

# Vermont's Wildlife Action Plan

November 22, 2005

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*\*formally the Comprehensive Wildlife Conservation Strategy (CWCS)*



# Developing Vermont's Wildlife Action Plan

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## *Process and Organization*

### *Timeline*

The creation of Vermont's Wildlife Action Plan began in August 2003 when a Steering Committee of Vermont Fish & Wildlife Department directors and program leaders began regular scoping meetings. A project coordinator was hired in January 2004 and January to May 2004 was devoted to: reviewing federal guidelines, planning literature and past planning efforts; designing the Action Plan organizational structure and development process; and soliciting the support of stakeholder organizations and agencies. The identification of Species of Greatest Conservation Need (SGCN) occurred from May through September 2004. Habitat delineation for SGCN, problem assessment and strategy development occurred from September 2004 through January 2005. Integration and conservation planning ran from October 2004 through April 2005. Review and additional input by the Department, agencies and other stakeholders and the general public, ran from February through July of 2005. Final document preparation and editing occurred from May through August 2005. The anticipated submission date of the Action Plan is September 1, 2005.

The Action Plan Steering Committee identified five primary concepts during the scoping process that should frame the development of the Wildlife Action Plan:

1. Conserve, enhance and restore Vermont's wildlife and wildlife habitat.
2. Represent good science and conservation planning.
3. Identify conservation priorities yet remain flexible and open to new opportunities.
4. Be a strategy for the entire state; one that all agencies, organizations and individuals can find useful.
5. Build and support advocates for wildlife conservation.

The Action Plan Steering Committee recognized that meeting these goals required the resources, participation and ingenuity of many conservation-minded individuals, organizations and agencies. This in turn required a development process that included stakeholders and conservation partners to the greatest extent possible.

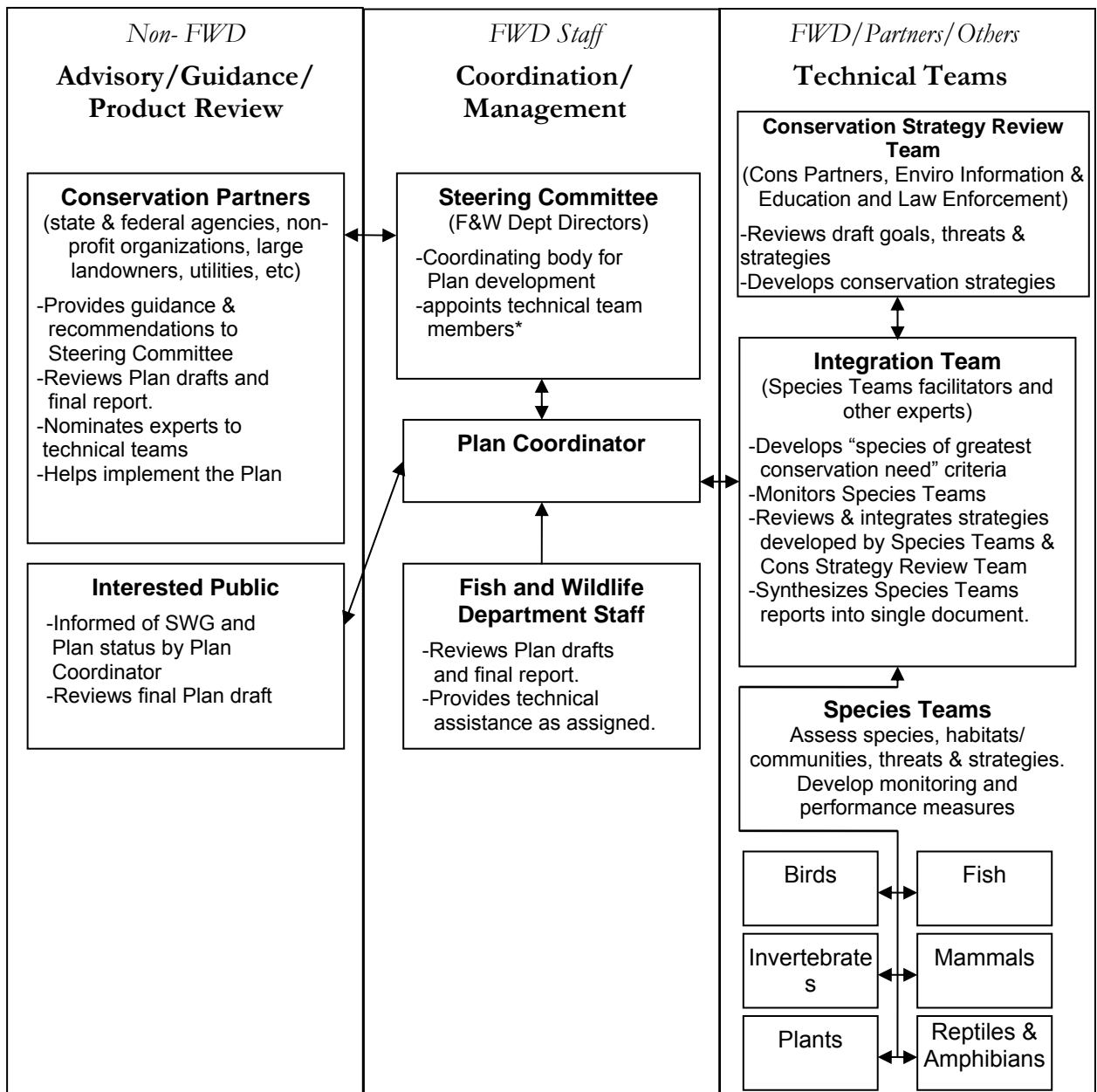
### *Organizational Structure*

Six technical teams (Species Teams), two coordination teams (Integration Team and Steering Committee) and two advisory committees (Conservation Strategy Review Team and Conservation Partners) were created to develop the Wildlife Action Plan (Fig 3-1). Team descriptions follow below. Full charters for each team can be found in Appendix D.

**Steering Committee:** (Fish and Wildlife Department directors and program heads and the Action Plan Coordinator). The Action Plan Steering Committee is the executive body for Action Plan development and implementation with statutory responsibility for completion

of the Action Plan and management of State Wildlife Grant funds. The Steering Committee provides leadership and organizational commitment to ensure success of the Action Plan; encourages meaningful participation and buy-in among partners; and, appoints members to technical teams. See Table 3-1 for a list of Steering Committee members.

**Wildlife Action Plan Coordinator:** Manages the Action Plan project, supports activities of the technical and coordination teams, directs outreach and communications efforts, and writes website, newsletter and Action Plan content.



**Figure 3-1: VT Wildlife Action Plan Teams and Committees**

**Conservation Partners:** (representatives of state & federal agencies, non-profit organizations, large landowners, utilities, State legislators, academics, and others).

Conservation Partners provide guidance and recommendations to the Action Plan Steering Committee; review SGCN lists and Action Plan drafts; nominate experts for participation on Species, Integration and Conservation Strategy Review teams; and, help implement the Action Plan upon its completion. The Conservation Partners committee is open to any and all organizations that wished to participate. See table 1-1 for a list of conservation partners.

**Species Teams:** (selected Fish and Wildlife staff, conservation partners, and other wildlife conservation experts). There are six Species Teams: Bird, Fish, Invertebrate, Mammal, Plant, Reptile & Amphibian (Herps). These teams develop and refine lists of species of greatest conservation need; assess species distribution and abundance, identify habitats, communities, problems & strategies; develop monitoring and performance measures; recommend draft strategies for managing species of greatest conservation need; address comments made by Conservation Partners during interim review. See Table 3-1 for a list of Species Team members.

**Integration Team:** (Species Team leaders plus additional Fish & Wildlife staff and non-staff experts in wildlife conservation). The Integration Team develops criteria for designating species of greatest conservation need; keeps Species Teams on schedule; organizes species into groups based on habitat needs, synthesizes reports of the Species Teams and strategies developed by the Conservation Strategy Review team; identifies gaps in information and addresses special habitat and natural community needs; and prioritizes strategies and solutions to conservation challenges. See Table 3-1 for a list of Integration Team members.

**Conservation Strategy Review Team:** (State and federal agencies and non-profit organizations). The Conservation Strategy Review team (CSR) includes a main team as well as an Education CSR and a Law Enforcement CSR. The CSR was added to the array of Action Plan teams and committees in direct response to early feedback from Conservation Partners. Partners wanted additional opportunities to participate in Action Plan strategy development. CSR members were selected by the Steering Committee from a pool of nominees submitted by Conservation Partners. See Table 3-1 for a list of CSR members.

The Conservation Strategy Review team reviews problems and draft strategies developed by the Species Teams and the Integration Team. The CSR can also develop additional strategies as needed. These teams will also help present the draft Action Plan to Conservation Partners and the general public during review sessions. Because staffing and budget limitations made it impossible to include conservation education and law enforcement professionals on every Action Plan team and committee the Education and Law Enforcement CSRs were created to insert key perspectives and ideas into the process in a strategic and cost-effective manner. Conservation Strategy Review team members will also help implement the Action Plan upon its completion.

**Table 3-1: Members of the Vermont Action Plan Steering Committee, Conservation Strategy Review Team, Integration Team and Species Teams**

\*Denotes chair, facilitator or co-facilitator of a team or committee

<b>Steering Committee</b>		<b>Conservation Strategy Review Team (CSR)</b>	
Ron Regan*	VT Fish & Wildlife Dept, Operations Director	Eric Palmer*	VT Fish & Wildlife Dept.
Tom Decker	VT Fish & Wildlife Dept, Wildlife Director	Colleen Sculley*	US Fish & Wildlife Service
Eric Palmer	VT Fish & Wildlife Dept, Fisheries Director	Rob Borowske	VT Fish & Wildlife Dept Board
Scott Darling	VT Fish & Wildlife Dept District Biologist	Gina Campoli	VT Agency of Transportation
Steve Parren	VT Fish & Wildlife Dept, NNHP Coordinator	Peg Elmer	VT Dept of Housing & Community Affairs
Tom Wiggins	VT Fish & Wildlife, Department Planner	Jamey Fidel	VT Natural Resources Council
Jon Kart	VT Fish & Wildlife Dept, Action Plan Coordinator	Roy Marble	VT Federation of Sportsmen's Clubs
		David Kelley	VT Ski Areas Association
<b>Integration Team</b>		Warren King	Audubon Society
Scott Darling*	VT Fish & Wildlife Dept	Sherb Lang	Hunters Anglers & Trappers of VT
Christa Alexander	VT Fish & Wildlife Dept	Leo Laferriere	Society of American Foresters
John Austin	VT Fish & Wildlife Dept	Art Menut	VT Farm Bureau
Farley Brown	VT Coverts	Julie Moore	VT Agency of Natural Resources Planning Division
Doug Burnham	VT Dept of Environmental Conservation	Virginia Rasch	Assoc of VT Conservation Commissions
Dave Capen	University of Vermont	John Roe	The Nature Conservancy
Kathy Daly	Wildlands Project	Rick Schoonover	Vermont Trappers Association
Therese Donovan	VT Fish & Wildlife Coop Unit	Dave Tilton	US Fish & Wildlife Service
Paul Fredrick	VT Forest, Parks and Recreation Department	Jim Wood	North Country Environmental & Forestry
Clayton Grove	US Forest Service	Steve Wright	National Wildlife Federation
Eric Sorenson	VT Fish & Wildlife Dept	<b>Education CSR</b>	
Elizabeth Thompson	University of Vermont	Mark Scott	VT Fish & Wildlife Dept.
Keith Weaver	US Fish & Wildlife Service	Ginger Anderson	VT Forest Parks & Recreation Dept
Cedric Alexander	VT Fish & Wildlife Dept	Sally Laughlin	VT Endangered Species Committee
Ken Cox	VT Fish & Wildlife Dept	Gale Lawrence	Naturalist, writer
Mark Ferguson	VT Fish & Wildlife Dept	<b>Law Enforcement CSR</b>	
Steve Parren	VT Fish & Wildlife Dept	Bob Rooks	VT Fish & Wildlife Dept.
Bob Popp	VT Fish & Wildlife Dept	Mark Sweeny	US Fish & Wildlife Service
Kim Royar	VT Fish & Wildlife Dept	Pat Bosco	US Fish & Wildlife Service

**Table 3-1 continue**

<b>Species Teams</b>			
<b>Bird Team</b>		<b>Invertebrate Team</b>	
Cedric Alexander*	VT Fish & Wildlife Dept	Mark Ferguson*	VT Fish & Wildlife Dept.
Eric Derlath	US Fish & Wildlife Service	Steve Fiske	VT Dept of Environmental Conservation
Patrick Doran	Wildlands Project	Trish Hanson	VT Forest Parks & Recreation Dept
Dave Frisque	US Fish & Wildlife Service	Bryan Pfeiffer	Wings Environmental
Margaret Fowle	National Wildlife Federation	Kent McFarland	VT Institute of Natural Science
John Gobeille	VT Fish & Wildlife Dept.		
Paul Karczmarczyk	Ruffed Grouse Society	<b>Mammal Team</b>	
Mark Labarr	Audubon Society	Kim Royar*	VT Fish & Wildlife Dept.
Chris Rimmer	VT Institute of Natural Science	Pat Bartlett	Consulting Foresters Assoc VT
Allan Strong	University of Vermont	Tom Decker	VT Fish & Wildlife Dept.
		Bill Kilpatrick	University of Vermont
<b>Fish Team</b>		Sue Morse	Keeping Track, Inc
Ken Cox*	VT Fish & Wildlife Dept.	John Sease	US Forest Service
Doug Facey	St. Michaels College	Peter Smith	Green Mountain College
Anne Hunter	VT Fish & Wildlife Dept.	Charles Wood	University of Vermont, retired
Rich Langdon	VT Dept of Environmental Conservation	<b>Plant Team</b>	
John Lepore	VT Agency of Transportation	Bob Popp*	VT Fish & Wildlife Dept.
Craig Martin	US Fish & Wildlife Service	Dorothy Allard	Endangered Species Committee-Flora
Donna Parrish	VT Fish & Wildlife Coop Unit	Errol Briggs	VT Grange
Steve Roy	US Forest Service	Anne Bove	VT Dept of Environmental Conservation
		Mary Beth Deller	US Forest Service
<b>Reptile &amp; Amphibian Team</b>		Brett Engstrom	Endangered Species Committee-Flora
Steve Parren*	VT Fish & Wildlife Dept.	Diana Frederick	VT Forest Parks & Recreation Dept
Jim Andrews	Middlebury College	Marc Lapin	Endangered Species Committee-Flora
Steve Faccio	VT Institute of Natural Science	Annie Reed	Endangered Species Committee-Flora
Chris Slesar	VT Agency of Transportation	Ned Swanberg	VT Institute of Natural Science
		Susan Warren	VT Dept of Environmental Conservation
		Mike Winslow	Lake Champlain Committee

### ***Outreach and Public Involvement***

The Vermont Fish & Wildlife Department recognized that to fully meet our goals for the Action Plan we needed the resources, participation and ingenuity of many conservation-minded individuals, organizations. To honor the efforts of the people and organizations participating in this project the following guidelines developed by the International

Association of Public Participation (IAP2 2004) were utilized in planning and implementing the public involvement process for Vermont's Action Plan:

1. Public participation includes the promise that the public's contribution will influence the Wildlife Action Plan.
2. The public participation process involves participants in defining how they participate.
3. The public participation process provides participants with the information they need to participate in a meaningful way.
4. The public participation process communicates to participants how their input affected the development of the Wildlife Action Plan.

In addition to the involvement of Conservation Partner organizations and agencies noted earlier, additional outreach and public involvement efforts focused on the following groups:

**General Public:** The general public has been kept informed about the State Wildlife Grants and Wildlife Action Plan several ways. These include: ongoing publications of two Department newsletters (*Fish & Wildlife Conservation News* and *Natural Heritage Harmonies*), a website dedicated to Vermont's Action Plan ([http://www.vtfishandwildlife.com/SWG\\_home.cfm](http://www.vtfishandwildlife.com/SWG_home.cfm)); presentations to conservation and wildlife oriented organizations, lectures at the University of Vermont; postings to listserves such as Vermont's science teacher listserve, and the general news and recreation media. Our public outreach goals were to inform the public that: wildlife may be at risk without our help and without adequate funds to conserve them; that with the financial support of State Wildlife Grants program, the Vermont Fish and Wildlife Department and Conservation Partners are developing strategies to conserve Vermont's wildlife; and; the general public can view a draft Action Plan and provide comments in spring 2005.

**Endangered Species Committee:** The Endangered Species Committee (ESC) is a standing citizens committee of the Agency of Natural Resources. It advises the Agency Secretary on issues concerning the State's listed and potential endangered and threatened species. The committee reviews the endangered and threatened species list and makes recommendations to the Secretary about amendments and ways to protect listed species. The ESC is supported by taxa-specific Scientific Advisory Groups (SAGs). Positions on the ESC and SAGs are filled by experts from local, state and regional organizations, agencies and education/research facilities. The Endangered Species Committee was briefed on the Action Plan early in the process. Several ESC and SAG committee members serve as Species Team members.

**Fish and Wildlife Board:** The Fish and Wildlife Board is a citizens committee of the Fish & Wildlife Department responsible for reviewing and approving fish and wildlife regulations in the state. The 14 members each represent one Vermont county and serves for six years. The board has been kept informed of the progress of the Action Plan via VFWD newsletters and email. Two Fish and Wildlife Department Board members were invited to the introductory Action Plan meeting and who have received regular Action Plan updates via the Conservation Partner listserve. Robert Borowske, Board Chairman was also made a member of the Conservation Strategy Review team.

**Internal Constituencies:** Staff of the Wildlife and Fisheries divisions and the Nongame and Natural Heritage Program of the Vermont Fish & Wildlife Dept received periodic updates and briefings on Action Plan status through division meetings, postings to the Action Plan website and through email. Leaders and members of the Integration Team, the Conservation Strategy Review team and six Species Teams included staff in all seven VFWD offices in the state. Staff was encouraged to provide input on all aspects of the process.

### ***Coordination with Other Agencies & Native American Tribes***

Congressional guidelines require that each state Action Plan "coordinate the development, implementation, review and revision of the Action Plan with federal, state and local agencies and Indian tribes that manage significant land and water areas within the state or administer programs that significantly affect the conservation of identified species and habitats."

**Native American Tribes:** There are no Native American tribes within the borders of Vermont that are officially recognized by the state or by the federal Bureau of Indian Affairs. Further, there are no tribal entities that manage significant land and water areas within the state or administer programs that significantly affect the conservation of Species of Greatest Conservation Need or their habitats. Therefore, in developing Vermont's Action Plan no special efforts were made to reach out to the Native American community however all Vermonters including Native Americans were encouraged to take part in the development of the Action Plan as Conservation Partners and the general public input process.

**Development:** State and federal agencies concerned with wildlife and land conservation and management have been highly involved in the development of Vermont's Action Plan. All are considered Conservation Partners in the development of the Action Plan. Representatives of eight state and federal agencies serve on Action Plan technical and coordinating teams (Table 3-1) of the dozen agencies serving as Conservation Partners. Several agencies provided data used in the development of the Action Plan. These agencies, as well as inter-agency groups such as the Lake Champlain Ecosystem Team, have also been kept informed of the ongoing developments in the Action Plan through email and US mail and partner meetings. Presentations and briefings were made to the commissioners of sister agencies at the State Agency of Natural Resources—the Department of Forests, Parks and Recreation, and the Department of Environmental Conservation, the Agency Secretary, the Vermont Agency of Agriculture, the inter-agency Lake Champlain Ecosystem Team, Windsor County Regional Planning Commission, and representatives of the Vermont Department of Housing & Community Development, and the US Department of Environmental Protection.

The International Association of Fish & Wildlife Agencies (IAFWA) and the Region 5 US Fish & Wildlife Service (USFWS) played significant and indispensable roles as facilitators of interstate, regional and national coordination through 1) Electronic listserves-IAFWA nationally and USFWS regionally; and, 2) Meetings of States, Federal Agencies and Partners—IAFWA nationally (two meetings) and USFWS regionally (three meetings).

**Implementation, Review & Revision:** All Conservation partners, including federal, state and local agencies will be encouraged to take part in the implementation, review and revision

of the Action Plan. Plans for these steps can be found in chapter 5 Vermont's Action Plan: Implementation and Review.

### ***Outreach Events and Products***

**Partner Meetings:** In March 2004 representatives of approximately 80 organizations and agencies interested in wildlife conservation and management were invited to an introductory Action Plan meeting. At this meeting the proposed Action Plan development process was presented. Through a series of discussions and brainstorming sessions the attendees helped the VFWD fine tune the process and focus on key issues. Participants were invited to take part in the development of Vermont's Action Plan by participating as Conservation Partners, by nominating people to serve on Species Teams and the Integration Team, and by keeping their memberships informed and engaged in the Action Plan.

In June 2005 Conservation Partners met for a second time to discuss the draft Action Plan report and Action Plan implementation. All questions, comments and suggestions were recorded and a responsiveness summary was developed and shared with all partners shortly after the meeting. The Conservation Partner comment period for the Action Plan originally ran from June 20 to July 18, 2005 but was extended to August 12, 2005 for a total of more than seven weeks.

In July 2005 a two-week public comment period and two public meetings on the final draft Action Plan were held. This comment period was three weeks to August 12, 2005 for a total comment period of five weeks. Public meetings were advertised through the Department's website, in the Department newsletter, through the news media and with the help of Conservation Partners who encouraged their memberships to attend the meetings and to provide comments on the report. Comments on the Action Plan were accepted during the meetings, via email, US mail, telephone and the Action Plan website.

The Action Plan was a significant topic of discussion among partner and potential partners during a September 2004 regional conference on Wildlife and Transportation held in Vermont.

**Individual Partner Meetings:** More than 40 meetings with individual partner organizations and agencies were held during the development of the Action Plan. The purpose of the meetings included keeping interested partners informed and outreach to potential partners.

**Partner Correspondence:** Between May 2004 and July 2005 Conservation Partners received periodic updates tracking progress in the development of the Action Plan via email and US mail. This includes the distribution of responsiveness summaries to Partner feedback, the announcement of a website dedicated to the VT Action Plan; the release of a draft list of Species of Greatest Conservation Need, the responsiveness summary to the CSR team recommendations and planning for a review meeting on the draft Action Plan report. Partners were invited to comment on any and all aspects of the Action Plan process and report in all communications. See Appendix E for a sample of correspondence and partner updates.

**Species Team, Integration Team and Conservation Strategy Review team meetings:**

The six Species Teams and Integration Team began meeting in May 2004 with most having monthly meetings at least through January 2005. The Conservation Strategy Review team met in Dec 2004 and February and March of 2005. These meetings were open to Conservation Partners and the general public. Meeting schedules were posted to the Action Plan website.

**Media:** The Action Plan Coordinator managed the project's media campaign. Press advisories were released three times during the life of the project. Stories and editorials ran in two of the state's major newspapers and an unknown number of local and regional papers. The project was also covered at least twice on television and on public and commercial radio stations. Sample coverage is included in Appendix F.

**Newsletters/Website:** *Fish & Wildlife Conservation News* was created by the Fish & Wildlife Department specifically to inform the public about the State Wildlife Grant program and the projects it supports. Three issues were produced during the course of Action Plan development. *Natural Heritage Harmonies* produced by the Nongame and Natural Heritage program provided the public with information about Department projects, including work on Species of Greatest Conservation Need. See Appendix G for sample newsletters. During implementation of the Action Plan these newsletters will continue to inform and involve the public in SWG and Action Plan conservation efforts.

In July 2004 the Department unveiled a website dedicated to Vermont's Wildlife Action Plan ([http://www.vtfishandwildlife.com/SWG\\_home.cfm](http://www.vtfishandwildlife.com/SWG_home.cfm)). This site contains background on SWG, Action Plan requirements and background materials, links to Conservation Partners, SGCN lists, team and committee meeting schedules, updates and Partner correspondence, copies of press releases as well as copies of media coverage and answers to frequently asked questions. Drafts of the Action Plan were also posted to the site and an online feedback and comment form allowed people to submit comments electronically. During implementation of the Action Plan the website will continue to inform and involve the public in SWG and Action Plan conservation efforts.

# *Species & Habitat Conservation*

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## *Identifying Species of Greatest Conservation Need*

Congress created the State Wildlife Grants program (SWG) in 2001 with the goal of preventing wildlife populations from declining to the point of requiring Endangered Species Act protections. To receive SWG funds, State Fish and Wildlife Departments agreed to develop statewide Wildlife Action Plans. Congress directed that the Action Plan identify and be focused on the "species of greatest conservation need."

Congress left it up to each state to identify their Species of Greatest Conservation Need (SGCN). The State Wildlife Grants program defines wildlife as "any species of wild, free-ranging fauna including aquatic species and invertebrates as well as native fauna in captive breeding programs intended for reintroduction within its previously occupied range." Furthermore, it was Congress' intent that SWG assist wildlife that have not previously benefited from other federal wildlife conservation and management programs (e.g., Federal Aid to Wildlife Restoration Act, Federal Aid in Sport Fish Restoration Act, or the Endangered Species Act). In Vermont, SGCN include:

- Species with declining populations;
- Species threatened or potentially threatened; and,
- Species that are so little known in the state that experts cannot yet ascertain status.

Though plants are not eligible for State Wildlife Grants Program funding, Vermont's Action Plan does include plant SGCN. It is expected that habitat conservation efforts for wildlife SGCN will benefit at least some of the plants. Plant specific conservation strategies, if and when they are implemented, will be funded through mechanisms other than SWG. Several game and sportfish species are identified here as SGCN. We expect to target other established funding programs for the conservation of these species before tapping SWG.

Vermont began its process of identifying Species of Greatest Conservation Need (SGCN) with a systematic review of all its known wildlife. The review was designed to assist the teams selecting the SGCN by equalizing the between well-known wildlife species supported by large datasets and poorly understood species.

The Integration Team was tasked with developing review criteria (Table 3-2). Six Species Teams (Bird, Fish, Herptile (Reptile & Amphibian) Invertebrate, Mammal and Plant) conducted the reviews and selected SGCN with guidance and coordination provided by the Integration Team.

The Species Teams were provided with lists of species found in Vermont within their respective taxa (the Invertebrate team received the most up-to-date invertebrate list available but it is widely accepted that a complete list of the estimated 15,000-36,000 invertebrates in Vermont may never be possible (ANR 1995). The lists and supporting information were developed by the VFWD's Nongame and Natural Heritage Program (NNHP) using their Biotics© database and augmented with other databases, records and information from

Natureserve, universities and research facilities, regional and national monitoring efforts, published literature and the knowledge of technical experts.

Species teams met multiple times between May and September 2004 to conduct review. Data was captured in the Action Plan database.

Once the reviews were complete (Appendix A for SGCN, Appendix H for secure species) the Species Team selected SGCN using selection criteria (Table 3-3) developed by the Integration Team. Species were assigned conservation priorities of high, medium or low. Species ranked medium and high constitute Vermont's Species of Greatest Conservation Need. Low priority species were considered secure. There were a few cases where a specific Species Team approached their tasks differently:

**Bird Team:** An unusually rich collection of data and prior conservation planning efforts are available to bird conservators—far more than is available for other taxa. The Bird Team took advantage of this information by first focusing on species found on the watch lists of the North American Bird Conservation Initiative and Partners In Flight for Bird Conservation Regions 13 and 14 (Rosenberg 2004) as well as BBS route. Once watch list species were reviewed the team turned its attention to other species.

**Invertebrate Team:** It is estimated that Vermont is home to between 15,000 and 36,000 invertebrate species (VANR 1995). The vast majority are un-cataloged, un-studied and just plain unknown. Application of the review criteria to invertebrates on a species by species basis would be unproductive. Instead the Invertebrate team interviewed additional experts within Vermont, regionally and nationally to help in the identification of species and species groups of greatest conservation need.

**Plant Team:** The Plant Team also had to contend with a huge list of species—more than 2000 vascular plants (Flora 1993) and 600 bryophytes (Allard 2004). The team took advantage of plant conservation assessments previously conducted by the Agency of Natural Resources' Endangered Species Committee to create its list of Species of Greatest Conservation Need. All species ranked S1 (critically imperiled) and S2 (imperiled) became SGCN. Those SGCN also on the New England Plant Conservation Program list of regionally rare plants were then ranked High Priority. All others were ranked medium priority.

**Table 3-2: Criteria for Reviewing Vermont's Wildlife**

Category	Criterion	Allowed Response	Definition/example
<b>Species that are rare or declining</b>	State and/or Federally listed Threatened or Endangered species	Endangered, Threatened, Special Concern  [See Appendix I for definitions of T& E status and ranks]	E: Endangered: in immediate danger of becoming extirpated in the state T: Threatened: with high possibility of becoming endangered in the near future. SC: Special Concern: rare; status should be watched
	Rare and very rare species	S-Ranks S1,S2  [See appendix I for definitions of T& E status and ranks]	S1: Critically imperiled (very rare): At very high risk of extinction or extirpation due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors. S2: Imperiled (rare): At high risk of extinction or extirpation due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors
	State Trend	Stable, Fluctuating, Declining, Increasing, Unknown	Based on research data such as BBS routes, other monitoring and best judgment of experts
	Regionally Rare	Yes/No/ Unknown	Based on regional and national research, BBS routes, other monitoring and consensus within technical teams.
	Extirpated in Vermont	Yes/No/ Unknown	
<b>Vulnerable species at risk due to any of the following</b>	Habitat Loss/Conversion/fragmentation	Yes-development, Yes-succession, Yes-natural causes, No, Unknown	Species negatively affected by habitat conversion, degradation, fragmentation or succession
	Life-history traits making the species vulnerable	Yes/No/ Unknown	Species with low fecundity, that take a long time to reach sexual maturity, that take a long time between reproductive events (e.g., sturgeon, wood turtle)
	Species vulnerable to taking	Yes-Regulated, Yes-Unregulated, No, Unknown	Hunting, trapping or collection, legal or otherwise.
	Species vulnerable to other deadly contact with humans	Yes/No/ Unknown	Road kill (bobcat, turtles), wind turbines (birds, bats) contaminates (fish) etc
	Species w/ limited, localized at-risk populations	Yes/No/ Unknown	Populations that cannot or do not intermix with the meta-population. E.g., non-vagile invertebrates in a sandplain community and perhaps spruce grouse.
	Species significantly impacted by exotics	Yes/No/ Unknown	Impact may lead to elimination of populations, limits to long-term stability, extirpation
<b>Species or species groups w/ unknown status or</b>	Unknown status-more data is needed	Yes/No/ Unknown	
	Species w/ taxonomic uncertainties	Yes/No/ Unknown	

Category	Criterion	Allowed Response	Definition/example
taxonomy			
Category	Criterion	Allowed Responses	Definition/example
<b>Other factors to consider</b>	Keystone species	Yes/No/ Unknown	Species with a disproportionately strong influence on ecosystem functioning and diversity (Power et al.1996).
	Responsibility species	Yes/No/ Unknown	Species for which Vermont has a long-term stewardship responsibility because they are not doing well regionally, even if populations are stable in Vermont (e.g., Bobolink)
	Endemic species	Yes/No/ Unknown	Species found only in Vermont
	Relationship to core population	central peripheral, disjunct, unknown	
	Requires rare or specialized habitats	Yes/No/ Unknown	A species with a very narrow niche, e.g., a species requiring a host plant found only in a handful of serpentine rock outcrops.
	Species with limited dispersal capability	Yes/No/ Unknown	Non-vagile species in dispersed habitats.
	Requires key Vermont migration stopover points	Yes/No/ Unknown	
	Species selected based on expert opinion	Yes/No	Combined opinion of the team.
	Actively managed? (if so list applicable plan(s))	Yes-Mgt plan exists, Yes-regulated, No	Does a management plan exist for the species or species group? (E.g., an osprey plan, waterfowl plan, species recovery plan.)
<b>Secure?</b>	Species Secure	Yes/No/ Unknown	Combined opinion of the team
	Final Assessment	High, Medium, Low Priority	

**Table 3-3: Criteria for Selecting Vermont's Species of Greatest Conservation Need**

Because the circumstances, issues and problems impacting each species is unique, teams were given some flexibility in assigning ranks to species.

<b>Species (and Species Groups) of Greatest Conservation Need</b>	<b>High Priority</b>	Species that are vulnerable (rarity is an aspect of vulnerability).
		Species with immediate limits to its survivability based on known problems and/or known impacts to the population
		Species exhibit negative population trends.
		Species may be extirpated locally (Vermont) but still exist regionally.
	<b>Medium Priority</b>	Species may be well distributed and even locally abundant, but populations are challenged by factors that increase mortality or habitat loss and therefore threaten the species in Vermont.
		Consider what is known about the species regionally.
<b>Low Priority</b>	Since this may be the most difficult category to assign species to, there should be a consensus among group members.	
	Species is secure for the immediate future.	
<b>Common Species</b>	<b>Low Priority</b>	Species may be vulnerable to some mortality and/or problems (e.g., habitat degradation) but population is abundant enough to tolerate negative forces

There is some variability between Species Teams regarding thresholds used for selection as SGCN (e.g. the herpetile team was the most conservative in selecting SGCN and the mammal team selected the most SGCN based on the need to address data gaps). This being Vermont's first Action Plan our priority was not to ensure parity in numbers across taxa but rather to ensure that experts within each taxon were in accord regarding the species selected.

The list of Species of Greatest Conservation Need includes 144 vertebrate species (out of a total of 468), 192 invertebrate species or groups (out of an estimated 15,000-36,000) and 577 plant species out of approximately 2600 vascular and non-vascular species. See Table 3-4 for summary statistics on Vermont's SGCN.

**Table 3-4: Summary Statistics for Vermont's Species of Greatest Conservation Need**

High and medium priority ranked species constitute Vermont's SGCN.

\*27,250 is the median of the estimated 15,000 to 36,000 Vermont invertebrates (ANR 1995)

\*\* This low percentage reflects the large number of invertebrates whose conservation status is unknown

	Total species in VT	High Priority SGCN	Medium Priority SGCN	Total SGCN	% SGCN of total VT Species
Birds	269	22	35	57	21%
Fish	94	18	15	33	35%
Reptiles & Amphibians	42	12	7	19	45%
Mammals	63	16	17	33	52%
Invertebrates*	27250*	192	0	188	0.69%**
Plants	2000	200	377	577	29%
<b>Total</b>	<b>29718</b>	<b>403</b>	<b>450</b>	<b>853</b>	<b>2.87%</b>

This list was then reviewed by the Integration Team, Steering Committee and the Commissioner of the Fish & Wildlife Department. It was then made available to Vermont Fish & Wildlife staff, Action Plan Conservation Partners, the Action Plan Conservation Strategy Review team and the general public for feedback and comments via the Action Plan website.

## ***Conservation of Species of Greatest Conservation Need***

### **Fine Filter-Species**

Once Species of Greatest Conservation Need were identified, technical teams set about developing individual species reports for each SGCN. Reports identified species distribution, habitat needs, problems affecting species and their habitats, research and monitoring needs and conservation strategies for each SGCN (Congressionally required elements #1-#5). Invertebrate SGCN were addressed in groups rather than as individual species. Fourteen invertebrate groups were created based on taxonomy (e.g., butterflies, crustaceans, tiger beetles) and habitat use (e.g., freshwater, grasslands, hardwood forests). Reports were not developed for plant SGCN. All data was entered into the Action Plan database.

Distribution for all SGCN was identified by biophysical region (Girton & Capen 1997) using terminology consistent with the Nongame Natural Heritage Program's element occurrence tracking procedures. Distribution of fish SGCN and some additional aquatic SGCN was also

identified by 8-digit watershed unit (NRCS 2003). Historic occurrence was noted in a narrative for some of the rarer and extirpated SGCN.

Protocols for describing habitat were developed by the Integration Team in consultation with Species Teams. Habitat descriptions for SGCN include a narrative, elevation preferences, migrant status, home range and patch size requirements and landscape requirements (e.g., corridor needs, habitat mosaics or wetland complexes, preference for managed or passively managed forest, large grasslands or developed landscapes).

Research needs for each SGCN, where needed to determine species status or to identify problems, were developed by each Species Team. Research needs were assigned “high,” “medium” and “low” priorities.

Priority problems and potential risks to Species of Greatest Conservation Need were enumerated for each species. These were not exhaustive lists of all possible problems. Teams identified only those factors posing significant and potentially significant problems for a species. A narrative description was entered into the database. Species teams also assigned each problem to one of 22 habitat related and non-habitat related problem categories (Appendix C). These categories are the same as those used in Species of Concern Status Reports during the U.S. Forest Service's Forest Plan Revision process for the Green Mountain National Forest.

Species specific conservation strategies were also developed by the Species Teams. Strategies were designed to address the problems identified for each SGCN. Strategies were assigned either a "medium" or "high" priority status (low priority strategies are not included in the Action Plan) and each strategy was also assigned to a category (Salafsky 2004) to aid in organizing and review of strategies (Appendix C).

Strategies were not prioritized beyond this step. As a conservation guide for the state, Vermont's Action Plan is meant to provide guidance to organizations, agencies and individuals wishing to conserve wildlife. The varied goals and missions of the partners involved in the Action Plan span a broad spectrum of wildlife interests, skills and reach (some are local, others are state, regional and federal entities). No prioritization was found to satisfy all partners, however, the conservation need is deemed so great that there is room for everyone to select the species and habitats they find most important and implement the strategies they are most capable of working on. Detailed discussions with the Conservation Strategy Review team focused prioritization efforts on problems impacting SGCN and habitats (see below).

### **Coarse Filter-Conservation at Multiple Scales**

To aid in the development of community and landscape level conservation strategies, all SGCN were assigned to at least one of more than 100 communities, cultural habitats and or landscapes. These elements were organized in four major groups: 1) forest and riparian/fluvial landscapes; 2) terrestrial natural communities and successional stage forests; 3) fish assemblages and lacustrine waters (lakes and ponds); and, 4) cultural habitats (see the tables 4-1 and 4-2 in the SGCN Conservation at multiple Scales section of Chapter 4).

"Wetland, Woodland, Wildland - A guide to the natural communities of Vermont" (2000) by Thompson and Sorenson was used as the basis for terrestrial natural communities. Forest cover types (Eyre 1980) and U.S Forest Service Forest Inventory & Analysis types (USDA 2003) were used for early successional and managed forests. "A Classification of the Aquatic

Communities of Vermont" by Langdon et. al. (1998) was used as the basis for aquatic habitat designations and Reschke (1990) was adapted for cultural habitats.

These 100 categories were grouped into 24 major categories (see the tables 4-1 and 4-2 in the SGCN Conservation at multiple Scales section of Chapter 4) and the Integration Team developed assessments for each. Assessments included descriptions and general locations; current conditions; desired conditions based on the needs of SGCN associated with each category; a ranked list of significant problems impacting that category; conservation strategies to address each problem along with the identification of potential conservation partners and funding sources for each; and a listing of other relevant plans and planning processes.

The ranking of habitat problems was done according to a process described in Salafsky et. al. (2003) using four criteria: severity, scope, timing and reversibility (Table 3-5). This same process was employed by many other states developing Comprehensive Wildlife Conservation Strategies. Problems described in the habitat and community summaries (and in species summaries) are not comprehensive. Only those problems ranked as medium and high are included in this report. The decision to list only medium and high problems was a strategic one to focus attention on those problems determined or perceived to be most important. If additional problem(s) are later identified as significantly impacting a species or habitat it will be incorporated into the Action Plan database during project review and reporting. Strategies and actions to address additional problem(s) will also be eligible for SWG funding.

**Table 3-5: Sample Problem and Information Need Assessment Tool**

<sup>1</sup>Severity: The degree to which a problem impacts the viability/integrity of a habitat within the next 10 years.

<sup>2</sup>Scope: The extent of the habitat affected by the problem within 10 years.

<sup>3</sup>Timing: Time until a problem will start having an impact on a habitat

<sup>4</sup>Reversibility: Degree to which effects of a problem can be restored.

\* Information needs & data gaps ranked hi/med/low based on the best available knowledge of tech teams.

Problem/ Information Need* Category *	Detailed description of information need or problem	Severity <sup>1</sup> 4=Serious damage/loss 3=Significant damage 2=Moderate damage 1=Little to no damage	Scope <sup>3</sup> 4=Throughout (>50%) 3= widespread (15-50%) 2=Scattered (5-15%) 1=localized(<5%)	Timing <sup>4</sup> 4=current (<1yr) 3=Imminent (1- 3yrs) 2=near-term (3- 10yrs) 1=Long-term (>10yrs)	Reversibility <sup>4</sup> 4=irreversible 3= reversible  w/difficulty 2=reversible w/ some difficulty 1=easily reversible	Score (Σ=severity + scope + timing + reversibility)	Ranks High=12-16 Med=6-11 Low=5

Once all problems for habitats were ranked it became possible to assess these problems by category across all habitats. A matrix of habitat types and problem categories was developed (Salafsky et. al. 2003). This matrix allowed the Integration Team and Conservation Strategy Review team to identify priority problems at the state level.

This assessment helped identify the scope problems across habitats. Broad scale problems, those impacting multiple habitat categories, were addressed by the Integration Team through state level conservation strategies.

### Landscape Classification & Ecological Divisions

Where available distribution of SGCN was recorded by biophysical region (Girton & Capen 1997) and 8-digit watersheds (NRCS 2003). Implementation of the Action Plan will include the development of baseline information the distribution and abundance of SGCN, and on amount,

location, condition and status of habitat within each biophysical region. These landscape units were selected in part because they will integrate well with other conservation efforts within the state and regionally. In its guidance to states, IAFWA recommended the use of Bailey's Sections for landscape classification (Bailey 1995, Bailey 1998). Biophysical regions can be considered a sub-unit of the Bailey's section providing finer grain detail. Data can be integrated into Bailey's sections to aide in regional, national and international conservation efforts.

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