

FISH & WILDLIFE DEPARTMENT PERFORMANCE-BASED BUDGET 2018 REPORT



The origin of the Vermont Fish & Wildlife Department was the regulation of hunting and fishing in a state still recovering from widespread deforestation. Our mission is now far broader, and we have long been committed to the conservation of all the state's fish and wildlife species and their habitats. However, the regulation of hunting, trapping and fishing remain core to our identity and our work. In 2017, 82 percent of staff fished while 72 percent hunted.

Unfortunately, the same demographic challenges facing nearly every corner of Vermont life, from skiing to education, are also harming hunting and fishing license sales. Hunters are getting older and there are fewer young people to take their place, particularly in rural areas where these activities have historically been most prevalent. Anglers are more evenly distributed, both in age and location, but again, a declining population may well mean fewer fishing licenses in the future. This is further complicated by weather. Hunters, as a group, are avid; only death keeps them out of the woods. But in any one year, only half the state's anglers buy a license. A percentage that appears to be increasing as climate change plays havoc with spring weather.

These trends are obviously concerning to a department which depends, to a large extent, on license sales for revenue. Even more troubling, however, is that these changes are indicative of the increasing lack of connection between many Vermonters and their environment.

A long-lasting remedy to these issues will likely require other changes beyond those controlled by the

department. Our focus has been on keeping current hunter and anglers in the field, ensuring all Vermonters have an equal chance of experiencing wildlife in whatever way they wish, while simultaneously working to recruit new non-traditional hunters and anglers. Hunter Education and Let's Go Fishing programs have begun offering advanced training workshops designed to bridge the gap between certification and hunting, fishing, and trapping. These advanced workshops include both a classroom and field component and have included topics such as black bear natural history and hunting techniques, snowshoe hare hunting, walleye fishing through the ice, and fish processing.

The department is also creating partnerships with a number of organizations that work with groups that are traditionally underrepresented in hunting and fishing. For instance, Hunter Education certifies youth and young adults at Camp Outright, an organization for LGBTQ+ individuals. And both Let's Go Fishing and Hunter Education programs partner with Rooted in Vermont, a non-profit movement associated with the Vermont Sustainable Jobs Fund. This program connects the knowledge and skills associated with hunting and fishing with communities interested in local, organic, sustainable food sources in both urban and rural settings.

Again, the overriding need for broadening our stakeholders is not financial. No matter how successful, these efforts will not replace lost license sale revenue. However, they certainly can help maintain the near universal support of hunting and fishing, and, more importantly, spark a lifelong connection to nature.

DEPARTMENT OVERVIEW



We are biologists, game wardens, educators and support staff.

Our MISSION is conserving fish, wildlife, plants, and their habitats for the people of Vermont.

Administration provides policy, legal, personnel, and financial leadership for the department. The division oversees license sales, including permit lotteries, and more than 15 other permits related to resource protection. The division also promulgates rules and regulations via the Commissioner and the Fish & Wildlife Board.

Fisheries conserves and manages the state's fish populations and aquatic habitats. This includes: the operation of five fish hatcheries; maintaining more than 190 fishing access areas; controlling the spread of fish diseases, invasive fish and aquatic nuisance species; restoring populations of fish such as muskie, lake sturgeon and salmon; and participating in the protection of aquatic species and critical aquatic habitat through technical assistance of regulatory processes such as Act 250, Section 248, hydroelectric dam relicensing, stream alteration and shore land protection permits, and aquatic organism passage.

Law Enforcement protects Vermont's fish and wildlife from poaching and illegal trade, in addition to ensuring the state's 150,000 licensed hunters, anglers,

and trappers are compliant with rules and regulations. State Game Wardens respond to human/wildlife conflicts, animal damage complaints, potentially diseased animals and remove big game animals from roadsides. They also perform standard law enforcement duties such as search and rescue, assistance to other law enforcement agencies, and boating, snowmobile, and ATV operation enforcement.

Outreach and Education provides quality information and education about Vermont's fish and wildlife to ensure greater understanding and safe, responsible enjoyment of these resources. This includes operating the department's two Green Mountain Conservation Camps.

Wildlife protects and manages all of Vermont's wildlife, plants, and their habitats. Division staff work on three main areas—management of hunted or trapped species; public and private lands habitat conservation; and protecting rare, threatened, and endangered species. This includes the oversight of the department's 98 Wildlife Management Areas and participating in the protection of critical wildlife habitat through the Act 250 and Act 48 process.

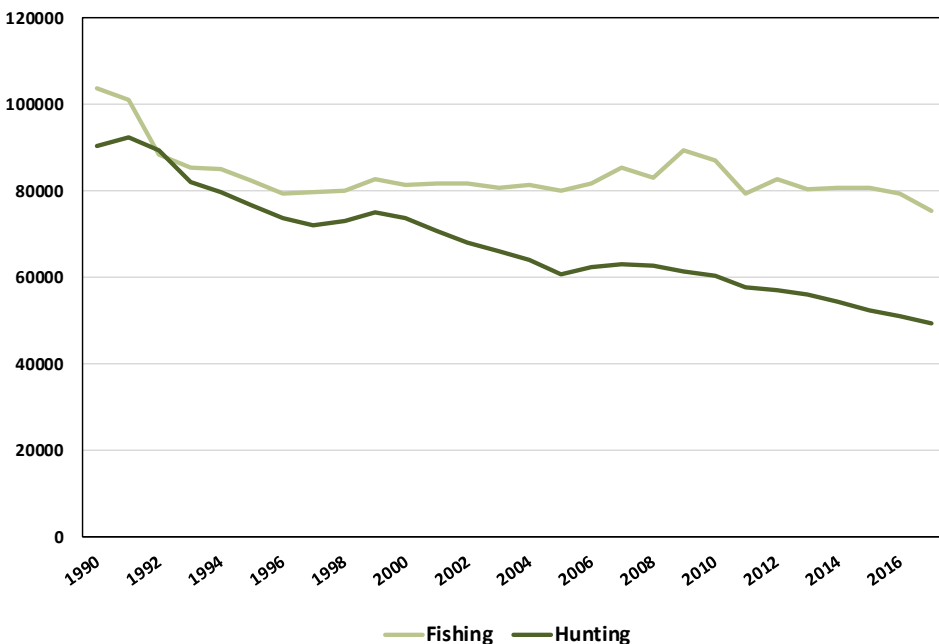
THE DECLINE IN LICENSE SALES ACROSS 30 YEARS



Performance measure: Maintain the number of Vermonters participating in hunting, fishing and trapping, as measured by license sales.

Declining license sales threaten the department’s ability to conserve and manage the state’s fish and wildlife species and the businesses that depend on wildlife-related recreation.

Adult Resident Hunting and Fishing Licenses Sales: Age 19-65



New programs have helped stabilize fishing license sales by introducing new audiences to fishing and encouraging current anglers to keep fishing. Unfortunately, wet and cold springs, like 2017, can result in early sales deficits that are all but impossible to erase later in the year, no matter how much the weather improves.

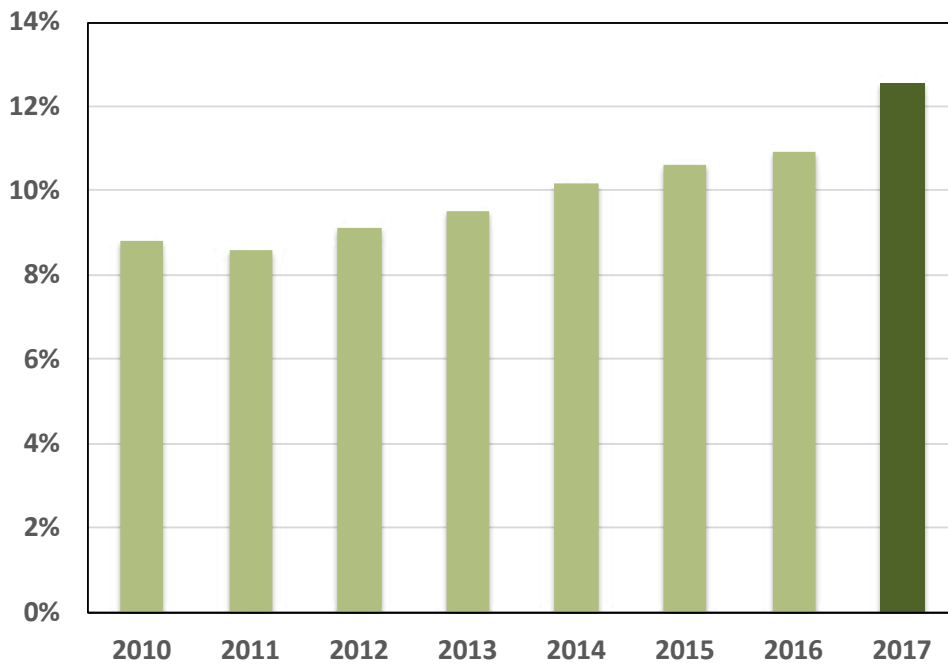
The primary factor behind the steep decline in hunting license sales is the same aging demographic impacting almost every corner of Vermont life, from skiing to education. A long-lasting remedy is beyond the department’s control. Instead, the focus is on maintaining the very high support for hunting and ensuring that the hunters we do have continue to effectively meet the department’s wildlife management goals.

WOMEN IN THE OUTDOORS



Performance measure: Increase the number of women participating in hunting, trapping and fishing in Vermont, as measured by license sales.

Percent of Women Hunting License Holders

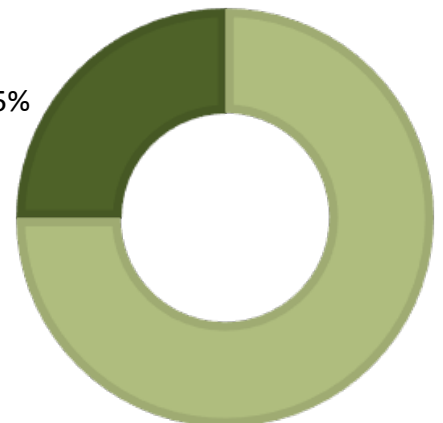


The number of female hunters in Vermont increased in the 2000s and has since leveled out.

The percentage of female hunters in the hunting population, however, has continued to rise as the number of male hunters has declined. In 2017, 36 percent of all hunter education graduates were female, suggesting further increases may be likely. Meanwhile, women make up 1 in 4 anglers, a ratio that has remained stable for decades.



Resident Fishing by Gender



MEAT HARVESTED THROUGH HUNTING



Performance measure: The amount of meat, fish and other resources from fish and wildlife, taken annually, during regulated seasons shall be maintained at sustainable levels.

Meals of Harvested Deer Meat



Hunting and fishing provides Vermonters with free-range, local, sustainable, and affordable food sources.

Vermont is a leader in the ‘Farm to Table’ and ‘Field to Table’ movement, and this mindset is a primary motivation for first-time hunters, especially those who are not from hunting backgrounds. Among more experienced hunters, meat has always ranked among the top reasons to hunt.

Fishing is sometimes more associated with relaxation and spending time with family and friends than fresh fish, but a number of species like yellow perch, walleye and crappie owe most of their popularity to their taste. Keeping fish is particularly common when ice fishing. Cold temperatures both in and out of the water keeps fillets firm and fresh.

CONSUMER SPENDING AND WILDLIFE-RELATED RECREATION



Performance measure: Maintain consumer spending related to wildlife-recreation.

Long hunting and fishing seasons are a testament to the sustainability of carefully managed fish and game species while the steady, off-season traffic they create provides reliable income to rural general stores, diners and gas stations.

The economic benefits of wildlife extend beyond hunting and fishing.

Vermont is home to a number of regionally-known wildlife hotspots that draw both residents and nonresidents, all of whom must eat, sleep and be outfitted. The department's Dead Creek WMA, for instance, is well-known throughout New England, even among the most casual observers, for its up-close views of snow geese each fall. In contrast, serious birders from all over visit Wenlock WMA and the surrounding area for its accessible opportunities for boreal birds, such as black-backed woodpeckers, gray jays and spruce grouse —species that would otherwise require long distance travel to more remote locations.

As immeasurable as wildlife's cultural importance may be to Vermont, wildlife-related recreation generates significant economic activity and the sum of this

passion quickly adds up and represents a significant contribution to the economy.

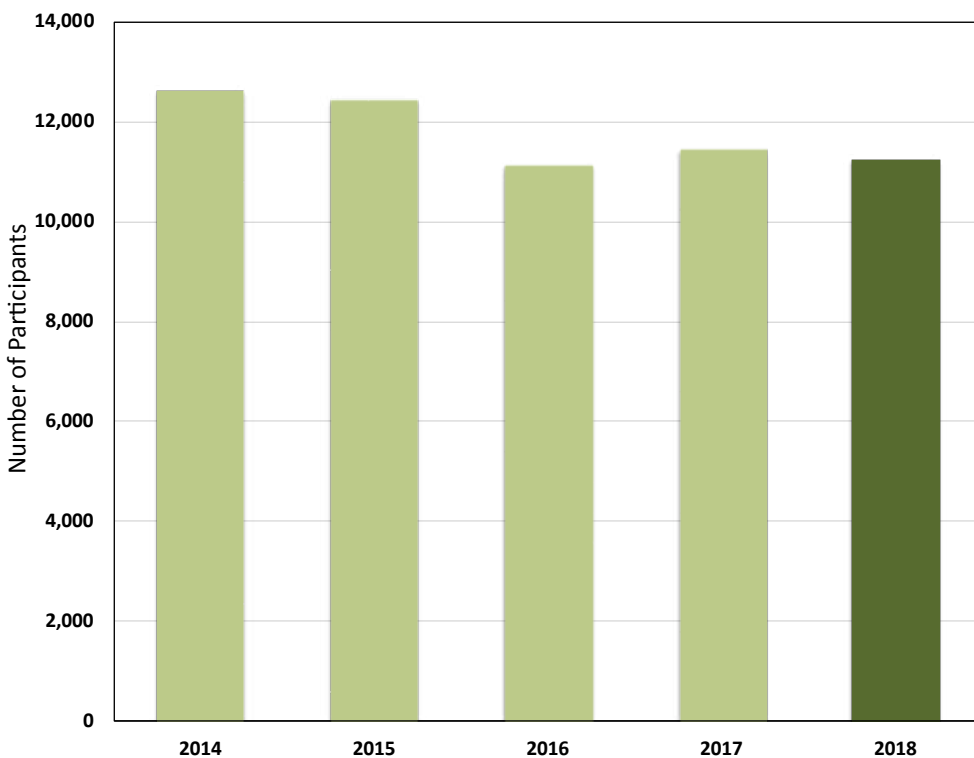
- Nearly two out of three Vermonters hunt, fish or watch wildlife.
- Wildlife-related spending is particularly important to rural areas and often coincides with the 'off-season'.
- While hunter numbers are declining, their expenditures are increasing. They spend as much as anglers and wildlife-watchers combined.
- Anglers make a significant contribution to tourism; the bulk of their spending is on food, lodging and related trip expenses.
- Lake Champlain generates an average expenditure of \$88 per angler, per day.
- Vermont draws wildlife watchers from around the region and this doesn't include casual viewing by residents or tourists.
- The economic impact of bird feeding in Vermont cannot be overstated. Half of Vermont households feed birds and almost all the seed and related supplies are bought locally.

CONSERVATION EDUCATION AND OUTREACH PROGRAMS



Performance measure: Maintain or increase the public's support for, and knowledge of, fish and wildlife conservation and land stewardship.

Participation in Fish & Wildlife Education and Outreach Programs



2018 Participation by Program

Green Mountain Conservation Camps	755
Let's Go Fishing	5,922
Family Fishing Festival	700
Project WILD	243
Educator's Course	23
Hunter Education	3,578
Total	11,221

The department works to maintain Vermonters' strong connection to the land.

Our education programs strengthen an understanding of ecology, build support for conservation, and teach the outdoor skills needed to responsibly enjoy our woods and waters.

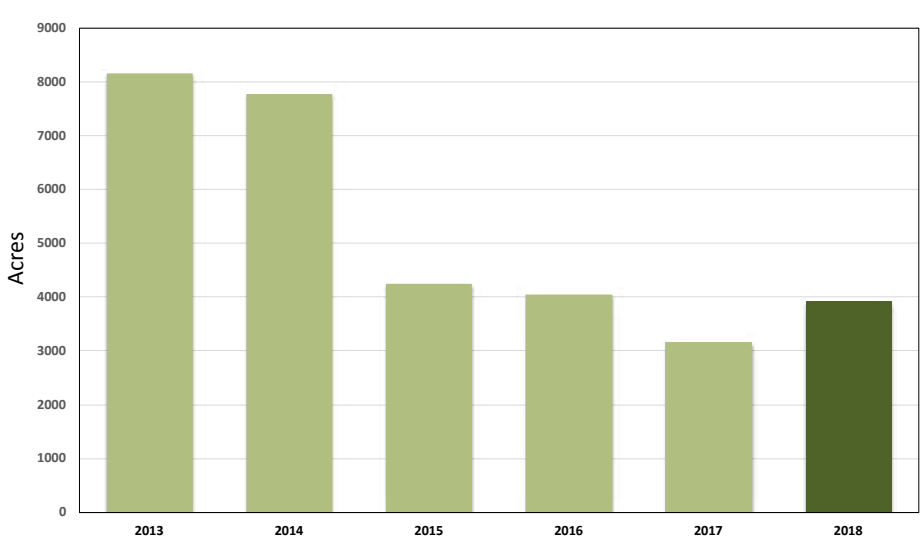
These programs are affordable too. Other than the Green Mountain Conservation Camps and educator's course, all programs are free. Camp tuition is a fraction of the cost of almost any other week-long, residential camp. Plus, there are ample number of scholarships available for those in need. All applicants that demonstrate need receive financial support.



HABITAT CONSERVATION THROUGH ACT 250

Performance measure: Increase the number of acres of habitat and shoreline protected through the regulatory process.

Habitat Conserved through Act 250



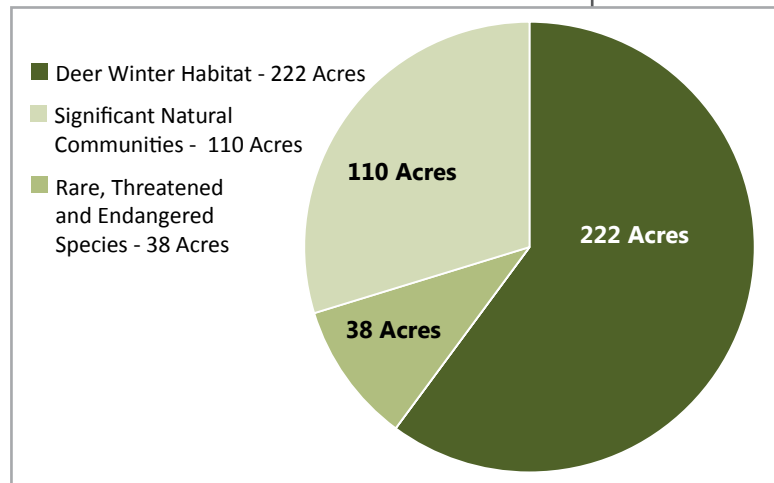
Act 250 works for wildlife.

The department plays a critical role in the protection of ecologically important habitats through the Act 250 process. In 2018, this included reviewing 243 projects and protecting 4,742 acres of habitat.

However, only 3 to 5 percent of development projects in Vermont are regulated by Act 250. As a result, Vermont loses roughly 6,500 acres of undeveloped land every year, an area roughly the size of Montpelier. As part of its strategic plan, the department pursues other solutions such as working with town and

regional planning commissions and private landowners to minimize habitat loss and fragmentation.

Habitat Impacted by Regulated Development Projects in 2018



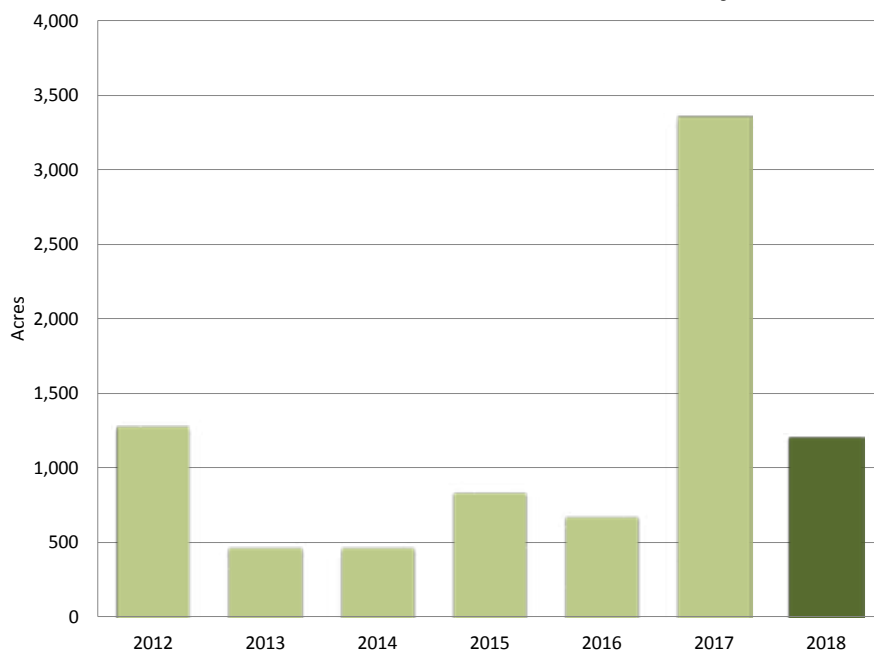
LAND ACQUISITION AND CONSERVATION EASEMENTS



Performance measure: Increase the cumulative number of acres of high-value habitats and natural communities conserved through acquisition or easements.

Windsor Grasslands Wildlife Management Area, pictured above, recently became the state's 98th WMA. Formerly part of the Windsor prison property, management of its 826 acres of fields, forests and wetlands was transferred from Building and General Services to the department in 2017. Since then, considerable fieldwork and restoration has been completed. The diverse property is popular with bird watchers.

Wildlife Habitat Conserved through Acquisitions and Easements Wetlands, Forest Blocks, Forest Connectivity



All of the department's public lands are open to hunting, fishing, trapping, wildlife watching or just connecting with nature.

The department strategically targets critical habitats for conservation.

Working with many partners, the department is safeguarding important fish and wildlife habitat through acquisitions, easements, and management agreements. In 2018, 1,407 acres were conserved, including two significant additions to Steam Mill Brook WMA in Wheelock and Walden. Steam Mill Brook is an essential bridge between the Worcester Mountain range and the Northeast Kingdom and is a high priority habitat block in Vermont Conservation Design.



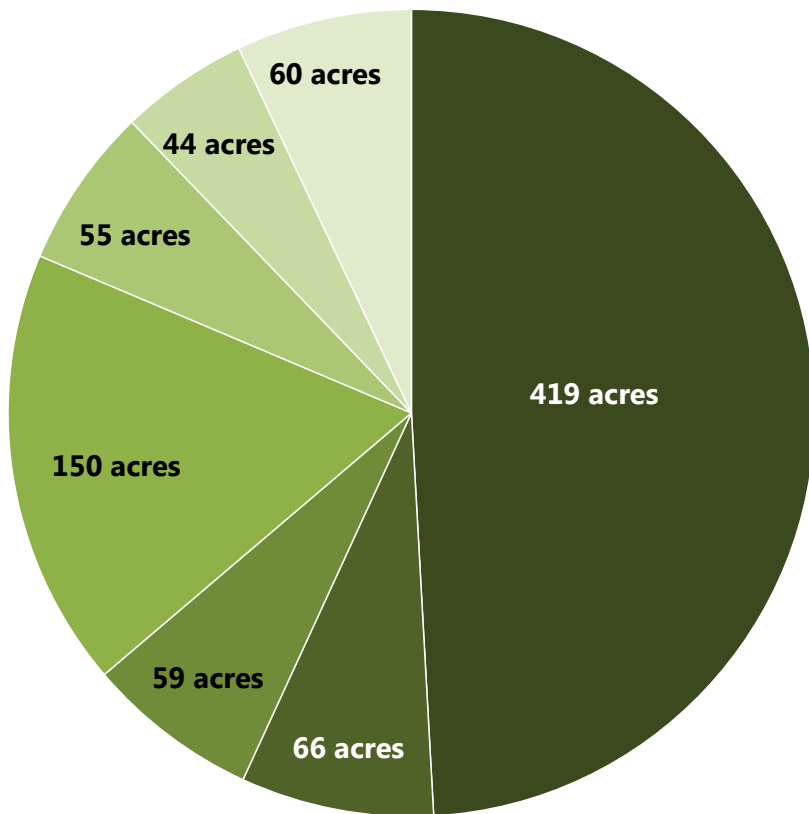
Flag Pond looking across to Standard Mountain at Steam Mill Brook WMA

HABITAT ASSISTANCE FOR PRIVATE LANDOWNERS



Performance measure: Increase the cumulative number of acres of high-value habitats improved through private lands technical assistance.

Wildlife Habitat Improved on Private Lands through Fish & Wildlife Staff Technical Assistance



- Invasive Species Control - 419 acres
- Delayed Mowing or Brush Hogging - 66 acres
- Apple and Mast Tree Release - 59 acres
- Forest Stand Improvement - 150 acres
- Early Successional Habitat - 55 acres
- Young Forest Habitat - 44 acres
- Forestry for Birds - 60 acres

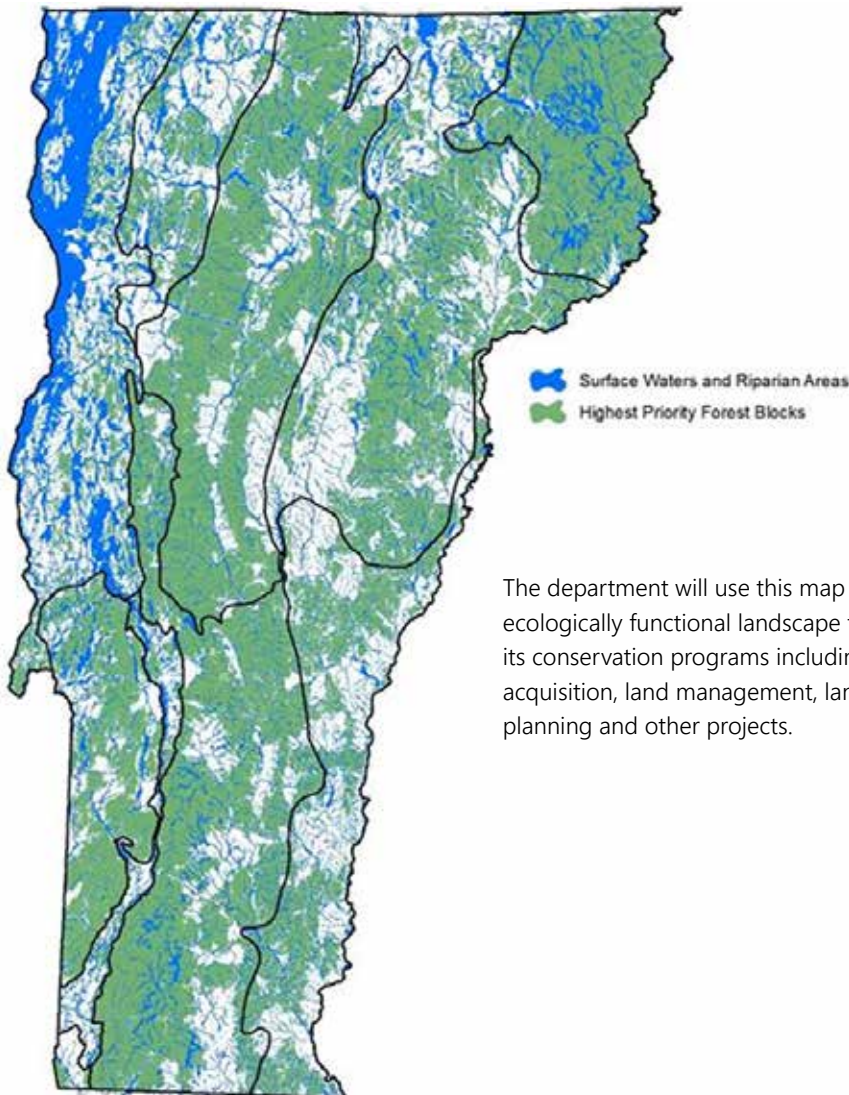
More than 80 percent of Vermont land is privately owned so working with landowners is essential to improving wildlife habitat.

In 2018, department staff helped 90 landowners manage their land for wildlife through the federal Natural Resources Conservation Service (NRCS) EQIP program. This assistance impacted thousands of acres and four miles of forest trails. Staff also gave workshops to Vermont Woodlands Association and Vermont Coverts groups, and assisted residents with bats in their homes, beavers flooding their roads and driveways, and many other human-wildlife conflicts.

MAINTAINING ECOLOGICAL FUNCTION THROUGH VERMONT CONSERVATION DESIGN



Performance measure: Increase the percentage of lands and waters containing the highest priority forest blocks and riparian areas identified in Vermont Conservation Design in some form of protection, conservation, improvement or restoration.



The department will use this map of an ecologically functional landscape to guide its conservation programs including land acquisition, land management, land use planning and other projects.

Vermont Conservation Design is a science-based vision to sustain our forests, waters, and wildlife for future generations.

It identifies the intact, connected, and diverse lands and waters that are highest priority for ecological function. When appropriately conserved or managed, these places sustain nature and all its benefits.

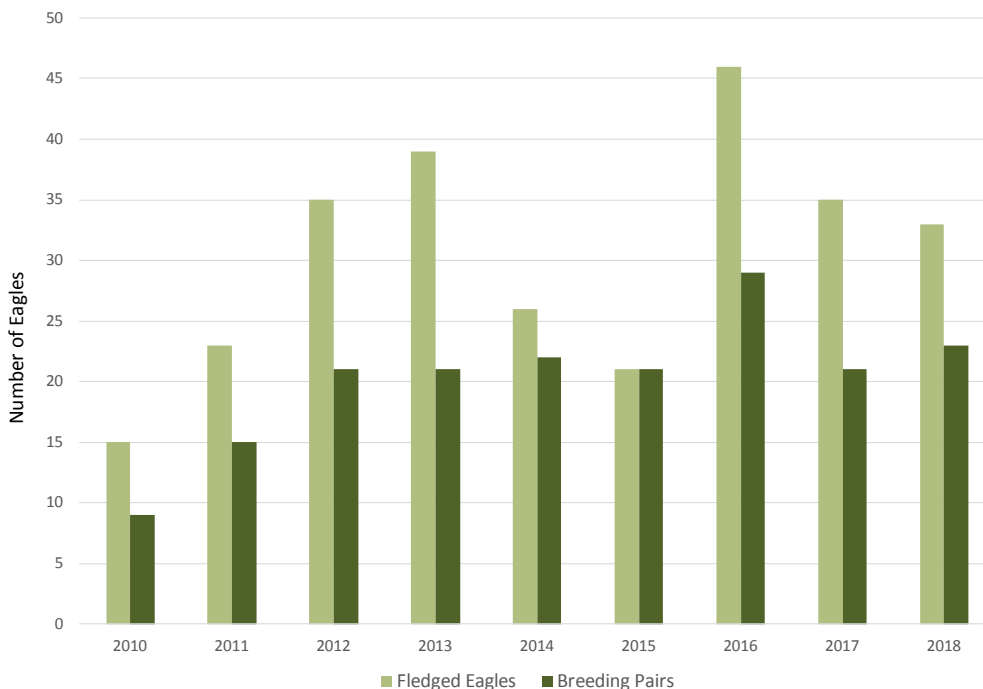
Vermont Conservation Design informs land acquisition, land management, land use planning, and other projects. In 2018, the department used this design to encourage landowners, towns, and partner organizations to voluntarily focus conservation and stewardship in high priority areas. It was also used to help identify species that need specific conservation attention for biological or social reasons.

THREATENED AND ENDANGERED SPECIES



Performance measure: Maintain or restore fish and wildlife populations at healthy and sustainable levels.

Vermont Bald Eagle Recovery Area Monitoring Results for Breeding Pairs and Fledged Eagles



In 2018, twenty-three pairs of bald eagles successfully fledged 33 offspring. This is a remarkable achievement for the species, since the first successful nest in more than 60 years occurred in Vermont only a decade earlier in 2008.

Two other once endangered bird species had successful nesting seasons:

- 47 nesting pairs of peregrine falcons fledged 29 chicks
- 91 common loons pairs successfully fledged 66 chicks

The department works strategically to keep common species common and prevent struggling species from becoming threatened and endangered.

The Wildlife Action Plan is a 10-year framework designed to assess the health of Vermont's wildlife, identify the problems they face, and outline the actions needed for long-term conservation. Some species such as moose, lynx, and marten may be at risk due to climate change. Others like Jefferson Salamander and Northern Goshawk are at risk by habitat loss and fragmentation.

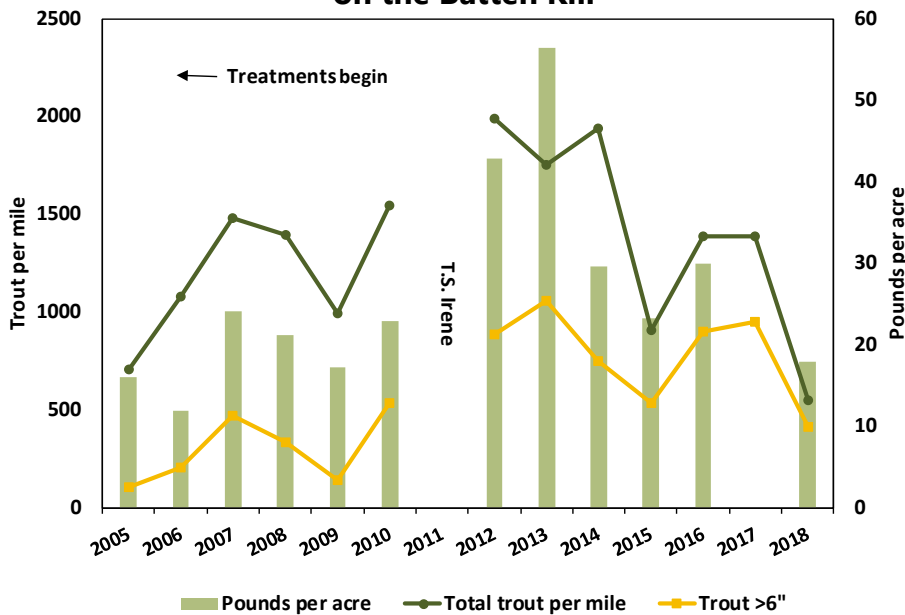


TROUT HABITAT MANAGEMENT



Performance measure: The number of catchable trout per mile.

Trout Numbers at the Twin Rivers Project Site on the Batten Kill



The “Twin Rivers” project site on the Batten Kill in Arlington was the site of the river’s first instream habitat restoration project in 2006. Trout populations at this site substantially increased in the years following the habitat work, but may be locally declining as these structures deteriorate over time.

Trout numbers in the famed Batten Kill declined sharply in the 1990s due to a lack of instream habitat and cover. Projects designed to restore this habitat have shown trout populations respond positively when habitat becomes available, improving angler satisfaction as a result.

Biologists are now working with landowners to restore and protect native vegetation along river banks. These trees and shrubs will help keep the water cool, improve water quality, and provide the next round of necessary instream habitat for trout as they naturally fall into the river.

Department biologists recently completed a decade-long survey of wild brook trout and found that present day populations are comparable to those from more than 50 years ago.

This is a remarkable conclusion for Vermont’s favorite fish given that populations of wild brook trout have declined significantly across much of the species’ historic range in the eastern United States.

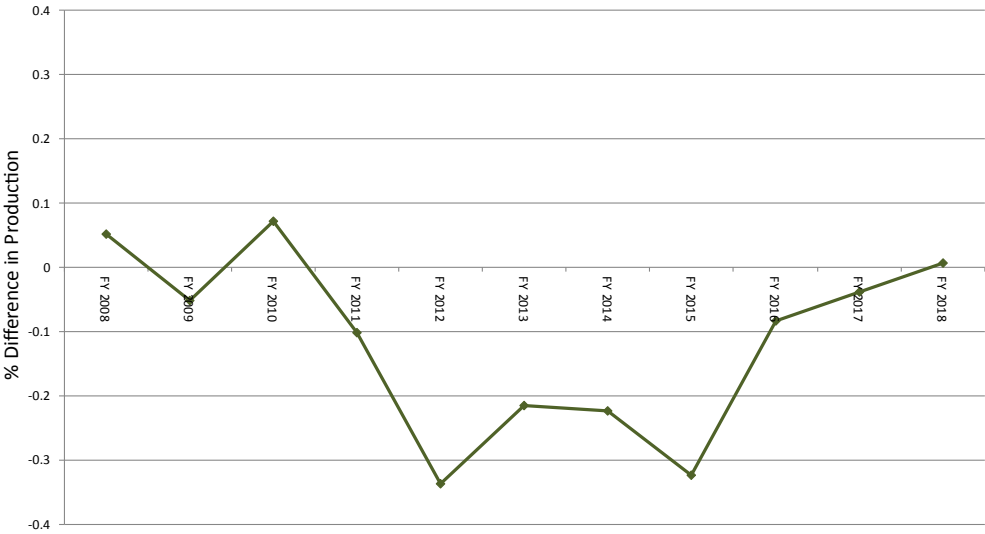
While most measures were similar, significantly higher densities of young brook trout were found. This may reflect the improved environmental protections put in place since the 1950s, particularly legislation and programs focusing on water quality and aquatic habitat protection.

The survey included sampling of 138 streams within 17 watersheds between 2005 and 2016, each of which were originally sampled between 1952 and 1960 by former biologist James MacMartin.



Performance measure: Meet fish culture production targets to fully support recreation and restoration goals.

**Vermont Trout Production Surplus/Shortfalls
(Yearling & Older Brook, Brown, Rainbow Trout)**



Damage to the Roxbury Fish Hatchery due to Tropical Storm Irene created a 25 percent shortage of stockable-size trout annually.

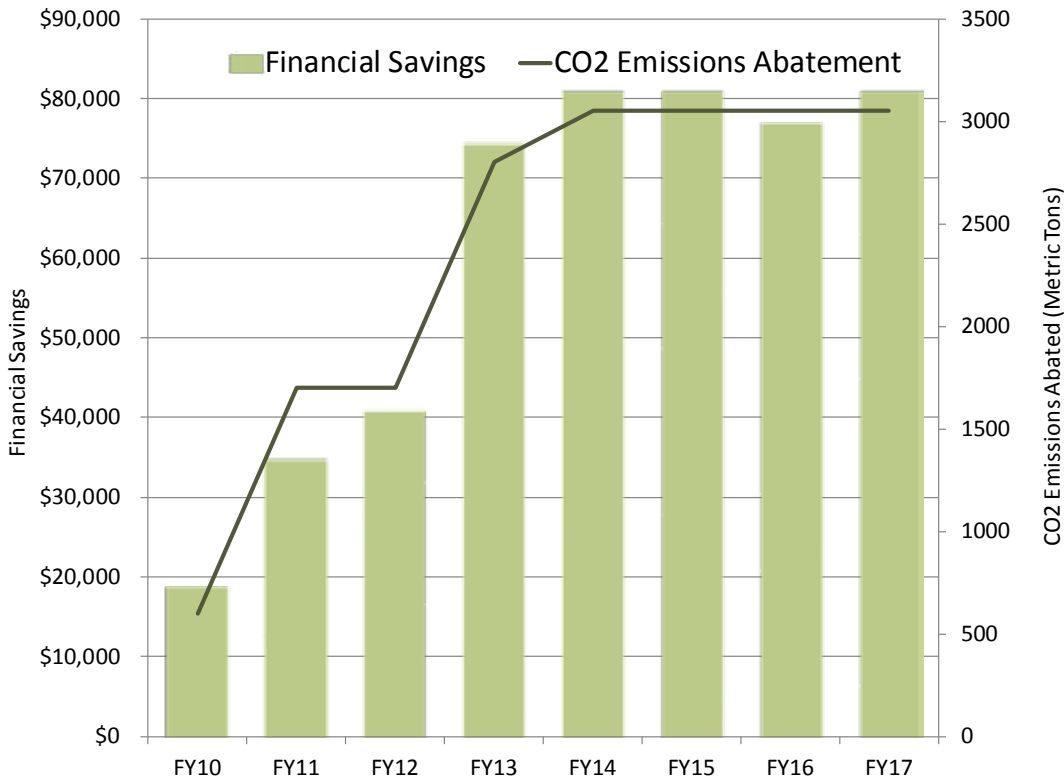
Since then, the department’s other hatcheries have been working beyond their capacity to make up the deficit. Bennington Hatchery, for instance, is rearing a record number of trout, but this effort is taxing the aging facility beyond its responsible limitations. Fortunately, Roxbury reconstruction began in the fall of 2018 and is expected to be completed by the spring of 2020.

ENERGY EFFICIENCY UPDATES AT FISH HATCHERIES



Performance measure: Increase management effectiveness and efficiency.

Energy Efficiency Updates at Hatcheries



The department is a conscientious steward of energy resources and constantly works to increase its efficiency and reduce costs.

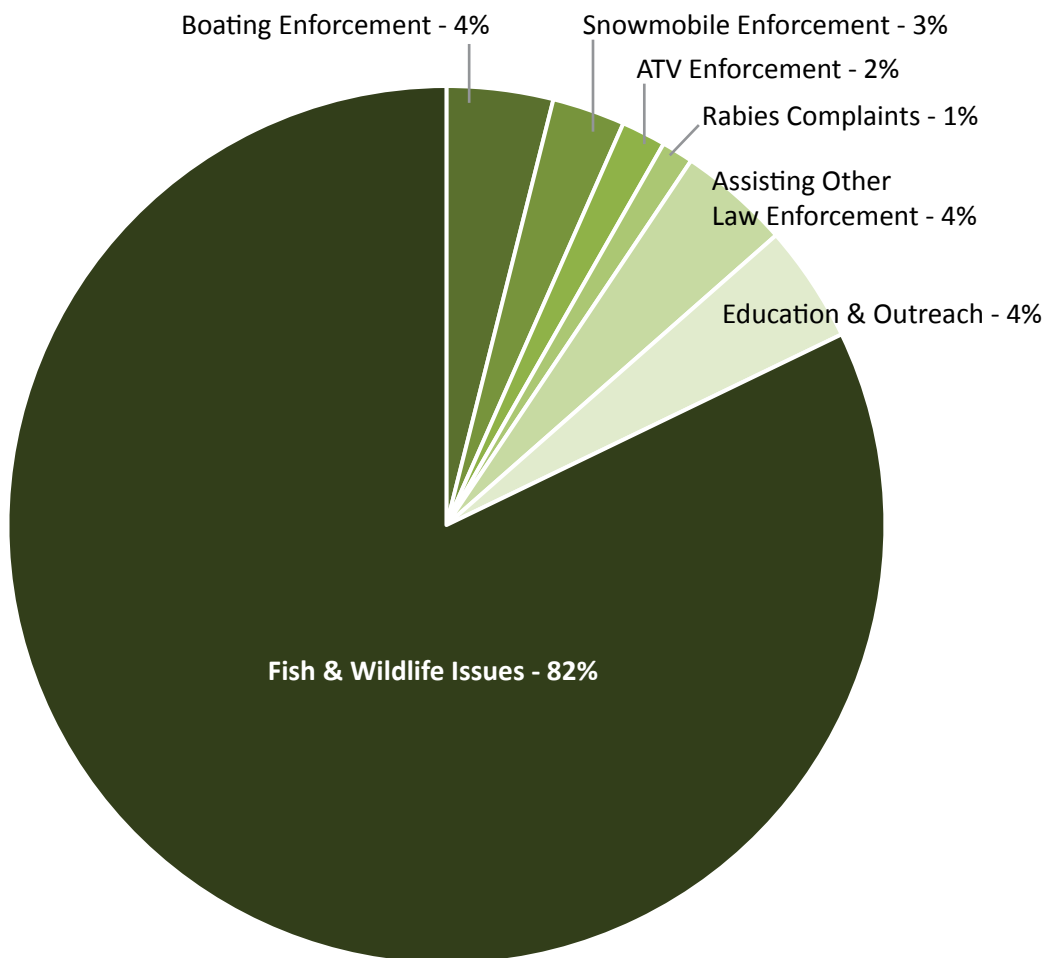
Switching fish hatchery energy use to solar power saves enough energy every year to power the entire town of Grand Isle for a year.

WARDENS SERVE THE PUBLIC



Performance measure: Decrease human-wildlife conflicts while increasing safety for outdoor recreationists.

Warden Activities Benefiting the Public



Wardens apply their broad range of skills and expertise to provide a wide variety of services that Vermonters increasingly rely on.

This includes: responding to rabid animal calls and human-wildlife conflicts; enforcing boating, ATV and snowmobiling laws; and participating in search and rescue operations. In addition, the number of mutual assists to other agencies has almost doubled in the last decade due to strained law enforcement budgets around the state.

COMMUNITY-BASED LAW ENFORCEMENT



Performance measure: Increase positive interactions with the public to improve law enforcement capabilities.

Effective law enforcement is the result of building trust and credibility within the community through positive interactions and strong individual relationships. Wardens are the original community police, each with a home office and publicly listed phone that rings there at all hours.

Providing Food for Local Food Shelf

All wardens have lists of people in their districts interested in getting deer, bear and moose meat. In cooperation with Duxbury Food Shelf, two local butchers are now donating their time to process the animals, usually road-kill, collected by wardens. The wardens drop the carcasses off at the butchers and deliver the processed meat to the food shelf. By mid-December more than 350 pounds of venison and bear meat had been delivered to the food shelf, providing high-quality protein to at least 170 people. The meat is processed in standard cuts, however, the food shelf director recently had a request for a deer heart. A sure sign of a native Vermonter.

A Teachable Moment

Last July, Warden Chad Barret checked a father and his young son on the trophy section of the Winooski River in Waterbury. The boy had already landed two rainbows and placed them in a puddle for safe keeping. The father was unaware that the limit was two, nor that the boy should have stopped fishing after keeping the second fish.

Rather than issuing a warning or writing a ticket, Warden Barret talked to the father—an obviously new angler—about the regulations, and then congratulated the boy on his skill. Not many people, he said, could catch their limit in that stretch of river.



The father told Warden Barret they planned to bring the fish home in a bucket so they could figure out how to kill and prepare them. After explaining the transportation of live fish is prohibited, Warden Barret demonstrated how to clean the fish and explore the stomach contents to see what the fish had been eating. He also showed them how to fashion a stringer from a stick and even gave them a recipe for cooking the fish. The recipe was a hit.

Making a Wish Come True

In October, Warden Rich Watkin, K9 Ramsey and a group of forty police and other K9 teams responded to a true call of duty. A terminally ill girl in Bennington had a request, to meet a real police K9 team. Vermont State Trooper Wayne Godfrey put out the call Thursday and by Friday the girl's wish came true.



SAVINGS THROUGH CONTINUOUS PROCESS IMPROVEMENT

Performance measure: Improve facilities and business processes to maximize efficiency and reduce costs.

Administration	\$105,000 Point of Sale license system
Law Enforcement	\$33,473 Smaller, more efficient trucks
Outreach	\$269,892 Online camp registration - fewer contracts - more federal match
Fisheries	\$143,161 Solar panels - energy efficiency projects
Wildlife	\$126,000 More federal match - private grant funding - mitigation fees
Total	\$683,026

While revenues from license sales have been flat the last three years, costs continue to increase. To combat this, the department is working hard to become more efficient across all our divisions.

With the help of field staff, significant saving have been found, particularly through energy reductions at hatcheries, fewer out-of-house contracts, and actively pursuing donations and private grants that can be matched with federal funds.

To date, these initiatives have saved the department almost \$700,000.