



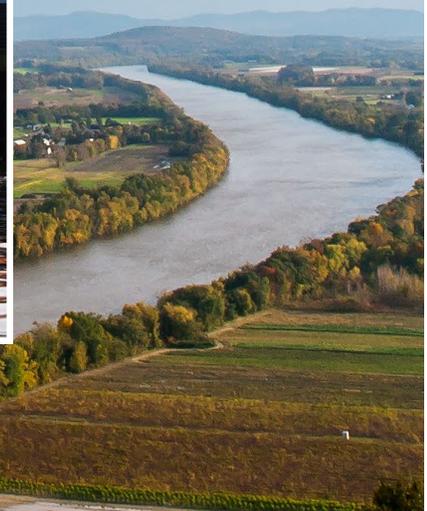
U.S. Fish & Wildlife Service

Silvio O. Conte National Fish and Wildlife Refuge

*Final Comprehensive Conservation Plan
and Environmental Impact Statement*

December 2016

*Volume 1—Chapters 1 through 7
including Bibliography, Glossary, and Acronyms*



Front cover:

Connecticut River from Mount Sugarloaf

Lamar Gore

Insets:

Hunting on the refuge

USFWS

Conducting research on puritan tiger beetles

USFWS

Kayaking on the Connecticut River

USFWS

*Enjoying the universally accessible trail
on the refuge's Fort River Division,*

Massachusetts

USFWS

*Fishing along the Connecticut River
near Hartford, Connecticut*

USFWS



*This blue goose, designed by
J.N. "Ding" Darling, has become
the symbol of the National Wildlife
Refuge System.*

The U.S. Fish and Wildlife Service (Service) is the principal Federal agency responsible for conserving, protecting, and enhancing fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The Service manages the National Wildlife Refuge System comprised of over 150 million acres including over 565 national wildlife refuges and thousands of waterfowl production areas. The Service also operates 70 national fish hatcheries and over 80 ecological services field stations. The agency enforces Federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the Federal Assistance Program which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies.

Comprehensive Conservation Plans (CCPs) provide long-term guidance for management decisions on a refuge and set forth goals, objectives, and strategies needed to accomplish refuge purposes. CCPs also identify the Service's best estimate of future needs. These plans detail program levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. CCPs do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.



U.S. Fish & Wildlife Service

Silvio O. Conte National Fish and Wildlife Refuge

Final Comprehensive Conservation Plan and Environmental Impact Statement

December 2016

Final Vision Statement

The Connecticut River is treasured by all for its majesty and significance in supporting diverse aquatic and terrestrial plant and animal life along its winding 410-mile passage through urban and rural communities in New Hampshire, Vermont, Massachusetts, and Connecticut. Working with our partners, we are inspired to protect and enhance the natural and cultural richness throughout the watershed, especially on lands and waters entrusted to our agency as the Silvio O. Conte National Fish and Wildlife Refuge.

Together with our partners, we design, support, and implement strategic conservation actions across the watershed, and communicate conservation needs and successes through extensive outreach and education programs. On refuge lands, and in our conservation partnership areas, we offer visitor programs and activities that promote an appreciation of the Connecticut River watershed as an intact, interconnected, and healthy ecosystem. Visitors respond to this greater awareness by becoming active stewards of the watershed's natural and cultural resources. Through our Urban Partnership Program, we are promoting the relevancy of conservation to healthy communities. Our actions exemplify the Service's vital role in conserving the Connecticut River watershed and the refuge's important contribution to the mission of the National Wildlife Refuge System.



U.S. Fish & Wildlife Service

Silvio O. Conte National Fish and Wildlife Refuge

Final Comprehensive Conservation Plan and Environmental Impact Statement

December 2016

Summary

Type of Action: Administrative—Development of a Comprehensive Conservation Plan

Lead Agency: U.S. Department of the Interior, U.S. Fish and Wildlife Service

Location: Silvio O. Conte National Fish and Wildlife Refuge
Connecticut, Massachusetts, New Hampshire, and Vermont

Administrative Headquarters: Silvio O. Conte National Fish and Wildlife Refuge
Sunderland, MA

Responsible Official: Wendi Weber, Regional Director, Region 5

For Further Information: Nancy McGarigal, Natural Resource Planner
U.S. Fish and Wildlife Service, Northeast Regional Office
300 Westgate Center Drive
Hadley, Massachusetts 01035
Email: northeastplanning@fws.gov

Alternative A—Current Management: This alternative represents continuing current management and serves as a baseline for comparing the other alternatives. Under this alternative, we would continue our current habitat and visitor services management activities on existing refuge lands. We would also continue to work with our existing partners throughout the Connecticut River watershed (watershed) to support our conservation, education, and recreation programs. We would continue to actively manage forest habitats on the Nulhegan Basin Division (Vermont) to benefit forest-dependent species of conservation concern, and manage grasslands and shrublands habitats on our Pondicherry (New Hampshire) and Fort River (Massachusetts) Divisions for species dependent on those habitats. We would maintain our hunting and fishing programs on refuge lands, which generally are managed consistent with respective State regulations. We would also continue to acquire lands from willing sellers under our existing approved land acquisition authority of approximately 97,830 acres. Our focus would continue to be on acquiring lands that were identified in the refuge's 1995 Master Plan and its accompanying EIS.

Alternative B—Consolidated Stewardship: This alternative would strategically focus our work with partners, and our staffing, funding, and other resource commitments across the watershed, in 16 defined geographic areas called Conservation Partnership Areas (CPAs). CPAs are large areas, defined by sub-watersheds, with concentrations of high-value habitat for fish and wildlife. Within CPAs, we have identified a total of 18 areas we call Conservation Focus

Areas (CFAs). These are areas with particularly high value to Federal trust resources and represent where we would focus our future refuge land acquisition. Under alternative B, we would not seek to expand the refuge beyond our current acreage authority. Instead, we propose to focus acquisition in CFAs rather than in the smaller, scattered areas proposed in the refuge's 1995 Master Plan and EIS. Under alternative B, we would expand our current wildlife habitat and visitor services management activities to other refuge divisions, and support those same opportunities within CPAs on other ownerships across the watershed.

Alternative C—Enhanced Conservation Connections and Partnerships

(Service's Preferred Alternative): Similar to alternative B, we would prioritize our work with partners in CPAs, and focus future refuge acquisitions in CFAs. However, under alternative C, we would seek to expand the refuge's approved acquisition authority in the watershed up to approximately 197,337 acres. The expanded network of 19 CPAs and 22 CFAs would allow for greater flexibility and opportunity for us to work with partners to achieve common conservation goals. We would be a more significant contributor to a well-connected conserved lands network in the watershed. Under alternative C, we would be able to increase our benefits to species of conservation concern by managing more acres of habitat with better distribution across the watershed. Expanding the refuge land base would also enhance our ability to address, and adapt our management to, climate change. We would be able to provide more public access for compatible recreational opportunities such as hunting, fishing, wildlife observation, and photography. We would also expand our education and interpretive programs with an emphasis on engaging urban communities.

Alternative D—Conservation Connections Emphasizing Natural Processes:

Similar to alternative C, we would prioritize our work both on and off refuge lands in the same 19 CPAs, and would focus refuge acquisition in the same 22 CFAs. However, under alternative D, we would further expand individual CFAs and seek additional acquisition authority of up to approximately 231,307 acres. The increased acres would further enhance the refuge's capability to establish connections in the watershed's conserved lands network, and would strengthen our ability to adapt refuge lands to climate change. A major difference between alternatives C and D is that alternative D proposes to limit active habitat management. We would only intervene in natural processes when a federally listed species is in jeopardy, or a major wildfire or pest outbreak occurs and restoration is a critical need. Under alternative D, we would be able to provide more public access due to the increased land base, but our visitor services programs would emphasize a reduced human footprint, with a focus on backcountry opportunities and fewer developed areas.

Table of Contents

Chapter 1 Purpose of, and Need for, Action

Introduction	1-1
The Connecticut River Watershed and Refuge’s Context	1-3
The Draft CCP/EIS Structure	1-3
Purpose of, and Need for, Action	1-8
Regional Context and Project Analysis Area	1-10
Refuge Establishment History	1-11
Refuge Purposes	1-11
Refuge Vision	1-12
Refuge Goals	1-12

Chapter 2 The Planning Process

Introduction	2-1
Service Policies, Legal Mandates, Service and Refuge System Conservation Priorities and Initiatives, and Resource Plans Guiding the Planning Process	2-1
Conservation Plans and Initiatives Guiding Development of the CCP	2-18
The Comprehensive Conservation Planning Process	2-19
Issues, Concerns, and Opportunities	2-22
Issues, Concerns, and Opportunities Outside the Scope of This Draft CCP/EIS Analysis	2-22
Issues, Concerns, and Opportunities Not Needing Alternative Management Options	2-28
Issues, Concerns, and Opportunities Evaluated Under Alternative Management Options	2-29

Chapter 3 Affected Environment

Introduction	3-1
Part I: The Connecticut River Watershed Environment	3-1
Land Use: Historic and Current	3-1
Physical Environment	3-6
Biological Environment	3-20
Socioeconomic Environment	3-59
Part II: General Refuge Information	3-67
Refuge Administration and Facilities	3-67
Urban Wildlife Conservation Initiative	3-75
Land Acquisition History	3-76
Conte Refuge General Public Use	3-82
Part III: Description of Individual Refuge Divisions and Units	3-87
Refuge Divisions	3-88
Individual Refuge Units	3-110

Chapter 4 Alternatives, Including the Service’s preferred Alternative

Introduction	4-3
Formulating the Alternatives	4-3
Alternatives or Actions Considered but Eliminated from Detailed Study	4-4
Detailed Description of the Alternatives:	4-8
Alternative A—Current Management	4-8
Alternative B—Consolidated Stewardship	4-12
Alternatives C—Enhanced Conservation Connections and Partnerships—The Service-preferred Alternative	4-23

Chapters (cont.)

Chapter 4 Environmental Consequences (cont.)

Alternative D—Reduced Management with Emphasis on Backcountry Recreation. 4-23

Actions Common to All Alternatives 4-26

Actions Common to Alternatives B, C, and D Only 4-49

Comparison of Management Objectives, Actions, and Strategies by Alternative 4-112

Maps of Proposed CPAs 4-113

Maps of Proposed CFAs 4-133

Maps of Proposed Recreational Access for the Nulhegan Basin and Pondicherry Divisions
by Alternative 4-156

Summary Comparison of Management Objectives, Actions, and Strategies by Alternative
Proposed in the Conte Refuge CCP 4-165

Chapter 5 Environmental Consequences

Introduction 5-1

Impact Analysis and Relationship to Scale 5-6

Regional-scale Impacts. 5-9

Refuge-scale Impacts 5-45

Cumulative Impacts 5-131

Relationship Between Short-term Uses of the Human Environment and Enhancement of
Long-term Productivity 5-144

Unavoidable Adverse Impacts 5-144

Potential Irreversible and Irrecoverable Commitments of Resources 5-145

Environmental Justice Impacts. 5-146

Summary of the Impacts of the Alternatives 5-146

Chapter 6 Coordination and Consultation

Introduction 6-1

Public and Partner Involvement 6-1

Public and Partner Meetings 6-1

Chapter 7 List of Preparers

Planning Team. 7-1

Other Service Program Involvement 7-2

Partners Involved in Refuge Planning 7-3

Bibliography

Chapter 1 References Bibl-1

Chapter 2 References Bibl-1

Chapter 3 References Bibl-4

Chapter 4 References Bibl-27

Chapter 5 References Bibl-35

Glossary, Acronyms, and Species Scientific Names

Glossary. Glos-1

Acronym. Glos-14

Species Scientific Names Glos-20

List of Figures

Figure 2.1	Information Used in Development of a CCP	2-1
Figure 2.2	Strategic Habitat Conservation Process	2-17
Figure 2.3	The CCP Planning Process and its Relationship to NEPA	2-17
Figure 3.1	8 Hour Ozone Non-attainment Areas, 2012.	3-20

List of Tables

Table 3.1	Conserved Lands in the Connecticut River Watershed by State as of October 2013.	3-5
Table 3.2	The Connecticut River's Major Tributaries	3-8
Table 3.3.	Annual Number of Unhealthy or Very Unhealthy Days by State Counties substantially within the Connecticut River Watershed (based upon Air Quality Index (AQI)).	3-18
Table 3.4	Estimated Amount of Wetlands in Connecticut River Watershed by State	3-32
Table 3.5	Refuge Budget for Fiscal Year 2012.	3-69
Table 3.6	Land Acquisition History for Conte Refuge as of October 7, 2013.	3-77
Table 3.7	Refuge Revenue Sharing Payments to Towns, 2007 to 2013	3-81
Table 3.8	Results from the 2011 U.S. Fish and Wildlife Service National Survey of Fishing, Hunting, and Wildlife-associated Recreation for Connecticut, Massachusetts, Vermont, and New Hampshire.	3-82
Table 3.9	Estimated Annual Refuge Visitation for Priority Public Uses, 2008 to 2012	3-83
Table 3.10	Current Refuge Ownership by Division and Unit	3-88
Table 3.11	Percentage of Salmon River Division by Habitat Type	3-89
Table 3.12	Percentage of Whalebone Cove Division by Habitat Type	3-91
Table 3.13	Percentage of Dead Branch Division by Habitat Type	3-92
Table 3.14	Percentage of Fort River Division by Habitat Type.	3-94
Table 3.15	Percentage of Mill River Division by Habitat Type	3-97
Table 3.16	Percentage of Westfield River Division by Habitat Type.	3-98
Table 3.17	Percentage of Blueberry Swamp Division by Habitat Type.	3-100
Table 3.18	Percentage of Pondicherry Division by Habitat Type	3-102
Table 3.19.	Percentage of Mascoma River Division by Habitat Type	3-105
Table 3.20	Percentage of Nulhegan Basin Division by Habitat Type	3-107
Table 3.21	Percentage of Dead Man's Swamp Unit by Habitat Type	3-110
Table 3.22	Percentage of Roger Tory Peterson Unit by Habitat Type.	3-111
Table 3.23.	Percentage of Fannie Stebbins Unit by Habitat Type.. . . .	3-112
Table 3.24.	Percentage of Hatfield Unit by Habitat Type.	3-113
Table 3.25	Percentage of Honeyplot Road Wetlands Unit by Habitat Type	3-113
Table 3.26	Percentage of Mount Toby Unit by Habitat Type	3-114
Table 3.27	Percentage of Mount Tom Unit by Habitat Type	3-115

List of Tables (cont.)

Table 3.28 Percentage of Third Island Unit by Habitat Type 3-117

Table 3.29 Percentage of Wissatinnewag Unit by Habitat Type 3-118

Table 3.30. Percentage of Saddle Island Unit by Habitat Type. 3-118

Table 3.31 Percentage of Putney Mountain Unit by Habitat Type 3-119

Table 4.1 Actions that Represent Amendments to the 1995 FEIS for
Conte Refuge 4-8

Table 4.2 Alternative A: Existing Approved Acquisition Acres by SFA 4-10

Table 4.3 Conservation Partnership Areas (CPAs) by Alternative Proposed
in the Conte Refuge CCP 4-14

Table 4.4 Relationship Between Proposed CFAs and SFAs 4-16

Table 4.5 Potential Refuge Ownership Under Each Alternative. 4-19

Table 4.6 Summary Comparison of Management Objectives, Actions, and
Strategies by Alternative Proposed in the Conte Refuge CCP 4-165

Table 5.1 Context for Impacts Analysis at Silvio O. Conte National Fish and
Wildlife Refuge 5-2

Table 5.2 Format of Impact Analysis. 5-6

Table 5.3 Comparison of Refuge Acquisition Boundary Under Each Alternative . . 5-8

Table 5.4 Approximate Acres to Be Actively Managed by Alternative to Provide
Habitat for Priority Refuge Resources of Concern 5-8

Table 5.5 Estimated Annual Visits on Refuge Lands, Refuge Educational Venues,
and Refuge Events by Alternative. 5-9

Table 5.6. Comparison of Impacts to Freshwater Wetlands and Target Wildlife by
Alternative 5-53

Table 5.7. Comparison of Impacts to Upland LCC Habitats and Priority Refuge
Resources of Concern Species by Alternative. 5-61

Table 5.8 CFAs Having BIDEH Sub-objectives for Major Habitat Types as
Identified for Action Alternatives B, C, and D 5-74

Table 5.9 Federally listed species and species proposed for listing. 5-80

Table 5.10 Priority Refuge Resources of Concern Birds and the Associated Birds
Known to use North Atlantic LCC General Habitat Types on Existing
and Proposed Refuge Lands. 5-88

Table 5.11 Comparison of LCC General Habitat Types that Could Support Priority
Refuge Resources of Concern Birds By Alternative. 5-90

Table 5.12. Potential Waterfowl Habitat Protection Contribution to Atlantic Coast
Joint Venture Habitat Objectives Under Alternative C. 5-91

Table 5.13 Estimated Contribution of Alternative C to Select Priority Refuge
Resources of Concern in a Range of LCC Upland and Wetland
Habitat Types 5-96

Table 5.14. Approximate Wood Duck Breeding Potential in all CFAs Proposed in
Alternative C 5-97

List of Tables (cont.)

Table 5.15.	Priority Refuge Resources of Concern and Associated Mammal Species, and Their LCC Habitats That May Be Impacted by Activities Described in the Alternatives (derived from appendix A)	5-100
Table 5.16.	Estimated Potential New England Cottontail Habitat Acres Proposed by Alternative.	5-107
Table 5.17	Priority Refuge Resources of Concern Reptiles, Amphibians, Fish, and Other Aquatic Species for Conte Refuge	5-111
Table 5.18.	Native Plants and Invertebrate Species Associated with Proposed CFAs	5-121
Table 5.19.	Proposed Freshwater Marsh and Open Water Habitat Protection Under Alternatives B, C, and D.	5-122
Table 5.20.	Summary of the impacts of the alternatives.	5-147

List of Maps

Map 1.1	Location of the Connecticut River Watershed and the Service's Northeast Region (Region 5)	1-2
Map 1.2	Conserved Lands in the Connecticut River Watershed	1-4
Map 1.3	Existing Refuge Ownership	1-5
Map 2.1	North Atlantic Landscape Conservation Cooperative (LCC) and the Connecticut River Watershed	2-13
Map 2.2	Locations of Dams Throughout the Connecticut River Watershed	2-24
Map 3.1	The Connecticut River and Its Major Tributaries	3-10
Map 4.1	Proposed Conservation Partnership Areas and Conservation Focus Areas	4-13
Map 4.2	Pondicherry National Natural Landmark, Including the Current and Proposed Expanded Boundary.	4-45
Map 4.3	Proposed Farmington River CPA, Connecticut and Massachusetts	4-114
Map 4.4	Proposed Maromas CPA, Connecticut	4-115
Map 4.5	Proposed Muddy Brook CPA, Connecticut.	4-116
Map 4.6	Proposed Salmon River CPA, Connecticut.	4-117
Map 4.7.	Proposed Scantic River CPA, Connecticut.	4-118
Map 4.8	Proposed Whalebone Cove CPA, Connecticut	4-119
Map 4.9	Proposed Fort River CPA, Massachusetts	4-120
Map 4.10	Proposed Mill River CPA, Massachusetts	4-121
Map 4.11	Proposed Westfield River CPA, Massachusetts	4-122
Map 4.12	Proposed Ashuelot River CPA, New Hampshire	4-123
Map 4.13	Proposed Blueberry Swamp CPA, New Hampshire.	4-124
Map 4.14	Proposed Mascoma River CPA, New Hampshire	4-125
Map 4.15	Proposed Pondicherry CPA, New Hampshire.	4-126
Map 4.16	Proposed Sprague Brook CPA, New Hampshire and Massachusetts.	4-127
Map 4.17	Proposed Nulhegan Basin CPA, Vermont	4-128
Map 4.18	Proposed Ompompanoosuc River CPA, Vermont	4-129
Map 4.19	Proposed Ottauquechee River CPA, Vermont.	4-130
Map 4.20	Proposed West River CPA, Vermont	4-131

List of Maps (cont.)

Map 4.21 Proposed White River CPA, Vermont 4-132

Map 4.22 The Quonotuck CFA (100-year Floodplain) 4-134

Map 4.23 Proposed Farmington River CFA under all Alternatives, Connecticut and Massachusetts 4-135

Map 4.24 Proposed Maromas CFA under all Alternatives, Connecticut 4-136

Map 4.25 Proposed Muddy Brook CFA under all Alternatives, Connecticut 4-137

Map 4.26 Proposed Pyquag CFA under all Alternatives, Connecticut 4-138

Map 4.27 Proposed Salmon River CFA under all Alternatives, Connecticut 4-139

Map 4.28 Proposed Scantic CFA under all Alternatives, Connecticut 4-140

Map 4.29 Proposed Whalebone Cove CFA under all Alternatives, Connecticut 4-141

Map 4.30 Proposed Dead Branch CFA under all Alternatives, Massachusetts 4-142

Map 4.31 Proposed Fort River CFA under all Alternatives, Massachusetts 4-143

Map 4.32 Proposed Mill River CFA under all Alternatives, Massachusetts 4-144

Map 4.33 Proposed Westfield River CFA under all Alternatives, Massachusetts 4-145

Map 4.34 Proposed Ashuelot River CFA under all Alternatives, New Hampshire 4-146

Map 4.35 Proposed Blueberry Swamp CFA under all Alternatives, New Hampshire 4-147

Map 4.36 Proposed Mascoma CFA under all Alternatives, New Hampshire 4-148

Map 4.37 Proposed Pondicherry CFA under all Alternatives, New Hampshire 4-149

Map 4.38 Proposed Sprague Brook CFA under all Alternatives, New Hampshire and Massachusetts 4-150

Map 4.39 Proposed Nulhegan Basin CFA under all Alternatives, Vermont 4-151

Map 4.40 Proposed Ompompanoosuc River CFA under all Alternatives, Vermont 4-152

Map 4.41 Proposed Ottauquechee River CFA under all Alternatives, Vermont 4-153

Map 4.42 Proposed West River CFA under all Alternatives, Vermont 4-154

Map 4.43 Proposed White River CFA under all Alternatives, Vermont 4-155

Map 4.44 Proposed Public Use Access at Pondicherry Division, Alternatives A, B, C 4-157

Map 4.45 Proposed Public Use Access at Pondicherry Division, Alternative D 4-158

Map 4.46 Proposed Summer Public Use Access at Nulhegan Basin Division, Alternative A 4-159

Map 4.47 Proposed Winter Public Use Access at Nulhegan Basin Division, Alternative A 4-160

Map 4.48 Proposed Summer Public Use Access at Nulhegan Basin Division, Alternatives B and C 4-161

Map 4.49 Proposed Winter Public Use Access at Nulhegan Basin Division, Alternatives B and C 4-162

Map 4.50 Proposed Summer Public Use Access at Nulhegan Basin Division, Alternative D 4-163

Map 4.51 Proposed Winter Public Use Access at Nulhegan Basin Division, Alternative D 4-164

Appendixes

Appendix A Conservation Focus Areas and Refuge Units — Resources Overview and Management Direction, Including Goals, Objectives, and Strategies

Introduction	i
Introduction	A-1
Connecticut River Main Stem and Major Tributaries	A-7
Overview Quonotuck Conservation Focus Area (Proposed)	A-9
State of Connecticut	A-35
Overview Farmington River Conservation Focus Area (Proposed)	A-37
Overview Maromas Conservation Focus Area (Proposed) A-67	
Overview Pyquag Conservation Focus Area (Proposed) A-93	
Overview Muddy Brook Conservation Focus Area (Proposed)	A-117
Overview Salmon River Conservation Focus Area (Existing Refuge Division)	A-141
Overview Scantic River Conservation Focus Area (Proposed)	A-171
Overview Whalebone Cove Conservation Focus Area (Existing Refuge Division)	A-195
Overview Dead Man’s Swamp Unit (Existing Refuge Unit)	A-227
Overview Roger Tory Peterson Unit (Existing Refuge Unit)	A-235
State of Massachusetts	A-247
Overview Dead Branch Conservation Focus Area (Existing Refuge Division)	A-249
Overview Fort River Conservation Focus Area (Existing Refuge Division)	A-279
Overview Mill River Conservation Focus Area (Existing Refuge Division)	A-311
Overview Westfield River Conservation Focus Area(Existing Refuge Division)	A-335
Overview Fannie Stebbins (Existing Refuge Unit)	A-363
Great Falls Discovery Center, Massachusetts (Existing Partner Facility)	A-385
Overview Hatfield Unit (Existing Refuge Unit)	A-393
Overview Honeypot Road Wetlands Unit (Existing Refuge Unit).	A-401
Overview Mount Toby Unit (Existing Refuge Unit)	A-413
Overview Mount Tom Unit (Existing Refuge Unit)	A-425
Overview Third Island Unit (Existing Refuge Unit)	A-437
Overview Wissatinnewag Unit (Existing Refuge Unit)	A-445
State of New Hampshire	A-451
Overview Ashuelot River Conservation Focus Area (Proposed)	A-453
Overview Blueberry Swamp Conservation Focus Area(Existing Refuge Division)	A-485
Overview Mascoma River Conservation Focus Area (Proposed)	A-509
Overview Pondicherry Conservation Focus Area(Existing Refuge Division)	A-539
Overview Saddle Island Unit (Existing Refuge Unit)	A-571
Overview Sprague Brook Conservation Focus Area (Proposed)	A-579
State of Vermont	A-605
Overview Nulhegan Basin Conservation Focus Area (Existing Refuge Division)	A-607
Overview Ompompanoosuc Conservation Focus Area (Proposed)	A-649
Overview Ottauquechee River Conservation Focus Area (Proposed)	A-677
Overview West River Conservation Focus Area (Proposed)	A-703
Overview White River Conservation Focus Area (Proposed)	A-733
Overview Putney Mountain Unit (Existing Refuge Unit)	A-759
Table A.56 Comparison of North Atlantic Landscape Conservation Cooperative (LCC)’s General Habitat Types and The Nature Conservancy’s Northeastern Terrestrial Habitat Classification	A-775
Bibliography	A-779
Appendix A Bibliography	A-781

Appendixes (cont.)

Appendix B Process for Establishing Priority Refuge Resources of Concern

Introduction B-1
 Process for establishing priority refuge resources of concern B-1
 Literature Citations B-24

Appendix C Land Protection Plan

I. Introduction C-1
 II. Project Planning and Design C-7
 III. Project Relationship to Service Directives and Initiatives C-16
 IV. Threats to Watershed Resources and How This Proposal Addresses Them C-34
 V. Partnerships Important for Project Design and Implementation C-35
 VI. Implementing the Proposed Land Protection Strategy C-38
 VII. Project Costs and Funding C-44
 VIII. Proposed Management Direction Under Service Ownership C-45
 IX. Special Considerations C-45
 X. Socioeconomic and Cultural Impacts C-46
 XI. Public Review of Proposal C-49
 Attachment I C-50
 Attachment II C-92
 Attachment III C-107
 Attachment IV C-112
 Bibliography C-119

Appendix D Findings of Appropriateness and Compatibility Determinations

Finding of Appropriateness—All-terrain Vehicles and Other Off-road Vehicles D-1
 Finding of Appropriateness—Manned and Unmanned Aircraft Use for Recreational or Commercial Purposes D-5
 Finding of Appropriateness—Target Shooting D-9
 Finding of Appropriateness—Camping Along the Nulhegan River in Support of the Northern Forest Canoe Trail D-13
 Compatibility Determination—Camping Along the Nulhegan River in Support of Northern Forest Canoe Trail D-15
 Finding of Appropriateness—Commercial Forestry for Habitat Management D-25
 Compatibility Determination—Commercial Forestry for Habitat Management D-27
 Finding of Appropriateness—Commercial Guiding for Wildlife-dependent Recreation D-39
 Compatibility Determination—Commercial Guiding for Wildlife-dependent Recreation D-41
 Finding of Appropriateness—Commercial Haying to Manage Grassland Habitat D-49
 Compatibility Determination—Commercial Haying to Manage Grassland Habitat D-51
 Finding of Appropriateness—Non-traditional Geocaching D-63
 Compatibility Determination—Non-traditional Geocaching D-65
 Finding of Appropriateness—Pet Walking D-75
 Compatibility Determination—Pet Walking D-77

Appendixes (cont.)

Appendix D Findings of Appropriateness and Compatibility Determinations (cont.)

Finding of Appropriateness—Privately Owned Recreational Cabins at the Nulhegan Basin Division	85
Compatibility Determination—Privately Owned Recreational Cabins at the Nulhegan Basin Division	D-87
Finding of Appropriateness—Research Conducted by Non-Service Personnel	D-101
Compatibility Determination—Research Conducted by Non-service Personnel	D-103
Finding of Appropriateness—Recreational Gathering of Blueberries, Blackberries, Strawberries, Raspberries, Mushrooms, Fiddleheads, and Antler Sheds	D-117
Compatibility Determination—Recreational Gathering of Blueberries, Blackberries, Strawberries, Raspberries, Mushrooms, Fiddleheads, and Antler Sheds	D-119
Finding of Appropriateness—Snowmobiling on Designated Snowmobile Trails on the Dead Branch Division	D-129
Compatibility Determination—Snowmobiling on Designated Snowmobile Trails on the Dead Branch Division	D-133
Finding of Appropriateness—Snowmobiling on Designated Snowmobile Trails on the Nulhegan Basin Division	D-147
Compatibility Determination—Snowmobiling on Designated Snowmobile Trails on the Nulhegan Basin Division ..	D-149
Finding of Appropriateness—Snowmobiling on Designated Snowmobile Trails on the Pondicherry Division	D-169
Compatibility Determination—Snowmobiling on Designated Snowmobile Trails on the Pondicherry Division	D-171
Compatibility Determination—Furbearer Management (Trapping) on the Nulhegan Basin Division	D-187
Compatibility Determination—Hunting on Silvio O. Conte Refuge Lands in Vermont	D-211
Compatibility Determination— Interpretation, Environmental Education, Wildlife Observation, and a Wildlife Photography	D-231

Appendix E Wilderness Review

1. Introduction	E-1
2. Wilderness Inventory	E-1
3. Summary of Wilderness Inventory Findings	E-3
4. Wilderness Study	E-10
5. Alternatives Considered but Eliminated from Consideration	E-14

Appendix F Wild and Scenic Rivers Review

Introduction	F-1
National Wild and Scenic Rivers System	F-1
Existing and Proposed WSRs in the Connecticut River Watershed	F-4

Appendix G Refuge Operations Needs System (RONS) and Service Asset Maintenance Management System (SAMMS)

Refuge Operation Needs System and Service Asset Maintenance Management System	G-1
---	-----

Appendix H Staffing Charts

Refuge Staffing Charts	H-1
------------------------------	-----

Appendixes (cont.)

Appendix I U.S. Geological Survey Report: Economic Impacts of Current and Proposed Management Alternatives for the Silvio O. Conte National Fish and Wildlife Refuge

Introduction I-1
 Section I: Regional Economic Setting I-2
 Section II: Current Trends, Objectives, and Potential Impacts of Land-Use Change I-41
 Section III: Economic Impacts of Current and Proposed Management Activities I-44
 Conclusion I-53

Appendix J Forest Management Guidelines

Introduction J-1
 Categories of Forest Management Treatments J-1
 Anticipated Management on Lands to be Acquired in the Proposed Conservation Focus Areas J-5
 Citations J-5
 Glossary J-5

Appendix K Silvio O. Conte National Fish and Wildlife Refuge Act

Silvio O. Conte National Fish and Wildlife Refuge Act K-1

Appendix L Fire Management Guidance

Introduction L-1
 Fire Management Planning L-3
 Fire Management Program at Conte Refuge L-3
 Literature Cited L-5

Appendix M Conservation Plans and Initiatives Guiding the Development of the CCP

Introduction M-1
 Migratory Birds M-1
 Fish and Aquatic Resources M-6
 Mammals M-10
 Invertebrates M-10
 Rare Plants, Wetlands, and Other Natural Communities M-11
 State Comprehensive Wildlife Conservation Strategies/Wildlife Action Plans M-12
 Invasive Species M-12
 Watershed Plans M-13
 Recreation Plans M-14
 Statewide Comprehensive Outdoor Recreation Plans (SCORP) M-14
 Other Regional Information Sources M-15

Appendix N List of Partnerships

Federal Agencies N-1
 Multi-agency and Organization Groups N-1
 State of Connecticut Agencies N-2
 State of Massachusetts Agencies N-2
 State of New Hampshire Agencies N-2

Appendixes (cont.)

Appendix N List of Partnerships (cont.)

State of Vermont Agencies N-2
Towns and Local Governments N-2
Non-governmental Conservation Organizations and Groups N-2
Recreational Groups N-3
Environmental Education Groups and Centers N-3
Academic Institutions N-4
Refuge Friends Groups N-4

Appendix O Conservation Plans and Initiatives Guiding the Development of the CCP

Introduction 0.1
Summary of Comments Received 0.1
Service’s Response to Comments by Subject 0.4

