

Chapter 1



Edward Henry/USFWS

The Wallkill River in spring

The Purpose of and Need for Action

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Introduction

This Comprehensive Conservation Plan (CCP) for the Wallkill River National Wildlife Refuge (refuge) was prepared pursuant to the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 6688dd, et seq.; Refuge Improvement Act). An Environmental Assessment (EA), required by the National Environmental Policy Act of 1969 (NEPA), was prepared with the draft CCP.

This final CCP presents the combination of management goals, objectives, and strategies that we believe will best achieve our vision for the refuge; contribute to the mission of the National Wildlife Refuge System (Refuge System); achieve refuge purposes; fulfill legal mandates; address key issues; incorporate sound principles of fish and wildlife management, and serve the American public. This CCP will guide management decisions and actions on the refuge over the next 15 years. It will also help us communicate our priorities to the natural resource agencies of the states of New York and New Jersey, our conservation partners, local communities, and the public. As part of this process, we have met our requirements to consult with the adjoining landowners and coordinate with the state wildlife and habitat conservation plans under the NWRSSA, 16 U.S.C. 668dd(e)(3). See appendix I.

This CCP contains 5 chapters and 11 appendixes. Chapter 1, “Purpose of and Need for Action,” sets the stage for chapters 2 through 5. It

- describes the purpose of and need for a CCP
- identifies national and regional mandates and plans that influenced this CCP
- highlights the purposes for which this refuge was established and presents its land acquisition history, and
- presents our vision and goals for the refuge.

Chapter 2, “Planning Process,” describes the planning process we followed, including public and partner involvement in developing this final CCP.

Chapter 3, “Refuge and Resource Description,” describes the existing physical, biological, and human environment.

Chapter 4, “Management Direction and Implementation,” presents the actions, goals, objectives, and strategies that will guide our decision-making and land management. It also outlines the staffing and funding needed to accomplish that management.

Chapter 5, “List of Preparers,” lists the members of the core planning team and other Service personnel who assisted us.

Eleven appendixes provide additional documentation and information we used in compiling this plan.

The Purpose of and Need for Action

We developed a final CCP for the refuge that, in the Service’s professional judgement, best achieves the purposes, goals, and vision of the refuge and contributes to the National Wildlife Refuge System’s mission, adheres to the Service’s policies and other mandates, addresses identified issues of significance, and incorporates sound principles of fish and wildlife sciences.

NEPA regulations require us to evaluate a reasonable range of alternatives, which we did in the draft CCP/EA. We find that this final CCP, which adopts Alternative B from the draft CCP/EA, best meets the purpose and need for action.

The *purpose* of a CCP is to provide each refuge with strategic management direction for the next 15 years, by

- providing a clear statement of desired future conditions for habitat, wildlife, visitor services, staffing, and facilities
- providing state agencies, refuge neighbors, visitors, and partners with a clear understanding of the reasons for management actions
- ensuring refuge management reflects the purposes of the Wallkill River refuge as well as the policies and goals of the Refuge System and legal mandates
- ensuring the compatibility of current and future public use
- providing long-term continuity and direction for refuge management, and
- providing direction for staffing, operations, maintenance, and annual budget requests.

There are several reasons for why we identify a need for this CCP. First, the Refuge Improvement Act requires us to write a CCP for every national wildlife refuge to help fulfill the mission of the Refuge System.

Second, the refuge's 1993 Station Management Plan is outdated. Since its publication, the refuge land base has more than doubled and management priorities have changed. For example, the northern population of the bog turtle (*Glyptemys [Glyptemys] muhlenbergii*), which inhabits the refuge, was federal-listed as threatened in 1997, and is now a management priority.

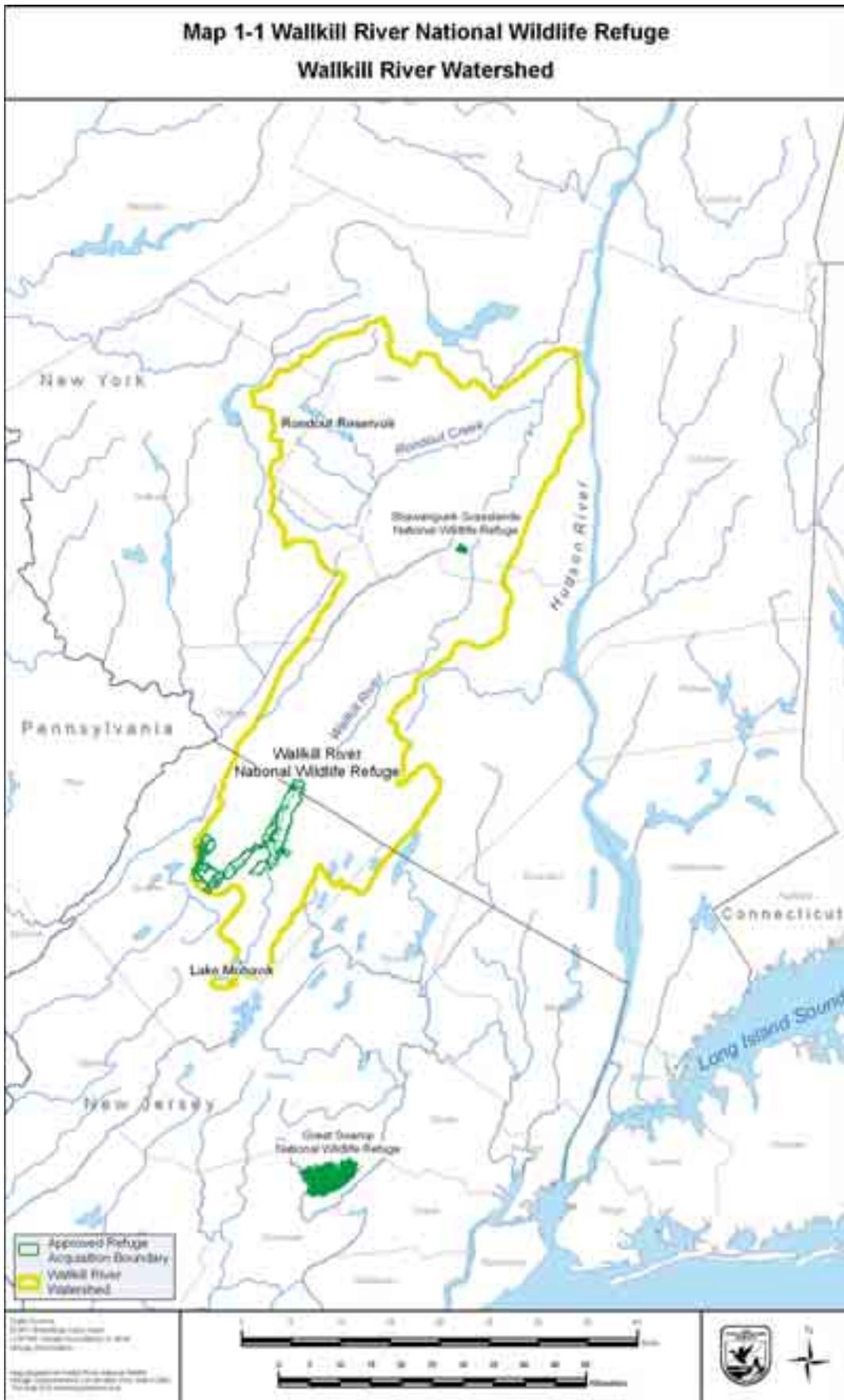
Third, we have developed strong partnerships vital for our continued success, and we must convey our vision for the refuge to those partners and the public.

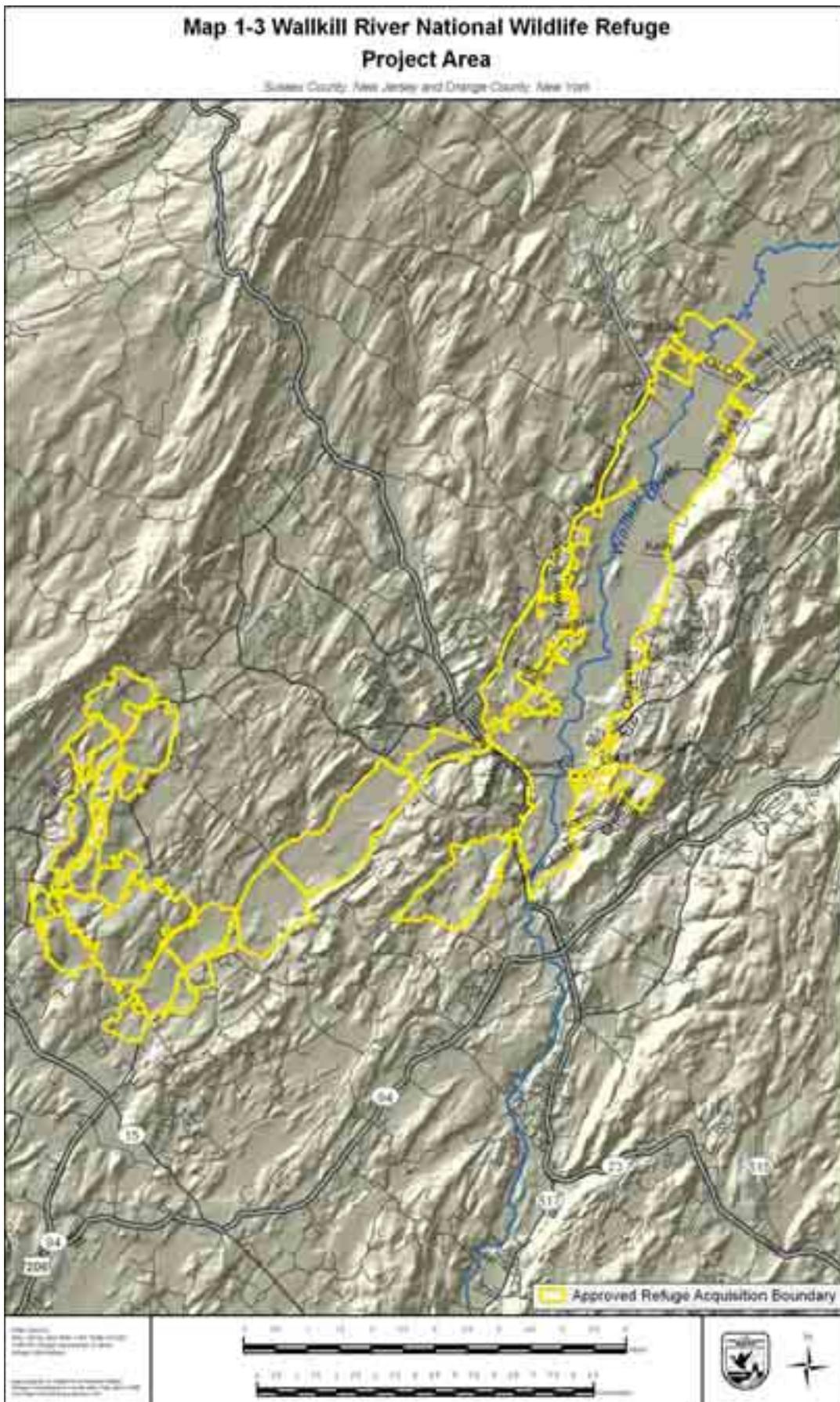
All of these reasons clearly underscore the need for the strategic direction a CCP provides. To help us resolve management issues and public concerns, our planning process incorporates input from natural resource agencies of New York and New Jersey, affected communities, individuals and organizations, our partners and the public.

Refuge Overview

The Wallkill River refuge is located approximately 60 miles northwest of New York City, in northeastern Sussex County, N.J. (Wantage, Hardyston, and Vernon), and in southern Orange County, N.Y. (Minisink and Warwick). Map 1-1 illustrates the refuge in relation to the larger Wallkill River watershed. The refuge headquarters is in Vernon Township, New Jersey.

The refuge protects a combination of wetland and upland habitats supporting migratory birds, federal- and state-listed species, and regionally significant wildlife and plant communities in the Wallkill River watershed. Map 1-2 illustrates the refuge which is nestled in the Kittatinny Valley in northwestern New Jersey, between the Kittatinny Shawangunk Ridges to the west and the Hudson Highlands to the east. This valley consists of headwater wetland complexes of riverine habitats, ponds, emergent marshes, fens, scrub-shrub wetlands, wooded swamps, mixed hardwood upland forests, grasslands and farmlands.





The 1990 law (Pub. L 101–593) that created the refuge established a boundary of approximately 7,500 acres spread out across an area that includes the townships of Wantage, Vernon, and Hardyston in Sussex County, N.J, and the Township of Warwick in Orange County, N.Y. Since 1990 we have acquired 5,106 acres within the original acquisition boundary. This final CCP expands the refuge boundary to 17,050 acres reaching into the townships of Wantage, Frankford and Hardyston in New Jersey and Warwick and Minisink in New York (see map 1-3).

The original acquisition boundary encompasses part of the Wallkill River, which flows from Lake Mohawk in Sparta, New Jersey, north to the Hudson River near Kingston, New York, via the Rondout Creek. The newly expanded boundary encompasses the 15-mile Papakating Creek and a portion of Beaver Run—both tributaries of the Wallkill River. It also includes areas to the west and north of the original refuge boundary.

The Shawangunk Grasslands National Wildlife Refuge, a satellite refuge administered by the Wallkill River refuge, is located in Ulster County, New York. In fall 1998, we started one CCP for both refuges. However, we decided in 2002 that separating that plan into two CCPs, one for each refuge, would be more efficient. We completed the CCP for the Shawangunk Grasslands refuge in 2006.

In 2004, we administratively combined the Wallkill River refuge with the Great Swamp National Wildlife Refuge in Basking Ridge, N.J., to reduce costs and manage them more efficiently.

This section highlights the Service, the refuge system, Service policy, and the laws, regulations, and mandates that directly influenced the development of this CCP.

The Service, its Policies and Legal Mandates

The U.S. Fish and Wildlife Service and its Mission

The Service, part of the Department of the Interior, administers the National Wildlife Refuge System. The Service’s mission is

“Working with others, to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.”

Congress entrusts the Service with the conservation and protection of national resources such as migratory birds and fish, Federal-listed endangered or threatened species, inter-jurisdictional fish, and certain marine mammals. The Service also manages national wildlife refuges and national fish hatcheries, enforces federal wildlife laws and international treaties on importing and exporting wildlife, assists with state fish and wildlife programs, and helps other countries develop wildlife conservation programs.

The Service’s manual contains the standing and continuing directives to implement its authorities, responsibilities and activities. You can access it at <http://www.fws.gov/directives/direct.html>. We publish special Service directives affecting the rights of citizens or the authorities of other agencies separately in the Code of Federal Regulations; the Service’s manual does not duplicate them.

The National Wildlife Refuge System and its Mission and Policies

The Refuge System is the world’s largest collection of lands and waters set aside specifically for conserving wildlife and protecting ecosystems. Today, that national network of more than 545 national wildlife refuges encompasses more than 95 million acres in every state and several island territories. Each year, more than 34 million visitors hunt, fish, observe and photograph wildlife, or participate in environmental education or interpretation on refuges.

In 1997, Congress passed the National Wildlife Refuge System Improvement Act. That act establishes a unifying mission for the Refuge System, a new process for determining compatible public use activities on refuges, and the requirement to prepare CCPs for all refuges. It states that first and foremost, the Refuge System must focus on wildlife conservation. It further states that the mission of the Refuge System, coupled with the purpose(s) for which a refuge was established, will provide the principal management direction for that refuge.

The mission of the Refuge System is

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” (Refuge Improvement Act; Public Law 105–57)

Soon after, the Service released its mission policy. Among its main points are conserving a diversity of fish, wildlife, plants and a network of their habitats; conserving unique ecosystems within the nation; providing and enhancing opportunities for compatible, wildlife-dependent recreation; and, fostering public understanding and appreciation of those resources.

Fulfilling the Promise

A yearlong process involving teams of Service employees who examined the Refuge System within the framework of Wildlife and Habitat, People and Leadership culminated in “Fulfilling the Promise: The National Wildlife Refuge System,” a vision for the Refuge System. The first-ever Refuge System Conference in Keystone, Colo., in October 1998 was attended by every Refuge Manager in the country, other Service employees, and scores of conservation organizations. Many “Promises Teams” formed to develop strategies for implementing the 42 recommendations of the conference report. Information from such teams as Wildlife and Habitat, Goals and Objectives, Strategic Growth of the Refuge System, Invasive Species, and Inventory and Monitoring helped guide the development of the goals, strategies and actions in this CCP.

Refuge System Planning Policy

This policy establishes the requirements and guidance for Refuge System planning, including CCPs and step-down management plans. It states that we will manage all refuges in accordance with an approved CCP which, when implemented, will achieve refuge purposes; help fulfill the Refuge System mission; maintain and, where appropriate, restore the ecological integrity of each refuge and the Refuge System; help achieve the goals of the National Wilderness Preservation System and the National Wild and Scenic River System; and conform to other mandates [Fish and Wildlife Service Manual (602 FW 1,2,3)].

Appropriate Refuge Uses Policy

This policy provides a national framework and procedure for refuge managers to follow in deciding whether uses are appropriate on a refuge. It also clarifies and expands on the compatibility policy (603 FW 2.10D), and describes when refuge managers should deny a proposed use without determining compatibility. When we find a use is appropriate, we must then determine if the use is compatible before we allow it on a refuge. This policy applies to all proposed and existing uses in the Refuge System only when we have jurisdiction over the use, and does not apply to refuge management activities or situations where reserved rights or legal mandates provide we must allow certain uses (603 FW 1). Appendix B describes the Appropriate Refuge Uses Policy and its relationship to the CCP process. To view the policy and regulations online, visit <http://policy.fws.gov/library/00fr62483.pdf>.

Compatibility Policy

Federal law and Service policy provide the direction and planning framework to protect the Refuge System from incompatible or harmful human activities and ensure that Americans can enjoy its lands and waters. The Refuge System Improvement Act is the key legislation on the management of public uses and compatibility. The act declares that all existing or proposed public uses of a refuge must be compatible with refuge purpose(s). The refuge manager determines compatibility after evaluating an activity's potential impact on refuge resources and ensuring that it supports the Refuge System mission and does not materially detract from, or interfere with, refuge purpose(s). The act also stipulates six wildlife-dependent public uses that are to receive our enhanced consideration in comprehensive conservation planning: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. That Compatibility Rule changed or modified Service regulations in chapter 50, parts 25, 26, and 29 of the Code of Federal Regulations. We may revisit compatibility determinations sooner than the mandatory 15 years if new information reveals unacceptable impacts on refuge purposes. The compatibility determinations for the Wallkill River refuge in appendix B provide additional information on the process.

Maintaining Biological Integrity, Diversity, and Environmental Health Policy

This policy provides guidance on maintaining or restoring the biological integrity, diversity, and environmental health of the Refuge System, including the protection of a broad spectrum of fish, wildlife, and habitat resources found in refuge ecosystems. It provides refuge managers with a process for evaluating the best management direction to prevent the additional degradation of environmental conditions and to restore lost or severely degraded environmental components. It also provides guidelines for dealing with external threats to the biological integrity, diversity, and environmental health of a refuge and its ecosystem (601 FW 3).

Wildlife-Dependent Recreation Policy

The Refuge Improvement Act establishes compatible wildlife dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) as the priority general public uses of the Refuge System, that are to receive enhanced consideration over other public uses in refuge planning and management. The Wildlife-Dependent Recreation Policy explains how we will provide visitors with opportunities for those priority public uses on units of the Refuge System and how we will facilitate them. We are incorporating that policy as Part 605, chapters 1–7, of the Fish and Wildlife Service Manual.

Other Management Guidance

Although Service and Refuge System policy and each refuge's purpose provide the foundation for its management, the administration of national wildlife refuges conforms to a variety of other federal laws. Those include the Migratory Bird Treaty Act, Endangered Species Act, Wilderness Act, Archaeological Resources Protection Act, and National Historic Protection Act), Executive Orders, treaties, interstate compacts, and regulations pertaining to the conservation and protection of natural and cultural resources. The "Digest of Federal Resource Laws of Interest to the USFWS" lists them online at <http://laws.fws.gov/lawsdigest/index.html>.

Bird Conservation Region 28

The North American Bird Conservation Initiative (NABCI) is a coalition of a great number of government agencies, private organizations, academic organizations, and private industry leaders in Canada, the United States, and Mexico. It formed to address the need for coordinated bird conservation that will benefit "all birds in all habitats." NABCI aims to ensure the long-term health of North America's native bird populations by increasing the effectiveness of both

existing and new bird conservation initiatives, enhancing coordination among them, and fostering greater cooperation among the continent's three national governments and their peoples.

NABCI's approach to bird conservation is regionally based, biologically driven, and landscape-oriented. It draws together the major bird conservation plans already in existence for waterbirds, shorebirds, waterfowl, and landbirds, fills gaps in knowledge, and builds a coalition of groups and agencies to execute the plans.

Bird conservation regions (BCRs) are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues. The Wallkill River refuge lies in BCR 28 (The Appalachian Mountains). That region includes the Blue Ridge, the Ridge and Valley Region, the Cumberland Plateau, the Ohio Hills, and the Allegheny Plateau. Ecologically, this is a transitional area, with forested ridges grading from primarily oak-hickory forests in the south to northern hardwood forests farther north. Pine-oak woodlands and barrens and hemlock ravine forests are also important along ridges, whereas bottomland and riparian forests are important in the valleys, which are now largely cleared for agricultural and urban development. Partners In Flight (PIF) (see below) further breaks down BCR 28 into smaller physiographic regions.

The primary purposes of BCRs, proposed by the mapping team in 1998 and approved in concept by the U.S. Committee in 1999, are to

- facilitate communication among the bird conservation initiatives
- systematically and scientifically apportion the United States into conservation units
- facilitate a regional approach to bird conservation
- promote new, expanded, or restructured partnerships, and
- identify overlapping or conflicting conservation priorities.

As integrated bird conservation progresses in North America, BCRs ultimately should function as the primary units within which issues of biological foundation are resolved, the landscape configuration of sustainable habitats is designed, and priority projects are originated.

North American Waterfowl Management Plan (update 2004)

The goal of the Atlantic Coast Joint Venture is to

“Protect and manage priority wetland habitats for migration, wintering, and production of waterfowl, with special consideration to black ducks, and to benefit other wildlife in the joint venture area.”

This updated plan among the United States, Canada, and Mexico outlines their strategy to restore waterfowl populations through habitat protection, restoration, and enhancement. Its implementation will be accomplished at the U.S. regional level in 11 habitat Joint Venture Areas and three species Joint Ventures: arctic goose, black duck, and sea duck. You can access those plans at http://www.nawmp.ca/eng/pub_e.html. We used them as a basis for evaluating waterfowl management opportunities on the refuge.

Joint venture partnerships involve federal, state and provincial governments, tribal nations, local businesses, conservation organizations, and individual citizens who assemble to protect habitat within those areas. The Wallkill River

refuge lies in the Atlantic Coast Joint Venture, one of seven priority focus areas for waterfowl management in New Jersey, including the Wallkill River bottomlands.

Partners In Flight Bird Conservation Plan: Physiographic Area 17, Northern Ridge and Valley

In 1990, Partners in Flight (PIF) was conceived as a voluntary, international coalition of government agencies, conservation organizations, academic institutions, private industry, and other citizens dedicated to reversing the trends of declining bird populations and to “keeping common birds common.” The foundation of PIF’s long-term strategy for bird conservation is a series of scientifically based bird conservation plans, using physiographic provinces as planning units. The Wallkill River refuge lies in the Northern Ridge and Valley Physiographic Province, Bird Conservation Area 17.

The goal of each PIF plan is to ensure the long-term maintenance of healthy populations of native birds, primarily non-game landbirds. For each physiographic area, its plan ranks bird species according to their conservation priority, describes desired habitat conditions, develops biological objectives, and recommends conservation actions. Habitat loss, population trends, and the vulnerability of a species and its habitats to regional and local threats are all factors in that priority ranking. The habitat needs of the top 17 priority species in the PIF Area 17 plan do not form a cohesive habitat type. Instead, those species require a mix of grasslands, shrub-scrub, forested wetlands, non-forested wetlands and forested upland habitats.

You can access the final PIF Area 17 plan at <http://www.partnersinflight.org>. We referred to it as we considered refuge management opportunities.

Region 5 Birds of Conservation Concern (December 2002)

This plan, updated every 5 years by our Division of Migratory Birds, identifies nongame migratory birds that, without conservation action, are likely to become candidates for listing under the Endangered Species Act of 1973. The BCC compiles the highest ranking species of conservation concern from these major nongame bird conservation plans: PIF (species scoring >21), U.S. Shorebird Conservation Plan (species ranking 4 or 5), and North American Waterbird Conservation Plan (species ranking 4 or 5).

We used the BCC list in compiling appendix A, “Species of Conservation Concern,” and in focusing on which species might warrant special management attention.

Regional Wetlands Concept Plan—Emergency Wetlands Resources Act (Emergency Wetlands Resources Act of 1986, 16 U.S.C. 3901(b))

In 1986, Congress enacted the Emergency Wetlands Resources Act to promote the conservation of our nation’s wetlands. The act directs the Department of the Interior to develop a National Wetlands Priority Conservation Plan identifying the location and types of wetlands that should receive priority attention for acquisition by federal and state agencies using appropriations from the Land and Water Conservation Fund.

In 1990, our Northeast Region completed a Regional Wetlands Concept Plan to provide more specific information about wetlands resources in the Northeast. It identifies 850 wetland sites that warrant consideration for acquisition to conserve wetland values in our region. The sites identified in the Wallkill River watershed include the refuge and the rest of the river in Sussex County, Woodruffs Gap Fen, and Hyper Humus Fen, and the Little Cedar Pond in Orange County, N.Y. We used that plan to help us identify areas in need of long-term protection in the watershed and prioritize wetlands habitat management on the refuge.

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Wallkill River NWR staff track bog turtle movements via transmitters.

Bog Turtle Northern Population, Recovery Plan (May 2001)

Within the Wallkill River refuge, there is one active bog turtle site on Service-owned land, one active site on private land within the current acquisition boundary, and an estimated 10 suitable sites within the current acquisition boundary, some of which are on Service-owned lands. The northern population of the bog turtle (*Glyptemys [Glyptemys] mühlenbergii*) was federal-listed as a threatened species in November 1997. The overall objective for the recovery plan is to protect and maintain existing populations of this species and its habitat, enabling its eventual removal from the federal list of endangered and threatened wildlife and plants. Five bog turtle recovery units and their subunits are identified. The refuge lies in the Hudson River/Housatonic Unit, Wallkill River Watershed Subunit.

Four recovery criteria set the threshold for determining when the recovery objective has been met. Those relate to population and habitat goals, monitoring programs, illicit trade, and habitat management. One criterion for the Wallkill River Watershed Subunit is to protect at least 10 viable bog turtle populations and sufficient habitat to ensure they can be sustained.

In addition to listing goals and criteria and describing bog turtle ecology and life history, the Recovery Plan identifies 10 specific recovery tasks. Those are specific actions that, when fully implemented, should lead to meeting the recovery objective. The refuge staff will contribute to the following recovery tasks on the refuge, within their authority and in cooperation with the recovery team.

- Protect known, extant populations/habitat using existing regulations.
- Secure the long-term protection of bog turtle populations.
- Conduct surveys of known, historical, and potential bog turtle habitat.
- Investigate the genetic variability of the bog turtle throughout its range.
- Reintroduce bog turtles into areas from which they have been extirpated or removed.
- Manage and maintain bog turtle habitat to ensure its continuing suitability for bog turtles.
- Conduct an effective law enforcement program to halt illicit take and commercialization of bog turtles.
- Develop and implement an effective outreach and education program about bog turtles.

The refuge staff worked with our New Jersey Field Office to conduct an intra-Service Section 7 consultation on all actions related to bog turtles. The Section 7 consultation is attached to this final CCP as appendix H.

Recovery Plan for Mitchell’s Satyr Butterfly (USFWS 1998)

The Service listed the Mitchell’s satyr butterfly (*Neonympha mitchellii mitchellii*) as an endangered species in 1992. Most of its current and historic population sites are clustered in southern Michigan and adjacent northern Indiana, but some isolated populations historically were present in northern New Jersey. Two well-known sites in Sussex and Warren counties recently supported the species. The confirmed sites are both fens located in areas of limestone

bedrock in the same watershed, similar to habitats used by the federal-listed threatened bog turtle.

The recovery plan goal for New Jersey is to establish one metapopulation in that state. Because the refuge is located in Sussex County, where extant populations of the butterfly were found, we will follow the actions recommended in the recovery plan to try to meet the goal for New Jersey.

Dwarf Wedgemussel Recovery Plan (USFWS 1993)

The dwarf wedgemussel (*Alasmodonta heterodon*) was federal-listed as an endangered species in March 1990. Its Recovery Plan identifies this goal: “maintain and restore viable populations to a significant portion of its historical range in order to remove the species from the Federal list of threatened and endangered species.” It also identifies two recovery objectives: (1) down-list to threatened status; and, (2) delist.

The Wallkill River refuge includes potential habitat for the dwarf wedgemussel. Our New Jersey Field Office started surveys of the Wallkill River in August 2000, but found no mussels. Additional surveys are needed to fully determine their presence, absence, or the possibilities for their introduction. One of the mussel’s host fish, the tessellated darter (*Etheostoma olmstedi*), was observed during the 2000 survey.

Besides listing goals and objectives and describing mussel ecology and life history, the Recovery Plan identifies specific, major recovery tasks. The refuge staff will contribute to the following recovery tasks, within their authority and in cooperation with the recovery team:

- Collect baseline data needed for the protection of *Alasmodonta heterodon* populations;
- Encourage the protection of the species through the development of an educational awareness program; and
- Determine the feasibility of re-establishing populations within the species’ historic range and, if feasible, introduce the species into those areas.

Recovery Plan for the Indiana Bat (USFWS 2007)

In 1967, the federal government listed the Indiana bat (*Myotis sodalis*) as endangered because of declines in its numbers documented at its seven major hibernacula in the Midwest. At the time of its listing, the population numbered around 883,300. Surveys in 2005 numbered the population at 457,374. Although that number is down by about half, surveys in most states’ hibernacula indicate that populations increased or at least remained stable in 2004 and 2005, resulting in a 16.7-percent increase over estimates in 2003. The 2005 population number is almost at the level of bat populations in 1990. However, surveyors lacked an estimated confidence interval when the 2005 population numbers were released, and some changes in methodology occurred between 2003 and 2005.

The refuge first conducted mist net surveys for Indiana bats in August 2008. Surveyors found three Indiana bats, including one post-lactating female and one juvenile, which indicates the presence of a maternity colony nearby. The refuge had previously suspected the presence of Indiana bats, in part because they have been documented in several nearby locations. A maternity colony was found in the summer of 2007 in Wantage, about 2.25 to 4 miles from refuge lands; and since the mid-1990s, Indiana bats have been known to hibernate in three areas near Hibernia, N.J., about 20 miles south of the Wallkill River

refuge. Also, the bats' summer focus area—where bats could potentially occur between April 1 and September 30—includes the entire refuge. Furthermore, the refuge provides riparian, forested and upland habitat types typically used by Indiana bats in summer for roosting and foraging.

Recovery Plan for the Small-Whorled Pogonia (USFWS 1992)

The small-whorled pogonia (*Isotria medeoloides*), a member of the orchid family, is a sparse but widely distributed plant. Its primary range extended from southern Maine and New Hampshire through the Atlantic Seaboard states to northern Georgia and southern Tennessee. Listed as endangered in 1982, it was reclassified as threatened in 1994. The plant occurs in upland sites in mixed-deciduous or mixed-deciduous coniferous forests in second- or third-growth successional stages.

Two confirmed extant sites of the plant are in New Jersey, both in Sussex County, where the refuge is located. The long-term goal for the species is to delist it by ensuring its long-term viability. The actions needed for delisting include

- Protect known populations.
- Manage protected habitats.
- Monitor existing populations.
- Conduct surveys for new populations.
- Investigate population dynamics.
- Investigate species biology.
- Provide public information and education.

State of New Jersey Wildlife Action Plan (New Jersey 2007)

In 2005, state fish and wildlife agencies were required to develop Comprehensive Wildlife Conservation Strategies focusing on “species of greatest conservation need” to be eligible for funds from the State Wildlife Grant program. That program provides federal funds to states for conservation efforts aimed at preventing fish and wildlife populations from declining, reducing the potential for listing those species as endangered.

The New Jersey Wildlife Action Plan (WAP) was revised several times: the latest in 2007. The WAP divides the state into four physiographic provinces and then further into five landscape regions. The refuge is located in the landscape region known as the Skylands, which includes the Valley and Ridge Province, where the Wallkill River refuge lies. In identifying species of greatest conservation need, the WAP incorporates priorities from all national plans, including PIF, North American Landbird Conservation Plan, the U.S. Shorebird Conservation Plan, the North American Waterfowl Management Plan, the USFWS species of conservation concern plan, and various recovery plans for federal-listed threatened and endangered species. The Indiana bat, bog turtle, dwarf wedgemussel and Mitchell’s satyr butterfly all are identified as wildlife of greatest conservation need in the Skylands landscape region. Although the bog turtle and Indiana bat are the only listed species known to live on the refuge, the Valley and Ridge Province is home to current or historic occurrences of the other two species. Therefore, our proposed action in the CCP contains objectives and strategies that relate directly to those four species.

New York State Comprehensive Wildlife Conservation Strategy (New York 2006)

We also used New York's Comprehensive Wildlife Conservation Strategy (CWCS 2006) as part of this CCP process. The part of the Wallkill River refuge in New York lies in the Lower Hudson River watershed basin, which covers all or part of 20 counties and about 7.5 million acres (11,700 square miles). Major water bodies include the Ashokan Reservoir, Esopus Creek, Rondout Creek, and Wallkill River. The Catskill Mountains and Hudson River Valley dominate the landscape.

This watershed basin contains many of the same habitat types as the New Jersey Skylands region. The forested habitats include the Shawangunks, south of the Catskills and west of the Hudson River, which contain a forest matrix of chestnut-oak forest (chestnut oak, red oak), hemlock, northern hardwood forest and pitch pine-oak heath rocky summit interspersed with vernal pools and wetland habitat. The forested habitats are important migratory corridors for raptors and other migratory birds. The lower Hudson River Valley, where the northern portion of the current refuge boundary lies, is a hotspot for amphibian and reptilian biodiversity in New York State. This area contains high-quality habitat for wetland-dependent species and some of the best bog turtle habitat in the Hudson River Valley. Important habitats include red maple-hardwood swamp, floodplain forest, fens, and shallow emergent marsh. The Upper Hudson River Basin contains natural and human-created (e.g., pasture, hay land) grassland habitats that support grassland species of conservation concern, including the upland sandpiper, vesper sparrow, and grasshopper sparrow. Shrub-dominated fields in agricultural landscapes are important for rare shrubland-nesting birds.

The New York CSWS names the Indiana bat, bog turtle and dwarf wedgemussel as three of its species of greatest conservation need. We used the information about important habitats and species in New York to help us form objectives and strategies for the CCP.

The Landscape Project, New Jersey Endangered and Nongame Species Program, New Jersey Department of Environmental Protection (Niles et.al., 2004)

In 1994, the New Jersey Division of Fish, Game and Wildlife Endangered and Nongame Species Program (ENSP) adopted a landscape-level approach to rare species protection. The goal is to protect New Jersey's biological diversity by maintaining and enhancing rare wildlife populations in healthy, functioning ecosystems. Five landscape regions have been identified: The Wallkill River refuge lies within the Skylands Region. Using an extensive database that combines information on rare species locations with land cover data, the ENSP has identified and mapped areas of critical habitat for rare species (state- or federal-listed threatened or endangered species) in each landscape region. Critical areas are ranked by priority. A GIS database provides baseline information to conservation partners to help in prioritizing habitat protection, open space acquisition, and land management planning. We used that information in our land protection planning.

Sussex County Strategic Growth Plan and Sussex County Open Space Plan

The Sussex County New Jersey Board of Chosen Freeholders received a grant in 1999 from the New Jersey Department of Community Affairs to develop an alternative to the "State Plan" that provides guidance for the county's growth, using "smart growth" principles. The 1999 Sussex County Strategic Growth Plan, available at <http://www.sussex.nj.us/documents/planning/6%20sgp.pdf>, identifies areas suitable for development and those with environmental constraints throughout the county. It also provides recommendations on open space acquisition, zoning, and land use practices to protect sensitive natural areas while promoting economic development.

Wallkill River in winter.



The Sussex County Open Space Plan provides specific criteria for the protection of open space at the municipal and county level, and considers the location and purpose of state-, federal-, and non-profit-protected lands in the county. The refuge is an active partner in the development and implementation of both plans.

Wallkill River Watershed Management Program

The Sussex County Municipal Utilities Authority, in concert with a Public Advisory Committee, is responsible for conducting the Wallkill River Watershed Management Program. Included in that program is the collection and interpretation of water quality data through a sampling plan that leads to recommendations for ensuring that the quality of the Wallkill River is maintained or improved. The refuge is an active partner in that process; the refuge staff participates in the Land Use Committee and the Open Space sub-committee.

Refuge Establishment, Land Acquisition Authorities and Purposes

Wallkill River Refuge Establishing Legislation

Refuges can be established by Congress through a special legislation, by the President through an executive order, or by the Director of the Service through an administrative decision document. Wallkill River refuge was first established by the Director in an administrative decision document on March 9, 1990. Congress later enacted Public Law No. 101-593, 104 Stat. 2955 on November 16, 1990, to confirm the establishment of the 7,500-acre refuge along a 9-mile stretch of the Wallkill River by special legislation. For the expansion of the refuge's land acquisition boundary the Director will issue a new administrative decision document.

Once the acquisition boundary is established, the Service can acquire lands under a variety of statutory authorities; see Refuge Manual 3 RM 1.3. To date, the Service has acquired lands for the Wallkill River refuge under the following authorities:

- 1) Emergency Wetlands Resources Act of 1986 [16 U.S.C. 3901(b)]
- 2) Migratory Bird Conservation Act [16 U.S.C. 715d]
- 3) Fish and Wildlife Act of 1956 [16 U.S.C. 742f(a)(4)]

We anticipate that the Service will continue to acquire lands under the same authorities that have been used to acquire lands in the past. Based on the refuge purposes, lands could also be acquired under several other statutory authorities, including but not limited to:

- 1) Refuge Recreation Act [16 U.S.C. 460K-1]
- 2) Endangered Species Act [16 U.S.C. 1534]
- 3) National Wildlife Refuge System Administration Act [16 U.S.C. 668dd(b)]

Wallkill River Refuge Purposes

The refuge was established with these purposes: (1) to preserve and enhance the refuge’s lands and waters in a manner that will conserve the natural diversity of fish, wildlife, plants, and their habitats for present and future generations; (2) to conserve and enhance populations of fish, wildlife, and plants within the refuge, including populations of black ducks and other waterfowl, raptors, passerines, and marsh and water birds; (3) to protect and enhance the water quality of aquatic habitats within the refuge; (4) to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats; and, (5) to provide opportunities for compatible scientific research, environmental education, and fish and wildlife-oriented recreation (104 Stat. 2955).

Refuge Operational (“Step-Down” Plans)

The U.S. Fish and Wildlife Service Manual, Part 602, Chapter 4, “Refuge Planning Policy,” lists more than 25 step-down management plans that generally are required on refuges. Those plans “step down” general goals and objectives to specific strategies and implementation schedules. Some require annual revisions; we revise others on a 5- to 10-year schedule. Some require additional NEPA analysis, public involvement, and compatibility determinations before they can be implemented.

The following step-down plans are complete and up-to-date.

- Hunt Plan (reviewed annually)
- Sport Fishing Plan (reviewed annually)
- Fire Management Plan
- Zebra Mussel Control Plan
- Safety Plan
- Continuity of Operations Plan
- Chronic Wasting Disease Plan
- Hurricane Plan
- Avian Influenza Response Plan
- Nexus Statement (Law Enforcement area of jurisdiction)

Unless otherwise noted, these plans are to be completed for the Wallkill River refuge.

- Mosquito Management Plan (the highest priority for completion)
- Habitat Management Plan (the second priority for completion)
- Visitor Services Plan

- Inventory and Monitoring Plan
- Law Enforcement Plan
- Integrated Pest Management Plan (including an annual furbearer management program plan)
- Facilities Plan
- Sign Plan

In 1997, we completed and approved an environmental assessment for the Visitor Services Program on the Wallkill River refuge. However, we did not complete a final Visitor Services Plan because of Regional Office guidance pending on developing consistency in those plans. The regional guidance was never issued. The start of the CCP process further delayed the completion of the Visitor Services plan. This CCP provides strategic guidance for visitor services programs on the refuge; we will develop a Visitor Services Plan when a visitor services specialist is on staff.

Refuge Vision Statement

Early in the planning process, our team developed the following vision statement to provide a guiding philosophy and sense of purpose for our planning.

The Wallkill River National Wildlife Refuge promotes the environmental health and works to strengthen the biological diversity of associated habitats within the Wallkill Valley. Through active management, the refuge protects and conserves wetland-dependent species, especially the federally listed bog turtle. We also support protection for state-listed species, migratory birds and regionally rare plant communities.

Local communities realize quality of life benefits as residents and visitors enjoy the refuge's natural beauty and biological diversity. Visitors engage in a variety of wildlife dependent activities including hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Through these programs, we share the ecological significance of the Wallkill River Valley and the refuge's links with other natural areas.

We value and seek the support of conservation partners and the public as we further acquire and manage exceptional wildlife habitats that contribute to the mission of the National Wildlife Refuge System.

Refuge Goals

Our planning team developed the following goals for the refuge after a review of legal and policy guidelines, the Service mission, regional plans, refuge purposes, our vision for the refuge, and public comments. All of these goals fully conform to and support national and regional mandates and policies.

- 1) Protect and enhance habitats for federal trust species and other species of special management concern, with particular emphasis on migratory birds and bog turtles.
- 2) Promote actions that contribute to a healthier Wallkill River.
- 3) Increase or improve opportunities for hunting, fishing, environmental education, interpretation, wildlife observation and wildlife photography.
- 4) Cultivate an informed and conservation-educated public that works to support the refuge purposes and the National Wildlife Refuge System mission.