in 1983 and 1984 when the Legislature authorized the Chickadee Check-off on the Maine state tax return. The revenues from this program, however have declined from a high of \$115,000 in 1984 to only \$47,397 in 1998. While donations have been steadily declining for years, in 1998 the check-off location was moved from the main tax form to a supplemental form that has less use and visibility for taxpayers. Unfortunately, tax forms for 1999 will also locate the Chickadee Checkoff in this same obscure location, further undermining the Endangered and Non-Game Wildlife Fund.

Loon license plate sales also generates funds for non-game and endangered species conservation. Since its inception in 1993, \$2,055,259 has been raised to support non-game and endangered wildlife, with plate revenues for the Department of Inland Fisheries and Wildlife growing from \$285,480 in its first year to \$607,023 in FY 1997–1998. In the past loon plate owners usually bought plates either to support wildlife conservation or to avoid owning Maine's controversial lobster plate. The Department of Conservation and Inland Fisheries and Wildlife, both beneficiaries of the loon license plate, are concerned about how well the loon plate will fare with the advent of the new chickadee plate (which replaces the lobster plate).

In 1995 the Maine Outdoor Heritage Fund was created to award grants that would conserve Maine's special places, endangered species, and important habitats. The fund receives proceeds from the sale of Outdoor Heritage scratch lottery tickets and has raised \$4.82 million dollars and awarded \$4.29 million in various grants.

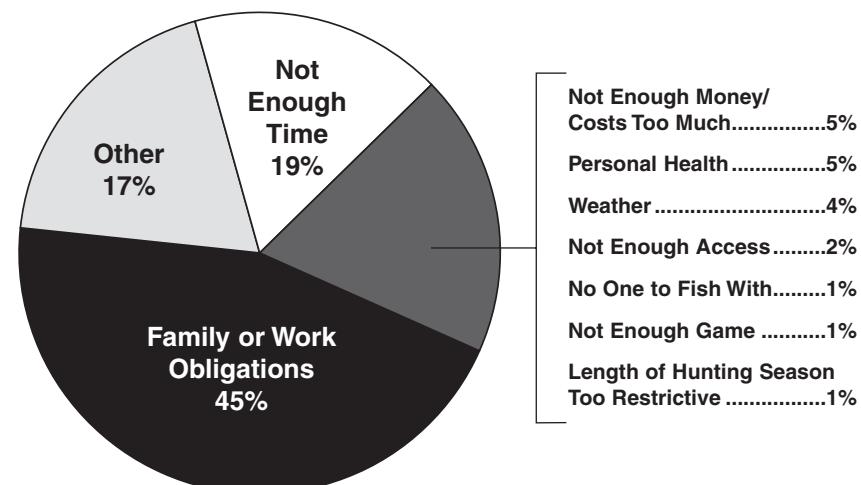
Chickadee Checkoff Funds Decline		
YEAR	TOTAL GIVEN	PERCENT OF TAXPAYERS GIVING
1984	\$115,794	5.34%
1985	\$129,122	5.96%
1986	\$112,319	5.41%
1987	\$114,353	5.19%
1988	\$103,682	4.75%
1989	\$93,803	3.65%
1990	\$88,078	3.23%
1991	\$92,632	3.42%
1992	\$95,533	3.19%
1993	\$82,842	2.80%
1994	\$84,676	1.99%
1995	\$81,775	1.79%
1996	\$90,939	1.95%
1997	\$77,511	1.52%
1998	\$47,397	

Fishermen Reveal What Limits Their Fishing



Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation.

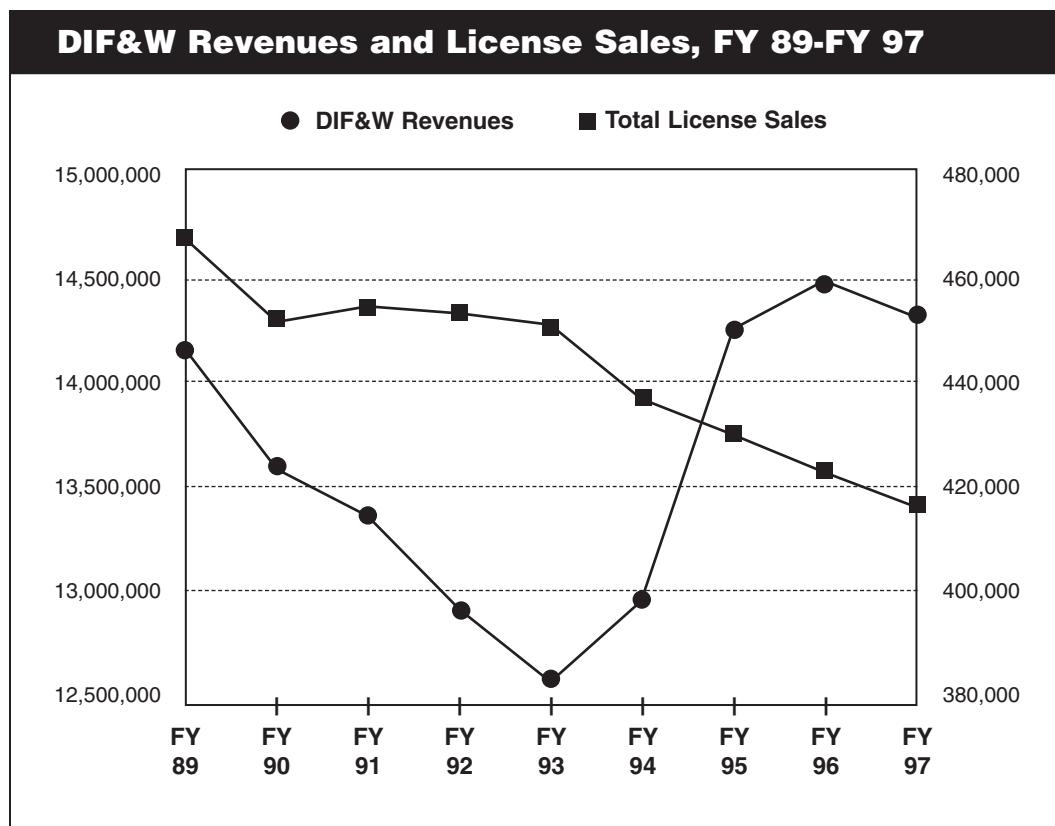
Hunters Reveal What Limits Their Hunting



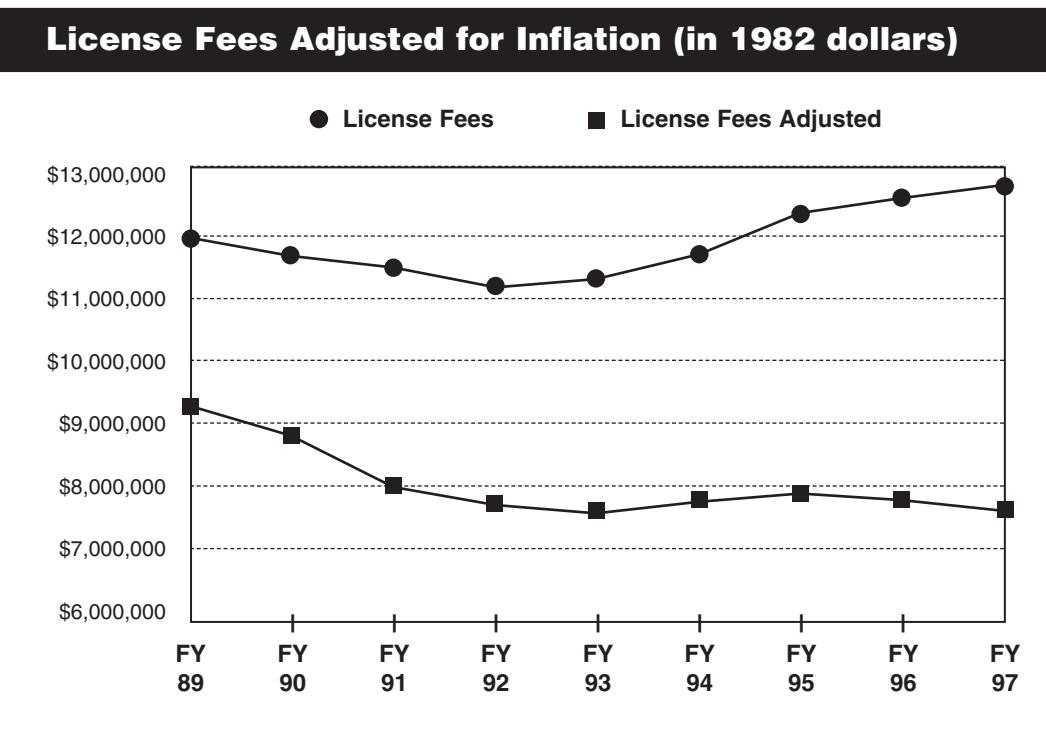
Source: 1996 National Survey of Hunting, Fishing, and Wildlife Associated Recreation.

Projects have included work to improve the management of Maine's fresh water mussels, a survey of dragonflies and damselflies, a quality landlocked salmon initiative, a habitat inventory for rare animals and important habitat in downeast Maine, wolf and lynx detection surveys in northern Maine, and a traveling school exhibit detailing Maine's imperiled species. The fund also awards grants to acquire habitat and recreational lands as well as grants that support Maine's Warden Service's enforcement efforts. The fund, however, receives many more requests than it is able to fund and projects that would have tracked the population trends of harbor seals or identified the habitat of juvenile cod were not funded despite concerns over these particular animal populations.

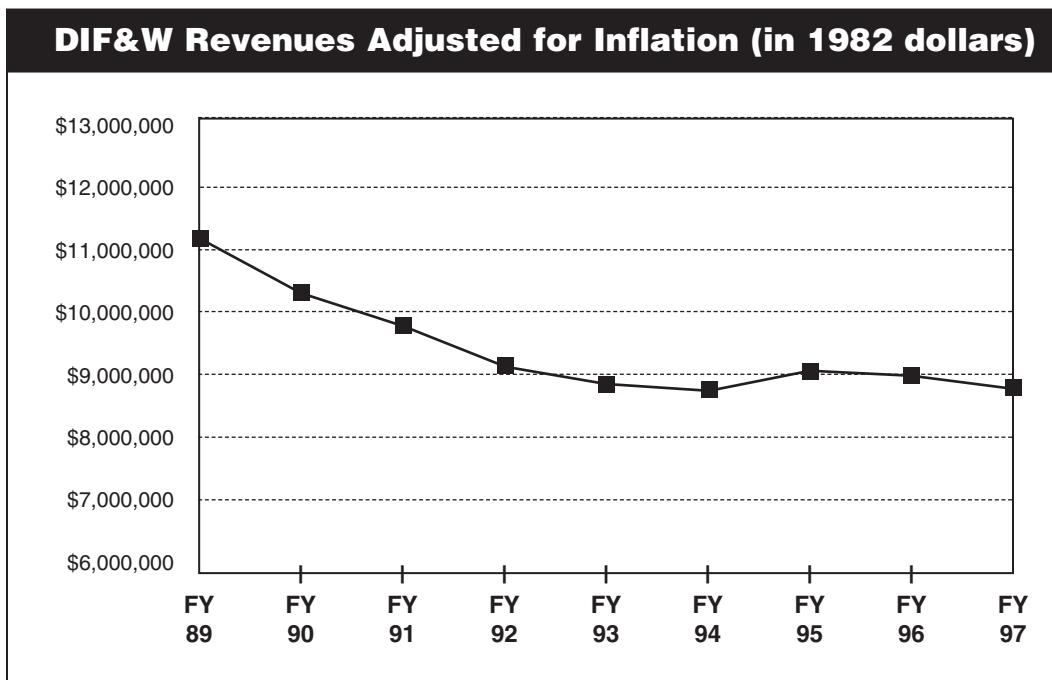
With growing disparity between revenue generated by license sales and revenue dedicated to non-game species, DIF&W reorganized to remove the distinction



Source: Maine Department of Inland Fisheries and Wildlife Program Evaluation report, November, 1997.



Source: Maine Department of Inland Fisheries and Wildlife Program Evaluation report, November, 1997, and data from U.S. Bureau of Labor Statistics.



Source: Maine Department of Inland Fisheries and Wildlife Program Evaluation report, November, 1997, and data from U.S. Bureau of Labor Statistics.

between game and non-game programs, shifting its research and management efforts to a number of resource groups and giving all regional biologists non-game responsibilities. By organizing the research and management activities of DIF&W into a bird group, a mammal group, a habitat group and a group for threatened and endangered species, the department hoped to establish a "wildlife" agency and avoid competitiveness within the department. As a result, money spent to protect or manage a certain habitat for a non-game species would benefit game species that depend on the same habitat and vice versa.

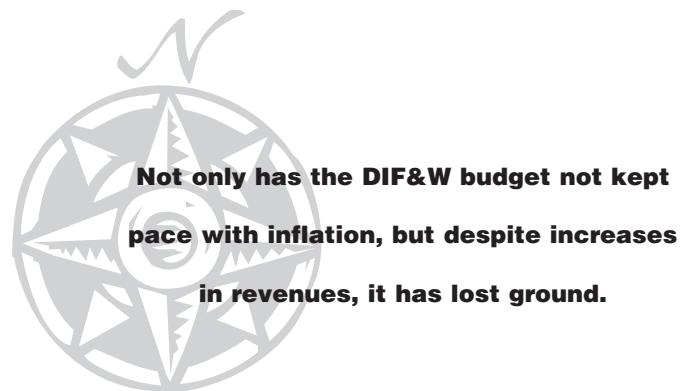
After an attempt in 1993 to allocate a portion of DIF&W revenues for use in other agencies, the State Constitution was amended to ensure that the license-based revenues of DIF&W were not used for purposes other than fish and wildlife management. The Sportsman's Alliance of Maine was a principal player in this referendum. This successful effort gave DIF&W a degree of financial certainty and assured license holders that their fees would be dedicated to the resource they valued, but it also established DIF&W's dependence on its own revenue-generating mechanisms.

The annual budget for DIF&W is based on projected revenues from license sales each year. If actual revenues fall short of projections, Maine's legislature may authorize the department to draw upon the "unobligated fund," a cash reserve fund that accumulates in the years when revenues exceed projections. The legislature has given DIF&W some emergency financial assistance. When DIF&W did not meet its revenue projections in FY 1996, the legislature authorized DIF&W to draw an additional \$1 million from the reserve fund to cover unmet obligations. In fiscal years 1997 and 1998 the legislature authorized, at the request of the Governor, an additional grant of \$250,000 each year from the General Fund for the Maine Warden Service. This money supports the search and rescue function of the Warden Service and underwrites other services the wardens provide to the general public. Requests for scientific support, however, have been less successful. Several requests

for financial assistance to revive and continue the Significant Mapping program that locates important habitat for wildlife most at risk in Maine, have been rejected by the legislature. Lack of resources to complete mapping projects has contributed to the department's new focus on voluntary landowner agreements.

Perhaps more significant than the decline and fluctuations in numbers of people who hunt and fish is the impact of inflation on DIF&W revenues. From 1989 to 1997, license fees rose by \$746,000, but overall revenues for DIF&W rose only 0.87%, a mere \$124,000. In the interim, however, inflation has had a significant impact on the power of those revenues. A conversion of each year's revenues into standard 1982 dollars using the Consumer Price Index suggests that the financial impact of DIF&W revenues has declined gradually over the decade. When adjusted for inflation, revenues for FY 1997 are 14.5% lower than in FY1989, the high point in the last ten years.

Not only has the DIF&W budget not kept pace with inflation, but despite increases in revenues, it has lost ground. When the negative effects of inflation are added to the fluctuations and declines in the number of licenses being sold and resistance to increasing license fees, DIF&W's struggle to maintain services and expand programs becomes clear.



1998 ATTEMPTS TO INCREASE REVENUES AND BALANCE DIF&W'S BUDGET

THE DIF&W'S BUDGET WAS BALANCED in FY 1998 for the first time since 1995. Recent funding mechanisms are now more diverse, but funding is still drawn largely from sport and game users, and many of DIF&W's wildlife programs have been limited by budgetary constraints. As DIF&W Commissioner Lee Perry said, "We've seen a few promising signs, but it's certainly not a major turn around."⁴⁵

Balancing DIF&W's budget, however, meant a reduction in staff working on wildlife issues as well as other innovative methods to retain and receive revenue. A recent story in the *Maine Sunday Telegram* summed up last year's budget balancing attempts, saying that in 1998, DIF&W "trimmed expenses by \$900,000, mostly by keeping positions vacant. About \$1.2 million in new revenue was created by increasing recreational vehicle fees, charging other agencies for collecting those fees and expanding options to win a moose permit. Increases in registration fees for recreational vehicles also raised a substantial amount of money, but the department gained even more by, for the first time, passing on the cost of collecting those revenues. In addition to increasing revenues, the Department has returned to its previous policy of closely tracking license sales and adjusting projected expenditures accordingly."

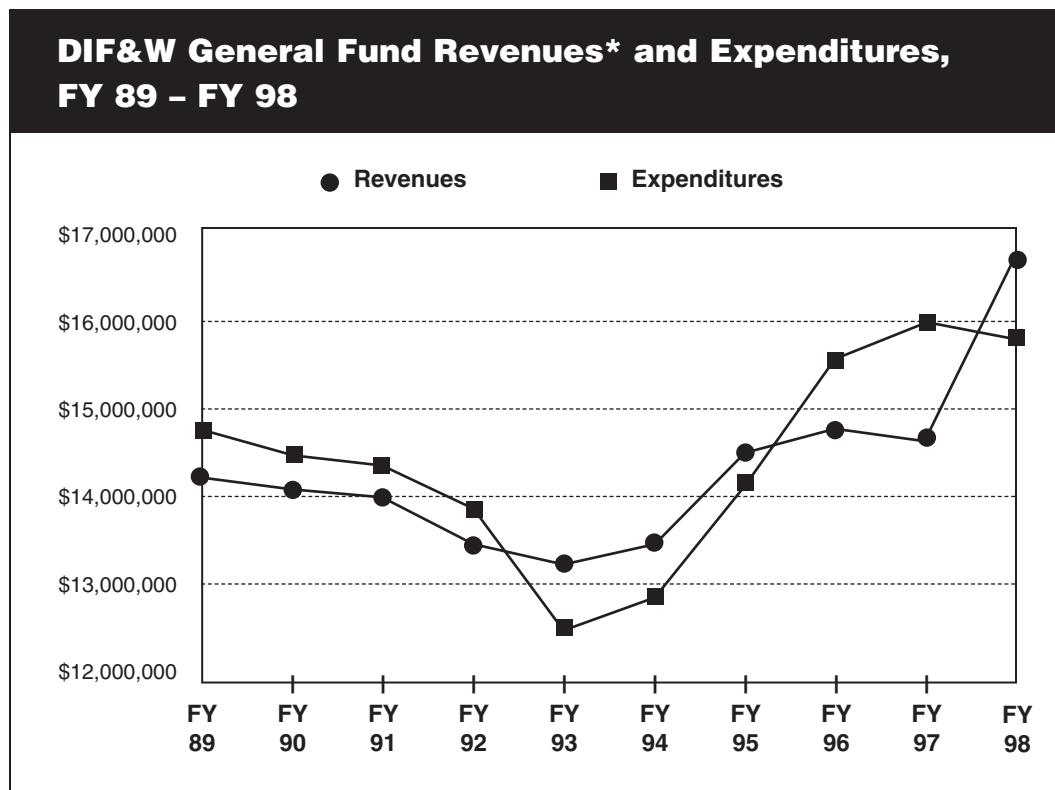
The DIF&W does consider increasing fees for hunting and fishing licenses to generate more revenue but the department often meets with resistance from the legislature and sporting lobbyists. Without a clear mandate to raise fees, DIF&W must try to sell more sporting licenses. Since both state and national trends project that fewer and fewer people will enter the sport of hunting, and fishing will sustain, at best, only moderate growth compared to other recreational pursuits, selling more licenses to meet future wildlife needs is not an effective solution.

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⁴⁵ Teisl and Boyle, p.1.

DIF&W is locked into a declining revenue sector as it tries to take care of Maine's wildlife. An editorial in the *Kennebec Journal* captured this dilemma: "Several years ago, the voters of Maine dedicated the license revenues received by DIF&W to the Department. While DIF&W does get some help from the state and federal governments, most of its budget now depends upon continued strong license sales. Thus, unless the Department continues to provide people with good reasons to buy licenses, any return to financial health will be short lived."⁴⁸ Dependence on a declining and variable sources of revenue at a time when wildlife and its habitat are facing increased threats and pressures means that Maine's wildlife protectors at DIF&W will not be able to protect one of Maine's most cherished and valuable assets.



Source: DIF&W Program Evaluation Report, November, 1997.

* Note: General Fund revenues come from licenses, permits, recreational vehicle fees, and sales of miscellaneous items. They do not include federal funds, such as Pittman Robertson funds or dedicated funds such as from the loon license plates.

I N S U M M A R Y

Dependence on declining and variable sources of revenue at a time when wildlife and its habitat are facing increased threats and pressures means that Maine's wildlife protectors at DIF&W will not be able to protect one of Maine's most cherished and valuable assets.

S E C T I O N D

FINDINGS &
RECOMMENDATIONS



FINDINGS

1. Current research on wildlife users and recreational trends indicates that traditional patterns of use are changing; hunting numbers are static or declining. Fishing numbers also indicate little or slow growth. Wildlife watchers are the fastest growing wildlife recreational sector and according to some national studies, wildlife watching is growing faster than most other outdoor recreational pursuits.
2. The wildlife industry brings substantial economic benefits to Maine in the form of spending, jobs, and tax revenues. These benefits are well distributed throughout the state, particularly in rural areas.
3. Threats to Maine's wildlife are steadily increasing. Some of these threats are familiar but increasing, such as the loss of habitat and access; development and fragmentation; and widespread pollution from lead, mercury, and pesticides. Some threats are new such as the intense proliferation of woods roads in Maine's forests.
4. Sportsmen, through their purchases of licenses, registration, and equipment have been the primary supporters of Maine's wildlife agency.
5. Game species, for the most part, are thriving, while many nongame species are at risk. Programs to support non-game wildlife and species at risk receive a small portion of DIF&W's budget.
6. One of the most significant threats to Maine's wildlife is DIF&W's lack of resources to conduct research, mapping, land acquisition activities, and enforcement of fish and game laws.
7. DIF&W's dependence on sporting license fees to fund much of the department's work places Maine's wildlife populations and outdoor traditions at risk.
8. Maine has an extensive array of wildlife stakeholder organizations either directly involved in wildlife conservation or indirectly involved in work that protects habitat. While collaboration, consultation, and partnerships with these organizations and DIF&W are numerous, there is no coordinated state system to harness these groups' efforts on behalf of all wildlife users and animal species.

RECOMMENDATIONS

DURING THE PAST FEW YEARS, many states have studied the value and role of wildlife, evaluating the effectiveness of wildlife organizations and agencies that care for this resource. Missouri, Georgia, Virginia, and Minnesota have all created plans or legislation that put in place new policies, programs, and methods to cope with the unmet needs of wildlife populations and recreational users.

A recent Minnesota study committee concluded that the "State's fish and wildlife habitats were deteriorating due to increasing demands for recreation, accelerated loss of habitat, and lack of investment by the State into conserving these natural resources. At risk were the State's natural ecosystems, the hunting, trapping, fishing, and wildlife watching heritage these ecosystems supported, as well as the many businesses and industries that depended on these activities." Maine clearly shares the same threats to its wildlife populations and traditions.

A Minnesota citizens' committee identified several areas in need of attention: habitat and ecosystems; conservation knowledge and education; quality of the experience; access to experiences; leisure time trends; legislative and financial support; and the civic responsibility of individuals and organizations. It is time for Maine to also evaluate and secure its wildlife populations and recreational assets. Maine's solutions will indeed be unique to Maine.

Maine Audubon recommends:

1. Establishing a state study commission to explore the value of Maine's wildlife and wildlife traditions and suggest comprehensive solutions that will secure Maine's wildlife legacy into the 21st century.

This study commission should examine the needs of Maine's fish and wildlife; evaluate whether each of these needs is being met or unmet; evaluate what is at risk if the unmet needs continue to be unmet; review other states' related studies, programs, organizational structure, and budgets; examine the full financial contribution of Maine's recreational wildlife industry; examine whether the structure, tasks, resources, programs and funding of wildlife conservation are

appropriate to secure both wildlife as an economic resource and as a valued Maine heritage; and recommend strategies, actions and solutions that are necessary to secure Maine's wildlife heritage. The study commission should also explore opportunities for bringing the Maine Natural Areas Program (responsible for the protection of rare plants and plant communities) into closer alliance with DIF&W.

2. That DIF&W work directly with Maine's State Planning Office to review the state's economic planning entities and planning initiatives whose work affects wildlife and develop recommendations for integrating habitat conservation into the process of economic planning and development throughout the state.
3. That Maine's DIF&W, working with experienced recreational providers and the Office of Tourism, develop a nature-based tourism code of ethics and guidelines to guide wildlife recreation providers and tourism business owners.
4. That Maine provide an on-going, regular source of funding for acquisition of conservation lands and easements that benefits the needs of wildlife and wildlife recreationists.
5. That DIF&W establish annual "Wildlife Forums," modeled after the successful "Sportsmen's Forums" to better exchange information about how well DIF&W is meeting the needs of the general public.
6. That the Nongame Advisory Committee be charged with developing a five-year strategic plan for addressing nongame research priorities, management plans & funding opportunities.
7. That Maine's Land Use Regulation Commission (assisted by DIF&W and appropriate stakeholder groups) evaluate existing road building criteria and permit procedures to determine if Commission oversight and activities are sufficient to retain the health and integrity of Maine's watersheds and wildlife habitat.

S E C T I O N E

APPENDICES

MAINE'S WILDLIFE STAKEHOLDERS ARE numerous, varied, and often focus their efforts toward specialized agendas which may include wildlife science and research, wildlife conservation, representation of various recreational user groups, efforts to solve environmental hazards, or conservation activities (such as land protection) that affect wildlife habitat.

Appendix A lists wildlife stakeholders who have a history of collaboration with DIF&W. This list may not include every group who has worked with DIF&W; it does, however, summarize the work of groups who most frequently work with DIF&W.

Appendix B is a more extensive list of wildlife stakeholders in Maine. It attempts to identify state and federal entities and private organizations whose work benefits wildlife either directly or indirectly through various conservation initiatives. This list may not include every wildlife stakeholder in Maine; Maine Audubon hopes to continually update its list of wildlife stakeholders and look for new forums where groups may work together for the benefit of all the state's wildlife.

A P P E N D I X A

Wildlife Stakeholders' Relationships with DIF&W

WHILE MANY MAINE ORGANIZATIONS AND BUSINESSES pursue wildlife projects and habitat conservation independently from DIF&W, most all significant wildlife or habitat conservation work in the state involves some level of partnership or consultation with DIF&W's staff and biologists. Examples of partnership and collaboration indicate not only the extensive network of DIF&W interactions with groups outside its offices, but this list also indicates that, in reality, watching out for Maine's wildlife is a complicated process with many different participants. These external relationships also reveal varying levels of influence and involvement with DIF&W and they demonstrate various DIF&W choices and priorities as it works to fulfill its wildlife mission.

Maine Audubon Society

Maine Audubon usually interacts with DIF&W on specific species issues, field research, and various programs that emphasize science and habitat mapping; their most important collaborative efforts focus on endangered and threatened species and conservation of vernal pools. MAS manages the Department's piping plover and least tern project, conducting all of the field work and administration and underwriting the project with \$20,000 per year. MAS has also cooperated with the department on a vernal pool mapping and education project, which has produced a set of Best Management Practices for these important amphibian breeding sites. This project was partially supported by a grant from the Maine Outdoor Heritage Fund sponsored by DIF&W.

MAS participates in relatively few DIF&W committees but has always taken part in the Non-Game Advisory Committee, recently requesting that the committee be fully staffed and that its role in agency decisions and policies be enlarged. On one occasion, MAS was included in a series of citizen planning meetings to determine recovery goals for the piping plover. Other interactions between the two organizations involve cooperative fieldwork and initiatives to track, count, monitor, protect or observe wildlife. Maine Audubon has worked hard to return the authority for listing endangered species to DIF&W. Recent legislation created legislative review and approval for listed species and returning these decisions to state biologists is one of Maine Audubon's most important policy initiatives concerning DIF&W.

MAS has been a consistent supporter of efforts to raise more money for the non-game wildlife and endangered species programs in DIF&W. MAS has worked to create and then protect the chickadee check-off, the loon license plate program, and the Maine Outdoor Heritage Fund (MOHF). Maine Audubon conducted the successful statewide campaign to gather signatures for the ballot initiative that created the MOHF.

The Sportsman's Alliance of Maine

SAM has an extensive relationship with DIF&W that is equal parts critic, partner, and advocate for the agency; its work is focused on maintaining healthy populations of game animals and pursuing various advocacy efforts on behalf of its sportsmen members. Although SAM has described itself as a "watchdog" over the agency, it seems that SAM is equal parts critic, partner, and advocate for the agency. SAM has been included in almost all DIF&W initiatives, committees, councils, and advisories that have to do with establishing, revising or evaluating department policies. In fact, because many people who are interested in fish and wildlife matters are also members of SAM, there are often more than the official numbers of SAM representatives in these bodies.

SAM has been a full-fledged partner in many DIF&W projects, including the campaign to protect the moose hunt in 1983 and the 1993 campaign to amend the state constitution to protect DIF&W's dedicated revenues. In many cases, the department endorses and advocates for bills that are proposed by SAM, such as the moose hunt increases of 1996, 1997, and 1998. Recently, the department, at the urging of the Governor, endorsed SAM's initiative to clarify and simplify the rules governing fishing and hunting. DIF&W has also sponsored six proposals for Maine Outdoor Heritage Fund grants to support SAM projects, and at one point, SAM and the department were business partners in a conservation art program which was projected to raise as much as \$700,000 to be split between the two parties.

SAM has worked with DIF&W on several Maine Outdoor Heritage Fund Grants, including the creation of an informational video designed to teach sportsmen more effective catch and release fishing techniques. With a history of vigorous support as well as strong, public criticism for the Maine Warden Service (MWS), SAM has made it clear that oversight of the Warden Service is a priority.

SAM is clearly in partnership with the department, and since the majority of SAM's priorities fall under the jurisdiction of DIF&W, SAM's interest lies in having influence with the department and the legislative committee that oversees it.

The Maine Professional Guides Association

The Maine Professional Guides Association (MPGA) maintains a consulting and advisory role with DIF&W and its volunteers are active on legislative issues directly affecting guides. The MPGA is in regular communication with DIF&W. Quarterly meetings with the Commissioner and other DIF&W officials offer an opportunity to raise issues, make suggestions or discuss department projects. MPGA also works in the legislature to support or criticize DIF&W legislation as it applies to wildlife management and the Maine Guides.

The Maine Council of Trout Unlimited

Volunteer members of the Maine Council of Trout Unlimited (TU), while not represented regularly on DIF&W committees, are often active in various district management issues such as the determination of water levels above and below dams and regional management plans that affect fish populations and recreational options. TU has a well established working relationship with DIF&W fisheries biologists. Members of the council are frequent visitors to DIF&W regional offices, and biologists are regularly invited to speak at TU meetings. The organization has worked with DIF&W on some hydropower relicensing projects, but restricts its cooperation to those circumstances when it agrees with DIF&W's approach. Trout Unlimited is not represented on any DIF&W committees or advisories. The national organization of Trout Unlimited has supported genetic research on Maine's brook trout with grants to DIF&W of approximately \$10,000 to \$12,000 for the last few years, and the national organization has also provided a \$50,000 matching grant for a Maine Outdoor Heritage Fund proposal for restoration work on the Sheepscot River.

The Maine Trapper's Association

The Maine Trappers Association (MTA) consults with DIF&W on regulatory issues; it has recently expanded its work to include increased consultation on species management. **MTA has close relationships with the DIF&W.** In most cases involving changes to rules or regulations affecting trapping, the MTA has been an active part of the process. The director of the MTA has been invited to participate in the DIF&W Animal Control Committee, as well as the Warden Service Rules and Regulations Committee. MTA has collaborated with the DIF&W on a number of projects, including development of a set of Best Management Practices for each species that is trapped in Maine. Late last year, the department requested that the MTA executive director, a former game warden, rewrite the trapping section of the wildlife regulations to clarify the language and ensure uniform enforcement of the laws statewide.

Maine Coast Heritage Trust

The Maine Coast Heritage Trust (MCHT) works with DIF&W to protect important wildlife habitat through conservation easements and various acquisitions throughout Maine. MCHT has negotiated many projects in conjunction with the DIF&W. The Trust has participated in four North American Wetlands Conservation Coalition (NAWCC) projects, which were initiated by the Federal Migratory Birds Council and the Maine Wetlands Coalition. DIF&W has accepted at least 80 conservation easements that were negotiated by MCHT staff, and MCHT has conducted some outright acquisitions in cooperation with the department. Frequently on those lands, the easements include strict standards for land and wildlife management. MCHT has worked with DIF&W to set up stewardship monitoring programs to assess and maintain those standards of management. DIF&W has also served to advise MCHT on management plans for lands that DIF&W does not plan to hold and manage.

The Nature Conservancy

The Nature Conservancy (TNC) works with DIF&W to research and locate essential habitat throughout the state and it collaborates on land conservation. TNC interacts with DIF&W in areas that pertain to land and habitat acquisition and management of those lands for wildlife requirements and enhancements. TNC works closely with DIF&W through programs like the Maine Wetlands Coalition and has partnered with DIF&W on numerous grant proposals for Maine Outdoor Heritage Fund grants, Land for Maine's Future grants, and grants through the North American Wetlands Conservation Coalition.

Moreover, DIF&W biologists and TNC staff communicate regularly to identify common priorities and share expertise in the process of making decisions about wildlife management on TNC properties. TNC representatives also serve on a variety of DIF&W committees and oversight advisories.

The Atlantic Salmon Federation

The Atlantic Salmon Authority is an independent state authority, which oversees efforts to manage the Atlantic salmon. The Atlantic Salmon Federation, an organization dedicated to the protection and return of the Atlantic salmon to North American rivers, has relatively little contact with the DIF&W because the Atlantic Salmon Authority is the agency primarily responsible for this species in Maine. The ASF and DIF&W do interact in certain specific areas like hydropower relicensing or the management of certain cold water species, particularly land-locked salmon.

The Coastal Conservation Association of Maine

The Coastal Conservation Association of Maine interacts with DIF&W on fishery issues that affect fish passage and migrating fish populations. It is similar to the ASF because it has limited interaction with DIF&W and its focus is primarily on salt-water fisheries. It has, however, had limited interactions with DIF&W on specific issues such as restricting elver harvest above some of the dams blocking spawning rivers, stocking alewives in freshwater ponds, and establishing similar freshwater and saltwater fishing regulations for certain anadromous species like trout and bass.

Corporate Forest Landowners

Landowners participate and work with DIF&W staff on various solutions to recreational management, access and posting issues that affect private forest lands, working through the Governor's Council on Landowner Sportsman Relations. Maine's forest landowners collectively own almost 10 million acres of wildlife habitat. DIF&W works to supply species and habitat information to forest managers and to the wildlife biologists several corporations have hired. Forest managers must comply with various species and habitat regulations and plans or requests to harvest in sensitive wildlife areas are often reviewed and

conditioned by DIF&W biologists. Recently, DIF&W created Cooperative Management Agreements with several corporate landowners. These innovative plans for managing Maine's deer herd regulations that were not adequate for protecting extensive deer habitat.

University of Maine

The University's relationship with DIF&W centers on research and consultation with scientists and resource professors. University of Maine professors and graduate students often conduct research at the request of DIF&W. Current field research on lynx is a good example of this arrangement. Maine Outdoor Heritage Funds also support graduate student work requested by DIF&W; research on the effects of hunting on woodcock is the most recent example. DIF&W consults with various resource professors and often recommends them for participation on various department committees. The university is also involved in collaborative projects that include DIF&W and other organizations; the U.S. Fish and Wildlife's project to create landscape modeling that will assist communities with wildlife conservation is a joint effort between this federal agency, the university, and DIF&W.

U.S. Fish and Wildlife Service

The U. S. Fish and Wildlife Service interacts with DIF&W on selected species and habitat issues. This agency has several offices in Maine and a number of wildlife refuges. Its Cooperative Research unit is housed at the University of Maine and works with professors and students on shared projects that also include DIF&W. Refuge managers confer with DIF&W over refuge issues and species management when their projects involve each other's work. During recent efforts to expand the Petite Manan Wildlife Refuge, it was necessary for U.S. Fish and Wildlife to discuss various protection strategies for sensitive sea bird nesting islands with DIF&W who has current management supervision on many islands.

A P P E N D I X B

Maine's Wildlife Stakeholder List

Note: This list may not be comprehensive, but it includes organizations directly concerned with wildlife conservation as well as groups or entities whose missions contribute to the conservation of wildlife habitat.

Acadia National Park	(207) 288-3338
Appalachian Mountain Club, Maine Chapter	(207) 767-2880
Appalachian Mountain Club, NRCM	(207) 622-4380
Appalachian Trail Club, Maine	(207) 453-7722 or (207) 453-9301
Atlantic Salmon Federation	(207) 725-2833
Baxter State Park	(207) 723-9616
Bowdoin College, Environmental Studies Center	(207) 725-3628
Bureau of Parks and Lands, Maine Department of Conservation	(207) 665-2068
College of the Atlantic	(207) 288-5015
Congress of Lake Associations	(207) 846-4271
Conservation Education Foundation of Maine	(207) 665-2068
Conservation Law Foundation	(207) 594-8107
Darling Center (Maine Biology/Conservation)	(207) 563-3146
Ducks Unlimited, Maine State Committee	(207) 657-2555
Eagle Hill Wildlife Research Station	(207) 546-2821
Fields Pond Sanctuary	(207) 991-9858
Forestry Ecology Network	(207) 623-7140
Forestry Society of Maine and New Hampshire	(603) 244-9945
Friends of Acadia	(207) 288-3340
Friends of Casco Bay	(207) 799-8574
Garden Club Federation of Maine	(207) 288-3709
Gulf of Maine Aquarium	(207) 772-2321
Gulf of Maine Estuary Project	(207) 781-8364
Island Institute	(207) 594-9209
Lakes Environmental Association	(207) 647-8580
Land Use Regulation Commission, Maine Department of Conservation	1-800-452-8711
Maine Association of Conservation Commissions	(207) 623-4850
Maine Association of Conservation Districts	(207) 778-3835
Maine Association of Planners	(207) 774-9891
Maine Audubon Society, Downeast Chapter, Ellsworth	(207) 244-7126 or 288-5746
Maine Audubon Society, Falmouth	(207) 781-2330
Maine Audubon Society, Penobscot Valley Chapter, East Holden	(207) 843-5560

Maine Audubon Society, Schoodic Chapter.....	(207) 726-5091
Maine Bowhunters Association	(207) 377-8416
Maine Coast Heritage Trust	(207) 729-7366
Maine Conservation School.....	(207) 581-2580
Maine Cooperative Fishery Research Unit	(207) 581-2870
Maine Department of Environmental Protection	1-800-452-1942
Maine Department of Inland Fisheries and Wildlife	(207) 287-8000
Maine Department of Marine Resources.....	(207) 624-6550
Maine Environmental Education Association.....	(207) 882-7323
Maine Farm Bureau Association	(207) 622-4111
Maine Forest Products Council.....	(207) 622-9228
Maine Forest Service	(207) 289-2431
Maine Green Party	(207) 843-5269
Maine Organic Farmers and Gardeners Association.....	(207) 622-3118
Maine Professional Guides Association	(207) 528-2183
Maine Puffin Project	(207) 529-5828
Maine Science Teachers Association.....	(207) 524-2048
Maine State Soil and Water Conservation Commission.....	(207) 287-2666
Maine Wolf Coalition	(207) 445-2669
Manomet Observatory for Conservation Science	(207) 224-6521
National Audubon Society, Hog Island.....	(207) 564-7946
National Audubon Society, Borstine.....	(207) 997-3607
National Audubon Society, Maine Representative Office.....	(207) 564-7946
■ Central Highlands Audubon Society, Greenville	
■ Merrymeeting Audubon Society, Brunswick	
■ Mid Coast Audubon Society, Jefferson	
■ Prouts Neck Audubon Society, Bluff & Stratton Islands (seasonal)	
■ Western Maine Audubon Society, Temple	
■ York County Audubon Society, Kennebunk	
Natural Areas Program	(207) 287-8045
Natural Resources Council of Maine	(207) 622-3101
New England Forestry Foundation	(978) 448-8380
North Maine Woods	(207) 435-6213
Petit Manor Refuge.....	(207) 546-2124
Rachel Carson Wildlife Refuge	(207) 646-4226
Restore the North Woods	(207) 626-5635
Southern Maine Sea-Kayak Network.....	(207) 874-2640
Sierra Club, Maine Chapter	(207) 761-5616
Small Woodlot Owners Association of Maine	(207) 626-0005
Society of American Foresters	(207) 622-4023
Southern Maine Regional Planning Commission	(207) 324-2952
Sportsman's Alliance of Maine	(207) 622-5503

The Chewonki Foundation.....	(207) 882-7323
The Nature Conservancy	(207) 729-5181
Threshold to Maine Rural Conservation and Development (RC&D) Area	(207) 657-3131
Time and Tide Rural Conservation and Development (RC&D) Area	(207) 832-5348
Trout Unlimited, Maine Council	(207) 236-7120
The Wildlife Society, Maine Chapter	(207) 581-2939
U.S. Fish and Wildlife Service	(207) 827-5938
Unity College, Environmental Studies	(207) 948-3131
University of Maine Cooperative Extension	(207) 581-3240
University of Maine, Farmington -Department of Natural Sciences,	(207) 778-7395
University of Maine, Machias - Institute for Field Ornithology.....	(207) 255-1289
University of Maine, Orono - Environmental Studies Center	(207) 581-3244
University of Maine, Orono - Wildlife Ecology Department.....	(207) 581-2862
Wells National Estuarine Research Reserve.....	(207) 646-1555
Wild Birds Unlimited.....	(207) 236-4170
Woodlot Alternatives.....	(207) 729-1199