



Vermont Fish and Wildlife Department Strategic Plan 2006 – 2010



Strategic planning is a process to envision the future and develop the necessary procedures and operations to successfully accomplish the department's mission.

“The mission of the Vermont Fish and Wildlife Department is the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected.”

This plan identifies critical trends and concerns that impact the department's ability to achieve the goals of our programs. It identifies strategies to address these trends and concerns. And the plan provides performance measures to mark progress toward goals in each of our programs. This plan will guide us for the next five years from 2005 through 2009 and help us to effectively accomplish our mission.

Approved and adopted:

Wayne A. Laroche, Commissioner

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Strategic Plan Overview

Vermont Fish and Wildlife Department's strategic plan focuses the department towards four major areas of concern: resource conservation, fish and wildlife-based recreation and use, human health and safety, efficient operations, and effective management. The department has developed measurable indicators of achievement to monitor the department's progress towards specific outcomes. We will measure the results and hold ourselves accountable to these achievements.

The resource conservation section of the plan emphasizes the vital importance of conservation of all species of fish, wildlife and plants, and their habitats. The department will continue to be a good steward of the habitats necessary for fish, wildlife, and plant populations to survive and thrive into the future. This section of the plan addresses actions intended to conserve the natural habitats of individual species as well as natural communities of species. This section describes actions that will be taken by the department to monitor the abundance, distribution, and diversity of fish and wildlife species; it provides a course for management of habitat, species, and communities; and it describes efforts needed to engage the public in discussion of the needs and benefits of land conservation and stewardship.

The recreation and utilization section focuses on encouraging use of these renewable natural resources by improving user satisfaction through provision of a diversity of fish and wildlife recreation and use opportunities. This section describes actions that the department will take to control the magnitude, frequency, and distribution of recreational and other use activities to ensure that the ecological limits of the resources are not exceeded so that these resources may be sustained without degradation through time. Hunting, fishing, trapping, and wildlife viewing have a long heritage in Vermont. Wildlife viewing has been steadily increasing in popularity with the general public. The department recognizes that participation in fish and wildlife-based activities is valuable and significant to the long-term welfare of these resources because a public that participates in use is generally a public that cares and appreciates the resource. There is an innate interest among the public, for natural resource stewardship is key to the success of the department's efforts to maintain habitat, species and ecosystem integrity in the face of competing desires for housing, industry, and infrastructure. Caring and appreciation for economic and social values involving people's quality of life provide our greatest hope for support towards successful conservation and stewardship.

The human health and safety section of this plan details an aspect of the department's responsibilities that is often overlooked by the public, but which impacts the day-to-day quality of life for many Vermonters. The department strives to limit the number of harmful encounters that the public has with wildlife through a variety of actions. Game wardens, biologists, and other staff respond to or assist in emergency incidents of many kinds involving diseased or injured animals, search and rescue, importation and possession of dangerous wildlife, and routinely enforce a host of laws that protect human health and safety of the general public.

The Fish and Wildlife Department must manage effectively and operate efficiently in order to attain its mission and goals given limited resources. Based upon surveys of our performance compared to performance of other state fish and wildlife agencies, we have identified factors that contribute to efficient operations, effective management, and performance of the department. These factors will be assessed to identify areas where new strategies can be developed to improve management effectiveness and efficiency and performance of the department.

This strategic plan will provide guidance in the conservation and sustainable use of Vermont's fish and wildlife resources and provide a means for measuring management effectiveness and efficiency as well as performance of the department.

The plan looks to the following goals to move the department forward in meeting the challenges of the future.

GOAL A: Conserve, enhance and restore Vermont's natural communities, habitats, and plant and wildlife species along with the ecological processes that sustain them.

Outcome I: Conserve, enhance and restore habitats, natural plant and animal communities, and ecosystem integrity to maintain wildlife and ecological values in Vermont.

Outcome II: Conserve and restore Vermont's fish, wildlife, and plant species to maintain ecosystem integrity for the benefit of the public.

Outcome III: Increase public support and understanding of land conservation issues, and promote and facilitate a land stewardship ethic in Vermont.

GOAL B: Provide a diversity of safe and ethical fish and wildlife-based activities and opportunities that allow hunting, fishing, trapping, viewing, and the utilization of fish, plants and wildlife resources consistent with the North American Model of fish and wildlife conservation.

Outcome IV: Provide hunting, fishing, and trapping opportunities consistent with resource management goals and within ecological limits.

Outcome V: Provide viewing and photographing opportunities of fish and wildlife consistent with resource management goals while ensuring the protection of the observed species.

GOAL C: Maintain safe fish and wildlife-based activities and limit harmful human encounters with fish and wildlife species, and provide general public safety service incidental to our primary fish and wildlife duties.

Outcome VI: Limit the number of human conflicts, injuries, and fatalities that result from encounters with wildlife or participation in fish and wildlife recreational activities.

GOAL D: Efficient operations and effective management of the Fish and Wildlife Department.

Outcome VII: Improve management effectiveness and efficiency.

Mission and Philosophy of the Vermont Fish and Wildlife Department

The Preamble to the Department Mission and Philosophy

We, as employees of the Vermont Fish and Wildlife Department, are public servants and stewards of Vermont's fish and wildlife resources. Our every power is derived from law, and our only authority is that given us by the people of Vermont. The following articles of Vermont Law and the State Constitution and the following mission statement express our philosophy, and constitute our vision of our mandate.

Mandates

The Fish and Wildlife Department is specifically charged with promulgating rules, through the Fish and Wildlife Board and the Commissioner, enforcing those rules and procedures, and conducting programs that implement the following policy statements.

“That all power being originally inherent in and consequently derived from the people, therefore, all officers of government, whether legislative or executive, are their trustees and servants; and at all times, in a legal way, accountable to them” (Vermont Constitution, Chapter 1, Article 6).

“The inhabitants of this State shall have liberty in seasonable times, to hunt and fowl on the lands they hold, and on other lands not enclosed, and in like manner to fish in all boatable and other waters (not private property) under proper regulations” (Vermont Constitution, Chapter 2, Article 67).

“It is the policy of the state that the protection, propagation, control, management, and conservation of the fish, game, and furbearing animals in this state is in the interest of the public welfare, and that safeguarding of these valuable resources for the people of the state requires a constant and continual vigilance” (10 V.S.A. Section 4081).

Mission Statement

The mission of the Vermont Fish and Wildlife Department is the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected.

Department Philosophy

We believe that fish and wildlife resources are part of the natural systems that sustain us all and add meaning to our lives. We believe it is desirable and appropriate for people to utilize and enjoy fish and wildlife resources.

To carry out our mission we must communicate with the public about the economic, educational, and scientific values of fish and wildlife and their habitats, and the outcomes of human interactions with those resources. We acknowledge the importance of the public's role in enabling our work, and encourage citizen participation in our resource management. The department remains committed to pursuing partnership opportunities in pursuit of effective delivery of conservation, recreation, and education initiatives.

Introduction

This document is the Vermont Fish and Wildlife Department's third strategic plan. It is a revision of the 2001-2005 Department Strategic Plan, which was initially developed by teams comprised of representatives from each major department work unit. This plan was reviewed and updated with the Vermont Agency of Natural Resources, Department, and public input. The organization of this plan closely follows the previous plan with some terminology changes to better match the current Agency strategic plan structure.

Other changes to the plan primarily involve consolidation, including:

- Shortening the review section of each goal;
- Fine-tuning and reducing the number of performance measures to achieve truly measurable indicators;
- Consolidating the goals specific to angling and hunting into one goal of fish and wildlife harvest, since these two goals originally contained many overlapping strategies;
- Combining strategies where logical and adding new strategies with the guidance of the Agency, Department, and public.

The plan specifies goals and programs that can be achieved by continuing with on-going work that constitutes the backbone of our organization while focusing on actions that will achieve measurable indicators of successful execution. It does not attempt to identify all the work activities of the department. This core work of department employees is too extensive to detail in this plan, and is the foundation of the department's efforts to protect fish, wildlife, and plant resources. Instead, for a strategic approach, the plan emphasizes strategies that enhance the effect of our current core work.

The department's leaders take this document very seriously and will make every effort to implement it. Hopefully, as you read this, you can visualize the positive impact this plan will have on positioning the department to meet its near-term and future challenges.

Background of the Fish and Wildlife Department

The Vermont Fish and Wildlife Department's history extends back to 1886. In that year, the legislature appointed a Board of Fish Commissioners. A decade later this board was given authority over game birds and mammals, and in 1892 the Board of Fish Commissioners was renamed the Fish and Game Commission.

The department has been almost entirely funded from its beginning by a user-pay system of license sales and excise taxes on hunting and fishing equipment. For this reason, game fish and wildlife have always been a major focus of the department; however, the department has always been concerned for the welfare of all fish and wildlife. This is demonstrated by early interest and initiatives to restore the peregrine falcon and loon, and new funding sources that are enhancing these efforts. This interest was formally recognized in 1983 when the department's name was changed from Fish and "Game" to Fish and "Wildlife." Through time, the people of Vermont through its General Assembly have increased and diversified the responsibilities of the department. The department is now responsible for the conservation of all wildlife in its broadest sense: 41 species of reptiles and amphibians, 89 species of fish, 193 species of breeding birds, 58 species of mammals, more than 15,000 insect species, and 2,000 higher plant species, plus fungi, algae, and 80 different types of natural communities.

The Vermont Fish and Wildlife Department is presently staffed by over 120 dedicated people. All are committed to the department's mission of "conserving fish, wildlife, and plants and their habitats for the people of Vermont." These people work at desks, navigate boats, walk through fields and woods, or travel in the department's trademark green trucks every day of the year. They issue licenses, send out films and literature, tag and stock fish, acquire land, weigh deer, monitor threatened and endangered species, respond to animal damage complaints, attend public meetings, evaluate hydroelectric proposals, provide expert testimony before regulatory bodies, and enforce laws to name only a few of their many tasks, duties and responsibilities. On a day-to-day basis, 365 days of the year, the department's staff interact with and serve the public.

As this plan directs attention to new or key strategies, this does not necessarily mean that other on-going activities have been assigned any lesser value or importance. Habitat conservation and management through planning, public education, regulation, acquisition of critical land parcels, and active management of state lands will continue to be pursued. The quality of Vermont's aquatic and wildlife habitats will ultimately determine the ability of the water and land to support healthy fish and wildlife populations. Biologists will continue to inventory, monitor, and manage many different plant, fish and wildlife species, and natural communities. Field methods and systems for data management will be continually improved to more effectively and efficiently target effort and facilitate use. Reliable information capable of quantifying the status and trends among and within Vermont's fish and wildlife populations and habitats is essential to be able to recognize change, identify threats, describe impacts, and direct effective actions to protect and manage populations, habitats, and all resources.

Fish will continue to be stocked in the waters of the state to restore sustainable fisheries and to enhance recreational opportunities.

Wardens will continue to protect fish and wildlife resources from misuse or overuse in accord with the laws and regulations of the state. They will continue to offer assistance in protecting human health and safety, and they will respond to damage complaints.

Education, outreach, marketing, and addressing customer needs will continue to be important activities. We will produce educational materials and programs, participate in selected fairs and outdoor shows, offer training to the public who desire to hunt, fish, or trap, and provide easy ways for the public to purchase licenses.

The department will continue to administer, manage and/or operate its 182 fishing and boating access areas and streambank lands and its 84 wildlife management areas totaling over 125,000 acres, as well as the department's two youth conservation camps and five fish hatcheries. The development of new and better access for wildlife viewing, hunting, fishing, and trapping will continue to be pursued as budgets permit. The opportunity for the public to access Vermont's waters and lands is essential for long-term participation and enjoyment of angling, wildlife harvesting, and viewing experiences.

In sum, the Fish and Wildlife Department already conducts many important activities that have successfully conserved and restored Vermont's abundant fish and wildlife resources, resources that as much as 80 percent of the state's inhabitants enjoy and appreciate. Increasing demands on limited staff time, the challenge of dealing with new management issues, and the complexity of modern problem-solving require us, however, to divert some energy from these tasks, to do some tasks differently, and to undertake some new tasks so we can better effect meaningful change for the future. This plan is intended to help that occur throughout the department.

GOAL A: Conserve, enhance, and restore Vermont's natural communities, habitats, and plant and wildlife species along with the ecological processes that sustain them.

Review

Conserving Vermont's natural communities and habitats is a challenge because 87% of Vermont's land area is privately owned. The Department must constantly improve and expand our efforts to demonstrate to Vermont's citizens the values that natural resources provide. If the department is to effectively help landowners become better stewards of Vermont's natural resources, we must help provide the tools for management.

Human activities in Vermont have significantly increased the rate of movement of non-indigenous species and increased rates of environmental change during the past two centuries. Some changes are inevitable. Some changes may be productive and judged to be "good"; others may be destructive and judged to be "bad." It is the department's job to objectively identify threats that may result in changes that may prove destructive or non-productive to natural communities and the public, to inform the public of such threats, and to devise and implement strategies to reverse or control losses in integrity or productivity that could result from adverse impacts.

Unique sets of physical, chemical, and biological factors or conditions within areas or spaces define their suitability for sustaining the life functions of each life stage of every species of plant and animal in Vermont. These two dimensional areas or three dimensional spaces within which species live and reproduce have specific conditions that sustain life. These areas and spaces are called "habitat." Suitable habitats for many species and life stages overlap, normally bringing together a variety of species and life stages, to form recognizable and complex assemblages of organisms that share resources and interact within some area or space. These assemblages become recognizably distinct based upon the kinds of organisms and habitats assembled. These complex assemblages of organisms sharing habitats and interacting naturally with each other in common spaces or areas are called "natural communities."

The results of the myriad interactions between and among organisms and their environment are called "ecological processes." Ecological processes are dynamic, ever changing. Change in abundance, distribution, and diversity among environmental conditions, within suitable habitat and of species, is constantly occurring across Vermont. All of these variables vary in occurrence, magnitude, duration, and frequency within some range of values across the landscape and through the hours, days, and years. For example, just think of all the variations in weather that you have experienced during your life. All of them had impacts on factors determining suitability of habitats and thus on the lives of plants and animals, at least for a moment in time.

These constantly changing factors all affect the suitability of habitat for Vermont's plant, fish, and wildlife species. When a condition changes to a point that results in any absence of suitable habitat for any life stage of any species for some critical duration of time, that organism will not survive. Simply put, no life form can live long without suitable habitat.

Changes in abundance or distribution of species, extirpation of species and immigration of non-native species into natural communities inevitably cause ecological changes among interacting species and their habitats. When change results in a loss of species, reduction in habitat diversity, or decreased function, change will jeopardize the stability or integrity of ecological processes and may result in loss of ecological integrity and productivity of the community. On the other hand, when change results in increase in diversity of species or habitat as a result of evolution of new species or immigration of non-native species, this may or may not result in increased stability, integrity and productivity within a natural community.

Vermont's landscape has been significantly altered during the past few hundred years by intense human use, resulting in changes in environmental conditions, habitat loss or degradation, loss of native species and introduction of non-native species. Yet, Vermont retains more of its natural heritage than many other parts of the country. Some non-native species, such as rainbow trout and apple trees are well established and have added to the integrity and productivity of Vermont's natural communities while others such as zebra mussels, alewives and Dutch elm disease threaten the integrity and productivity of natural communities and ecosystems. There are some devastating potential threats to Vermont's natural communities and ecosystems that are known to exist in other parts of the world.

As a department, we aim to conserve natural ecosystems and resist changes that may result in loss of ecological integrity and productivity. We recognize that change has been ongoing from the moment that the last glacier receded and exposed the first square foot of Vermont soil. Change is inevitable, is healthy, and will not be stopped while life exists. Natural and human caused environmental changes resulting in habitat loss and introduction of invasive non-native species are the greatest threats to natural ecosystems. Although we can not stop change, the department will resist and seek to control those threats that cause changes that may jeopardize ecological integrity and productivity of our ecosystems. At the same time, we will embrace and encourage those changes that naturally occur or can be achieved through active management to restore or enhance the ecological integrity and productivity of our ecosystems.

The Agency of Natural Resources' "Clean and Clear Action Plan" offers a new and enhanced opportunity to enhance and restore the ecological integrity and productivity of our aquatic ecosystems and could result in important benefits for Vermont's fish and wildlife resources. Recent increases in public awareness of the importance of winter habitat for deer and early successional forest habitats for a variety of species has been demonstrated via public comment and increasing legislative support for habitat work. This increased awareness now presents the department with a new opportunity to obtain better support, to demonstrate the benefits of our work, and to further educate the public about the positive values that investment in natural resource management offers.

Natural Communities and Habitats

Outcome I: Conserve, restore, and enhance habitats, natural plant and animal communities, and ecosystem integrity to maintain wildlife and ecological values in Vermont.

Performance Measures

- 1.1 An increase in the cumulative number of acres of high-value habitats and natural communities conserved through acquisition or easements.
- 1.2 An increase in the number of acres of habitat and shoreline protected through the regulatory process.
- 1.3 An increase in the cumulative number of acres of wildlife management areas managed in accord with duly adopted plans.
- 1.4 An increase in the cumulative number of towns that incorporate protections for fish and wildlife habitats and/or natural communities in their zoning and subdivision regulations (to be evaluated every 5 years).
- 1.5 Maintain the number of acres of contiguous forest (as defined in glossary).

Trends and Concerns

The integrity of various natural communities (e.g., floodplain forests, sandplains, and clayplains) is at risk because of fragmentation, isolation, and degradation of remaining fish, wildlife, and plant habitat as a result of continuing land use changes (e.g., roads, subdivisions and invasion and introduction of exotic species).

Strategies

1. Prioritize and implement department land acquisition to reduce the loss of high-value areas such as rare or significant natural communities, fish and wildlife habitats, corridors, and riparian and aquatic habitats.
2. Participate more effectively in regulatory permitting and enforcement activities to protect significant natural communities, endangered and threatened species, and fish and wildlife habitats.
3. Implement ecosystem and landscape-level management of department lands while reflecting the intent of the purchase and maintaining the ecological values of the parcel.
4. Implement exotic plant and animal control and prevention policies to protect ecosystem health and stability.
5. Increase efforts to inventory, monitor, and research fish and wildlife habitats and natural communities to provide baseline information for conservation efforts and to maintain ecological integrity and viable populations of native species.
6. Increase efforts to manage and restore high-value fish and wildlife habitats and natural communities on all lands (e.g. Working For Wildlife program, private landowner technical assistance, local and regional wildlife management planning).
7. Improve technical assistance to municipalities and others involved in regulated activities (e.g., Act 250, stream alteration, town zoning) that affect fish and wildlife habitats and natural communities to minimize the impacts of humans on natural systems.
8. Support changes in laws that minimize degradation to fish and wildlife habitat.
9. Protect and manage riparian buffers and adopt guidelines in cooperation with the Agency of Natural Resources.

Fish, Wildlife, and Plant Species

Outcome II: Conserve and restore Vermont's fish, wildlife, and plant species to maintain ecosystem integrity for the benefit of the public.

Performance Measures

- 2.1 Maintain or restore fish and wildlife populations at healthy and sustainable levels as defined in species management plans.
- 2.2 Increase the number of species that warrant delisting as endangered and threatened animals and plants.

- 2.3 Maintain self-sustaining trout populations as measured by the number of miles of rivers and streams supporting self-sustaining populations.
- 2.4 Prevent the introduction of any new invasive exotic species including pathogens and reduce, or at least contain, the geographic distribution of existing invasive exotics.

Trends and Concerns

Many Vermont species are at risk or declining, and others are locally overabundant. In addition, invasive exotics, including pathogens, pose increasing threats to fish and wildlife populations.

Strategies

10. Inventory, monitor, research, and manage the abundance, diversity, and distribution of Vermont's fish and wildlife species and assess their well-being by:
 - Developing a comprehensive and systematic data acquisition and storage retrieval system of fish and wildlife species
 - Identifying and prioritizing inventory and research needs, and collecting information according to priority
 - Developing abundance and distribution objectives for fish and wildlife species and, where appropriate, prepare species management plans in order to maintain sustainable species population levels within ecological limits while considering social implications.
11. Coordinate with other agencies and organizations to develop and implement recovery plans for threatened or endangered species.
12. Develop regulations and species reintroduction programs to restore fish and wildlife populations.
13. Protect and manage habitats that are necessary for the conservation and restoration of species.
14. Update existing regulations pertaining to human-wildlife conflicts, and develop procedures and protocols to address wildlife conflicting with human activities (e.g., bear, beaver, deer).
15. Review, update, and enforce regulations for the collection and possession of native fish, wildlife, and plant species and the importation of invasive and/or exotic fish and wildlife species.
16. Implement fish and wildlife disease monitoring protocols and management systems.

Land Stewardship

Outcome III: Increase public support and understanding of land conservation issues, and promote and facilitate a land stewardship ethic in Vermont.

Performance Measures

- 3.1 Maintain or increase the public's support for and knowledge of fish and wildlife conservation and land stewardship.

3.2 Increase in the number of town plans that promote protection of local fish and wildlife resources.

Trends and Concerns

As the human population increases in Vermont, the potential for adverse impacts on fish, wildlife, plants, and natural communities also increases. The public is not always aware of the adverse impacts human activities can have on the environment or the importance of sustaining fish, wildlife, and plants. In addition, as the traditional rural culture in Vermont becomes more suburbanized, fewer people are directly connected to the land. Therefore, a declining percentage of Vermonters recognize the ecological value of sustainable utilization of natural resources. We need to work harder to find common ground between different constituent groups by using land stewardship messages.

Strategies

17. Define a land stewardship message that promotes the conservation and ethical use of Vermont's fish, wildlife, and plants and the habitats that sustain them. Promote this message, including training for all department employees, so it will be incorporated into outreach and education programs and contacts with the public. Department employees will make an effort to emphasize land stewardship and conservation ethics with their contacts.
18. Assist municipalities, regional planning commissions, and other land management groups in the implementation of land conservation strategies for fish and wildlife resources at the local and regional levels.
19. Focus Department outreach and education efforts (e.g., camp programs, teachers' program, trapper and hunter education, news releases, advertisements, website) on issues that will enable the public to make informed decisions affecting ecosystems in Vermont such as:
 - habitat degradation and fragmentation
 - threats to fish and wildlife species and their habitats
 - the value of working rural landscapes and other rural lands
 - the sustainable and ethical utilization of wildlife
20. Involve Vermonters in activities that will increase their understanding of land stewardship and the influences of human activities on fish and wildlife resources, in order to build public support for fish and wildlife conservation (e.g., Working for Wildlife, Dead Creek Days, teacher's course, atlas projects, streambank planting, field classrooms).
21. Develop tools to bridge disparate constituents' interests in fish and wildlife conservation, and foster partnerships to better achieve our mission.

GOAL B: *Provide a diversity of safe and ethical fish and wildlife-based activities and opportunities that allow hunting, fishing, trapping, viewing, and the utilization of fish, plants, and wildlife resources consistent with the North American Model of fish and wildlife conservation (Appendix I).*

Review

Regulated hunting, fishing, trapping, and observing wildlife are rich traditions and an integral part of Vermont's culture and heritage. People in Vermont have always enjoyed hunting, fishing, and trapping and looked to the land in securing food for their table, and for relaxation through observing nature. Each year, during regulated seasons, thousands of pounds of venison, fish, and fowl are harvested by the public in Vermont. Likewise, each year thousands of residents and visitors spend time watching, learning about, and admiring Vermont fish, wildlife, plants, and the landscape that sustains them. Harvest of fish and wildlife resources, as well as observing nature in natural wild settings, when balanced to ensure that neither the quality of these experiences nor the natural resources which sustain them are compromised, contributes toward the public good and is part of the quality of life people enjoy in Vermont. Additionally, these activities foster stewardship toward lands and habitats, and raise the knowledge and concern for wildlife and the environment by the public who choose to participate.

Hunting, Fishing, and Trapping Opportunities

Outcome IV: Provide hunting, fishing, and trapping opportunities consistent with resource management goals and within ecological limits.

Performance Measures

- 4.1 Maintain the number of adults and youths participating in hunting, trapping, and fishing in Vermont as measured by license sales.
- 4.2 The amount of wild meat, fish, and other provisions from wildlife resources annually harvested under regulated seasons shall be maintained at sustainable levels.
- 4.3 Improve trapper, hunter, and angler satisfaction and knowledge levels (to be evaluated every five years).
- 4.4 Provide public access to Vermont waters or lands.

Trends and Concerns

As human populations increase and Vermont continues to urbanize, fewer Vermonters are in direct connection to the land and, therefore, may not recognize the ecological value of sustainable utilization of fish and wildlife resources. In addition, their support for sustainable management of fish, wildlife, and their habitats are declining. Commercialization and/or privatization of fish and wildlife resources is increasing, presenting additional challenges to managing fish and wildlife resources for the public, and maintaining public support. In some regions of the state, access to land is decreasing as a result of development and/or posting.

Strategies

22. Develop an outreach and an education plan that promotes a consistent message about the mission of the Department and incorporates the idea of a “Working Vermont Landscape,” explaining conservation issues, the concept of utilizing wildlife, harvest methodologies, the importance of wildlife habitat, threatened and endangered species, and the ecological appropriateness of various human activities.
23. Increase information and opportunities available to youths and families for hands-on experiences involving hunting and fishing skills and ethics, resource conservation activities, or other department programs (e.g., camps, Working for Wildlife, outdoor family, childrens’ fishing events).
24. Improve public access to public and private lands and waters; evaluate private landowner incentive opportunities to encourage public access to private lands and waters; and to improve user/landowner relationships.
25. Acknowledge the support of anglers, hunters, trappers, and other wildlife enthusiasts who contribute to department programs and resource management and conservation.
26. Develop and implement management programs (e.g., habitat protection, regulations, stocking) to ensure that sustainable resources are available and that ethical harvest techniques are employed in order to ensure animal welfare and preclude the wanton waste of fish and wildlife resources.
27. Install informative signs on department lands that identify ownership, habitat protection function, and appropriate activities and time of use at all locations.

Trends and Concerns

Competing interests and activities may limit participation in fish and wildlife recreation. Barriers to entry and participation in opportunities to harvest and utilize wildlife resources need to be identified, and a coordinated broad-based plan to reduce barriers needs to be initiated. It may be difficult to interest children, women and minorities in a traditionally male-dominated activity because there are barriers to education and mentoring.

Strategies

28. Review existing hunting and fishing regulations and revise to minimize complexity to the public while continuing to provide resource conservation.
29. Expand the youth initiative programs (e.g., special pre-season opportunities for youths, a mentor program for trappers, the “Let’s Go Fishing Program”).
30. Develop an outreach strategy that encourages people moving into Vermont to continue hunting, fishing, and trapping in Vermont.
31. Develop, update, and enhance Wildlife Management Area (WMA) management plans, and enforce rules and regulations governing public activities on WMA’s to maintain and enhance opportunities.
32. Promote the retention of present hunters and anglers by managing for multiple satisfactions (e.g., keeping WMA’s well marked and aesthetically appealing), by offering a range of harvest and viewing opportunities, and by providing advanced education opportunities.

33. Expand the content of and opportunities to participate in hunter and angler education programs. Target programs to meet the needs of various groups, such as youths, families, and identified low-participation groups.
34. Increase information available to the public on how and where to fish, hunt, and trap (e.g. fishing clinics, fishing tackle loan programs, and WMA and access area maps).

Wildlife Watching Opportunities

Outcome V: Provide viewing and photographing opportunities of fish and wildlife consistent with resource management goals while ensuring the protection of the observed species.

Performance Measures

- 5.1 The number of adults participating in wildlife-watching activities in Vermont.
- 5.2 Public surveys to measure the change in public satisfaction rating among users of Vermont's wildlife and lands and other publics interacting with Vermont's wildlife or participating in a Department-sponsored program.

Trends and Concerns

Vermont leads the nation in wildlife viewing, and more services are being demanded by this constituency. Limited opportunity and access to viewing and photographing wildlife may reduce participation. Some conflicts between wildlife viewers (e.g., bird watchers) and hunters may arise. Feeding wildlife, to enhance viewing opportunities, can create wildlife management problems by attracting unintended species (e.g., bears at bird feeders) and by creating new and enhanced opportunities for disease transmission between wild animals. It needs to be recognized that wildlife viewing provides no significant revenue stream to the department that would allow for management of the resources viewed and development of viewing opportunities.

Strategies

35. Develop more viewing locations on public lands as appropriate funding becomes available. Partner with other state agencies and private landowners when feasible. Create or expand infrastructure for viewing wildlife, such as blinds, walking trails and boardwalks, platforms, parking signage and educational exhibits, consistent with maintaining fish and wildlife species and their habitats. Provide opportunities for physically challenged people.
36. Expand educational programs on watchable wildlife; including such topics as birding, wildlife photography, animal track identification, and backyard habitat as appropriate funding becomes available. Target population centers with a focus on youths and families.
37. Increase information available to the public on how, when and where to watch wildlife as appropriate funding becomes available. Provide information to encourage watchable wildlife practices, such as viewing, photographing, and feeding, in a manner that is ethical, safe, and consistent with protecting the welfare of fish and wildlife resources.

GOAL C: *Maintain safe fish and wildlife- based activities and limit harmful human encounters with fish and wildlife species, and provide general public safety service incidental to our primary fish and wildlife duties.*

Review

It is the policy of the state that the protection, management, and conservation of fish and wildlife in this state is in the best interest of public welfare, while acknowledging that some encounters may be harmful or fatal to humans (e.g., rabies, motor vehicle collisions with wildlife). It is in this interest that the department should strive to limit the number of harmful encounters with wildlife through various means including the monitoring of incidents, implementation of species management actions and public outreach to build awareness. The protection of human health and safety is further addressed by the department's involvement and assistance in responses to emergency incidents including search and rescues. Enforcement of laws intended to prevent incidents that threaten human health and safety, and providing the public training in safe hunting practices will continue.

Human Safety

Outcome VI: Limit the number of human conflicts, injuries, and fatalities that result from encounters with wildlife or participation in fish and wildlife recreational activities.

Performance Measures

- 6.1 The number of hunting related accidents.
- 6.2 The number of human exposures to transmittable diseases from fish and wildlife species.
- 6.3 The number of big game motor vehicle collisions.

Trends and Concerns

As the human population increases in Vermont and wildlife species extend their range, there is the increased potential for harmful interactions between humans and wildlife and fewer people know how to deal with those conflicts. Vermont's hunter education program, initiated in 1959, has successfully produced a hunting environment for which there have been far fewer hunting-related accidents in recent times (35 hunting related accidents in 1958 versus 4.2 annually on average during 1994-1998).

Strategies

- 38. Consider adverse human-wildlife encounters in the management of wildlife populations.
- 39. Coordinate with the Agency of Transportation to identify wildlife road crossings and develop strategies to minimize motor vehicle collisions.
- 40. Provide the public with the current wildlife collision data to increase public awareness of the potential for collision.

41. Respond to public requests regarding human exposure to potentially rabid wild animals, and provide the public with information regarding the occurrence and distribution of rabies vectors. Continue to coordinate efforts with other public agencies involved in rabies management.
42. Review, update and enforce regulations controlling the importation of potentially harmful fish and wildlife species and pathogens.
43. Partner with other state agencies to monitor and document the occurrence of specific contaminants in fish and provide the public with information/warnings about possible health risks associated with the contact or consumption of certain fish and wildlife species (e.g., mercury contamination).
44. Provide education and information about the safe, ethical, and appropriate use of the equipment used for hunting, fishing and trapping (e.g., hunter/trapper education programs, children fishing clinics, and youth conservation camps).
45. Provide the public with timely information and warnings of potentially harmful situations that may be associated with participating in fish and wildlife-based outdoor activities.

Trends and Concerns

It is necessary to respond to requests from citizens and agencies regarding threats to human life and safety, and there are inadequate funding mechanisms to support the department's involvement in such activities.

Strategies

46. Provide assistance to other agencies during emergencies, including search and rescue and emergency response situations.
47. Provide assistance to other state and municipal agencies in the enforcement of statutes and regulations concerning recreational vehicles (boats and ATV's), motor vehicles, environmental quality issues, and illegal drug and alcohol enforcement and interdiction.

GOAL D: *Efficient Operations and Effective Management of the Fish and Wildlife Department*

Review

To accomplish its mission the Fish and Wildlife Department must have effective management and operate efficiently. A measure of management effectiveness has been developed by the U.S. Fish and Wildlife Service's Management Assistance Team in collaboration with researchers from Virginia Polytechnic Institute and State University and members of the Organization of Wildlife Planners. They identified and described factors that determine management effectiveness of the nation's most effective fish and wildlife agencies, and identified problem areas. From this study they developed management effectiveness indices to use as a basic assessment tool, using nine highly effective agencies as benchmarks. The resulting assessment tool allows the department to identify strengths and weaknesses relative to 14 factors necessary for management effectiveness. The department was evaluated in 1995, 1998, and again in 2003, with significant improvements being made in the department's management effectiveness between each of the surveys. Department managers are committed to continuing to improve and will continue to maintain or improve effectiveness factors identified in the survey, with goals of achieving the range of effectiveness of the most effective fish and wildlife agencies in the nation. They also recognize other important areas, such as customer service, that are not emphasized in the management effectiveness survey, but which will also be addressed.

Efficient Operations and Effective Management

Outcome VII: Improve management effectiveness and efficiency.

Performance Measures (survey results)

Department staff feel that improvement is needed in the following areas:

- 7.1 Planning to Budget link
- 7.2 Adequacy of Budget
- 7.3 Political Sensitivity
- 7.4 Teamwork

Trends and Concerns

Planning to budget link: The strategic plan does not adequately drive preparation of the budget and allocation of the resources.

Strategies

- 48. Develop an operational planning process that ties work projects to priorities identified in the strategic plan.
- 49. Use the strategic plan to guide distribution of significant funding or other resources for staffing, training, marketing, etc.

50. Provide training for all department employees so key themes and messages identified and described in the strategies for public outreach and communication plans will be clearly understood and incorporated into all the divisions' outreach programs and all contacts with the public.
51. Develop a budget coding system that tracks project/activity costs.
52. Inform staff on how the operational planning process addresses the planning to budget links.
53. The department and divisions should evaluate performance measures annually in order to track programs' status.
54. The department needs to develop effective communication methods to report status of programs to staff and the public.

Trends and Concerns

Adequacy of department budget: It is unlikely that a budget would ever be adequate to accomplish all that should be accomplished. In the past eighteen years, because of a stagnant funding structure (both increasing costs and decreasing revenues), funding has not been available to fulfill the Department's mission and demand for new programs and services. The department also recognizes the value in working with other organizations to bring to bear outside resources to help accomplish our mission.

Strategies

55. Secure broader and more stable funding to finance the department to meet the challenges of the 21st century.
56. Support national funding legislation and proactively plan for the use of such funds before availability.
57. Develop a funding process for special projects that address strategic plan goals.
58. Evaluate adequacy of resources and staff training and provide resources and training needed to carry out work responsibilities.
59. Target outside contracts to address prioritized research, management, inventory, and outreach and education initiatives.

Trends and Concerns

Political sensitivity of decision-making: Staff is concerned about the extent to which politics influence decision-making. Policy can be influenced by political forces from the public, Legislature, and the executive branch of government. Science is the objective tool that we have to ensure that decisions are based upon the most accurate information that the department can obtain.

Strategies

60. The commissioner will attempt to communicate to staff on how science and politics fit into governmental and department decision-making processes.

61. Department managers will gather information from staff to define problems in communication, involve staff in decision-making, when appropriate, and communicate to staff the rationale of decisions made, when appropriate.

Trends and Concerns

Teamwork: Department employees recognize the value of teams, but are not eager to participate on teams, perhaps because of workload and/or poorly defined team responsibilities.

Strategies

62. Managers will evaluate the mission and function of existing teams to determine the need for each team and appropriateness of tasks and personnel assigned (e.g., all appropriate disciplines will be represented).
63. Team management will deploy a new computer-based management system to organize, task, and report on team activities.
64. Team members will be chosen so as to provide necessary expertise and resources for efficient and effective function and completion of assigned tasks. The team leader will be authorized to assign tasks to team members and will be responsible for completion of all tasks and deliverables of the team in accordance with the department's Team Guidelines.
65. Team charges will be clearly defined by the Division Director in accordance with the department's Team Guidelines. Team leaders will make requests for direction and resources to the appropriate division director.

Trends and Concerns

The department management must maintain the high standard in these areas while improving in areas of effectiveness identified as weak.

Strategies

66. Repeat the management effectiveness survey in 2008.
67. The Management Team will routinely review effectiveness factors and strategies.

Trends and Concerns

The department must continue to strive to provide good customer service.

Strategies

68. Improve and simplify the ability of the public to acquire needed permits and purchase licenses by expanding opportunities, such as access to toll-free telephone sales, credit card sales, the Internet, and expanded physical locations (e.g., fish and wildlife field offices, state welcome centers).
69. Continually evaluate and strive to improve on customer service.

Glossary

Contiguous Forest	An area of forested land with either no roads or low densities of class III and/or IV roads having little or no human development (buildings, parking areas, lawns, gravel pits). Contiguous forest may have various age classes of forest cover and include other habitat types such as wetlands or grasslands that are part of the overall contiguous habitat complex.
Ecosystem	A complex array of organisms, their natural environment, the interactions between them, and the ecological processes that sustain the system. Ecosystems can be described at any scale, from those contained in rotting logs, Lake Champlain, the Green Mountains, etc.
Goal	A qualitative directional statement of intention that is specific to a particular program.
Habitat	Physical, chemical and biological conditions that determine the space or area within which an organism lives. Habitat is species, life stage and activity specific. Subunits of a species habitat that have seasonal or special use are termed micro-habitat.
Indicator	A measure or parameter describing condition or change of some physical, chemical or biological condition (which includes human feelings).
Landscape	A heterogeneous area of land containing groups of natural communities and clusters of interacting ecosystems. These can be of widely varying scales, but normally include a range of elevations, bedrock, and soils.
Natural Community	A dynamic, interacting assemblage of plants and animals, their physical, chemical and biological environment, and the natural processes that affect them.
Outcome	Stated endpoints, benefits, results, or targets that the department plans to achieve during the planning period, from which a level of quality, effectiveness, or success can be determined.
Pathogen	Any disease producing microorganism.
Regulated Hunting/Fishing/Trapping	The harvest of wildlife under regulations that define seasons, time frame of lawful harvest, open and closed zones, methods of take, bag limits, possession limits, sex or size restrictions, reporting or tagging requirements, etc.

APPENDIX I

INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

Wildlife Resources Policy Committee

White Paper

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The Value of The North American Model of Fish and Wildlife Conservation

Please note: The following paper is essentially a synthesis of thoughts and ideas written, voiced, and/or shared by a variety of authors and other wildlife conservation practitioners, including ourselves. Given this approach, references and background literature not specifically cited are listed in the Literature Cited and References section that follows.

At the dawn of a new century, and as the International Association of Fish and Wildlife Agencies commemorates its 100th anniversary, we can proudly credit many successes in fish and wildlife conservation in North America to the efforts of state, provincial, federal, tribal and non-governmental organizations. One need only consider the restoration of white-tailed deer and wild turkeys, or the recovery of bald eagles and peregrine falcons, to conclude that such achievements are truly remarkable and of inestimable value to society. Our successes are rooted in habitat conservation initiatives, partnerships with private landowners, inter-jurisdictional law enforcement, natural history research across the taxonomic spectrum, and the concept of user-based funding.

However, there remain tremendous challenges facing wildlife managers across the continent, including habitat degradation and conversion, educational deficits concerning wildlife values, loss of rural traditions that foster wildlife appreciation, locally overabundant wildlife populations, expanding lists of species at risk, and a paucity of data for many taxa. Not the least of the challenges is the slow, but sure, creep of privatization upon wildlife resources.

Each of these trends strike at the heart of the historic foundations of fish and wildlife conservation on our continent, referred to herein as the North American Model of Wildlife Conservation. In the United States and Canada, the precepts of wildlife conservation are rooted in a legal history that dates back to Anglo Saxon law and the Magna Carta of 1215, a discussion of which can be found in Lund (1980), Roth (1993), Tilleman (1995), Bean (1997), and others. In a recent examination of the evolution of wildlife conservation on this continent, Geist et al. (2001), distilled the seven key components of this model as follows:

- Wildlife as Public Trust Resources
- Elimination of Markets for Wildlife
- Allocation of Wildlife by Law
- Wildlife Can Only be Killed for a Legitimate Purpose
- Wildlife are Considered an International Resource
- Science is the Proper Tool for Discharge of Wildlife Policy
- Democracy of Hunting

Currently, challenges to these fundamental principles or components come from many directions. For example, the first three components are in danger of being eroded by various actions that have led to increasing privatization of wildlife. In the past two decades or so, interest in owning wildlife for pets has grown, as has domestication of species for ranching, hunting or agricultural purposes. Wild animals, intentionally or otherwise confined within high fences, are increasingly claimed as private property. Each of these seven principles face legal and philosophical challenges, in some form or other, in today's world. This in turn threatens the due and proper discharge of wildlife obligations by government fish and wildlife agencies and professionals, especially those obligations that stem from public trust doctrines and other legal precedents.

If one further examines the wildlife conservation movement over the course of its development in the 1800s and 1900s, key strategies of the North American Model can be identified that contributed to its success. Early leaders in the wildlife conservation movement—Roosevelt, Grinnell, Pinchot, Muir, Shelton, C.G. Hewitt and others—recognized a wide range of wildlife values and uses, and were skilled in using collaboration, partnerships, coalition building, broad-minded approaches, professional development, science, political savvy, and persistence to achieve their goals. The numerous players who were instrumental in the development of this model had at the core of their efforts: habitat protection (including the concept of public lands); maintenance of an abundant and diversified wildlife resource; elimination of most commercial uses and strict regulation of those that continued; the traditions and values of hunting, fishing and trapping; public funding mechanisms for wildlife conservation; and a long-term vision—essentially the original wise use doctrine (see Trefethen 1961 and 1975, and Reiger 2001). A common theme, and essential unifying belief, was the concept of democracy of hunting—equal access for all—coupled with the North American pioneer spirit, that could best be evoked and nurtured through the hunting experience once frontiers ceased to exist.

In many ways, not much had changed in the substance of fish and wildlife conservation efforts as we entered the new millennium. The struggles on many fronts are the same as those of our forefathers. Some things however, especially the social aspects of conservation, have become far more complex and challenging. These include: a higher level of and more diverse public expectations, rapidly changing demographics and associated changes in societal and cultural trends, more sophisticated and involved publics, changing perspectives among fish and wildlife professionals (Muth 1998, Organ and Fritzell 2000), and changes to the discipline of fish and wildlife conservation itself (e.g., conservation biology vs. wildlife management) (Muth 1991, Muth et al. 1998).

New and improved strategies that have evolved to go along with these modern challenges include: use of demographic information, human dimensions assessments, public involvement processes, outreach strategies, conflict resolution, media training, leadership training, communication skills, the concept of best management practices (BMPs), and the emerging practice of adaptive impact management (AIM)(Riley et al. 2002). Ultimately, then, comes the question “What else, if anything, is needed to maintain or grow the North American Model of Wildlife Conservation in this new century?”

Based on this review of how we arrived in the 21st century, it appears that additional strategies may be needed and others strengthened. These include:

Development of new or improved conservation alternatives, with a better understanding of such, their cost and their benefits,

More effective education and outreach efforts, using more effective marketing approaches and targeting new constituents,

More effective and widespread use of human dimensions information,

More effective conflict resolution models, tailored to conservation issues,

More skill development in pre-conflict management, to take the lead and be proactive on issues, e.g., overabundant wildlife,

More effective public involvement and stakeholder participation methods,

More effective social and cultural forecasting,

Better understanding of our changing profession and our organizational cultures,

Improved organizational management and agency effectiveness,

Development of BMPs for more aspects of our work,

Overall, more effective integration of multiple disciplines in management,

More effective evaluation of our efforts,

Broadening our conservation agenda to reflect a diversity of values, users and their desires,

More effective strategies for broadening our conservation funding base,

Diligent work to maintain our hunting, fishing and trapping heritage, and

More direct approaches for dealing with moral and ethical issues.

Given this overview of the history, values and successes of the North American Model of Wildlife Conservation and the challenges that affect its future, the **IAFWA Wildlife Resources Policy Committee makes the following recommendations:**

1. The IAFWA, its members and affiliates remain diligent in their efforts to maintain **principal authority and control over all wildlife at the state/provincial/territorial level**, except in those areas relegated to federal wildlife law—primarily inter-jurisdictional commerce, treaties (e.g., migratory birds, anadromous fish), and regulation of public uses on federal lands. This is a fundamental requirement of state/provincial/territorial ownership of wildlife in trust for the benefit of the people—to ensure that all citizens in North America have access to wildlife resources.

2. State, provincial and territorial wildlife agencies remain diligent in meeting their obligations pertaining to **importation, possession and use of wildlife**. For example, such duties should not be outsourced to other government agencies, like departments of agriculture, for convenience or lack of operational resources. Likewise, these efforts should continue to include law enforcement programs that combat **illegal trafficking, market hunting and commercialization of wildlife**; as well as, careful attention to **allocation of surplus wildlife by law** (not by the market, economics, land ownership or special privilege).
3. The IAFWA, its members and affiliates aggressively engage hunters and anglers, wildlife enthusiasts, other conservationists and the general public about **the need to maintain wildlife as a public trust**. We should not shy away from the concomitant philosophical, ethical and economic debates in the public arena. The keystone of the North American Model of Wildlife Conservation is the principle that wildlife are owned by no one, and are to be held in trust for the benefit of all people by government. [This is particularly important to our efforts to secure an adequate, broader funding base.]
4. The IAFWA, its members and affiliates renew their commitment to **using scientific principles to improve resource management practices**, going beyond the traditional and including a commitment to improve our scientific work at every opportunity. An important aspect of this will be stronger integration of human dimensions and communications science in our decision-making processes.
5. The IAFWA, its members and affiliates remain diligent in their effort to **perpetuate the role of hunting, fishing and trapping in the North American Model of Fish and Wildlife Conservation**, using all appropriate strategies to achieve this common goal.
6. The IAFWA, its members and affiliates recognize that integral to maintaining leadership in conserving wildlife resources in North America is the need to make wildlife relevant to a broad spectrum of society. Key to this effort is the additional need to ensure public acceptance of wildlife conservation practices. To this end, more direct approaches for dealing with moral and ethical issues of wildlife management are called for. We, therefore, recommend that the IAFWA, its members and affiliates embrace the task of **establishing guidelines or criteria by which our activities can be evaluated such that most of society will be satisfied as to our leadership in the moral, ethical and humane nature of our business**—the caveat being, that should any activity violate these premises, leadership must act to modify or eliminate the practice. [An example of such criteria can be found in the Malouf Report concerning seal harvests in Canada (Hamilton et al. 1998).]

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