

**Issues, Goals, Objectives
And Implementation Strategies
by Habitat and Focal Species**

DRAFT

General Note

Conserving and restoring populations goes hand in hand with conserving and restoring habitat. Each habitat is presented with a broad conservation goal, followed by broad objectives and finally, with focal species objectives. It is our intention to provide the state of Connecticut with the most current data available regarding population and habitat objectives where it is feasible. However, we recognize the state may have more specific information about some species and habitats. We hope this document will provide a framework for incorporating more specific information where it is available.

Strategies and tasks were taken from a variety of resources and combined into one document to help the state develop their Comprehensive Wildlife Conservation Plan. Full documents of noted resources are available upon request.

For population estimates of landbirds: Current population estimates for focal species are based on extrapolations from Breeding Bird Survey Data. Contact Randy Dettmers for more information. 413/253-8567 or Randy_Dettmers@fws.gov

Coastal

Associated focal species:

Species	B	M	W	Species	B	M	W
Black Tern		X		Red-throated loon			X
Common Tern	X			Roseate Tern	X	X	
Great Black-backed Gull	X		X				

Issues

Substantial Threats

- Climate change/sea level rising
- Wind power facilities
- Oil/contamination spills
- Disease
- Entanglement (fishing lines and nets)

Goal

Conserve, restore and enhance populations of focal species in coastal habitat to ensure the overall conservation of all native species within this habitat.

General Objectives

1. Protect and maintain high priority habitats.

Identify high priority habitats.	<ul style="list-style-type: none"> • This is done—needs to be written. (S. Atlantic Migratory Bird Initiative)
----------------------------------	---

2. Maintain or enhance populations of focal species.

Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	<ul style="list-style-type: none"> • Monitor death & morbidity of seabirds. (S. Atlantic Migratory Bird Initiative) • Identify & monitor important foraging, wintering, and migrating areas. (S. Atlantic Migratory Bird Initiative) • Develop and implement strategy to monitor colonial birds. (MANEM Regional Working Group) • Increase monitoring of seabird bycatch. (S. Atlantic Migratory Bird Initiative) • Determine population level effects of oil and hazardous
--	--

	<ul style="list-style-type: none"> materials on birds. (S. Atlantic Migratory Bird Initiative) Determine effects of sargassum harvest to seabird habitat and populations. This is done—needs to be written. (S. Atlantic Migratory Bird Initiative) Study the role of commercial fisheries in seabird mortality. (S. Atlantic Migratory Bird Initiative) Implement surveys to determine population size of all species.
Decrease human disturbance/threats.	<ul style="list-style-type: none"> Develop partnerships with fishery industries and sport anglers. (S. Atlantic Migratory Bird Initiative) Partner with fishery planners to include reduced seabird mortality strategies in all future plans. (S. Atlantic Migratory Bird Initiative) Implement increased enforcement of shipping activities, safe operational procedures, spill clean-up, and rehabilitation of oiled birds. (S. Atlantic Migratory Bird Initiative) Prohibit and enforce dumping of debris, lines, and nets. (S. Atlantic Migratory Bird Initiative) Develop non-persistent lines, nets and traps. (S. Atlantic Migratory Bird Initiative) Fund and appoint state colonial waterbird coordinator. (S. Atlantic Migratory Bird Initiative)

Species Specific Objectives

	Population Goal	Habitat Goal
Black Tern		Regional threats include habitat alteration/degradation, nests can be easily washed away by increased water levels, decline in water quality and pesticides affecting food sources.
Common Tern	Maintain current population of 4,121 pairs (10 colonies). (Tern Management Handbook)	<p>Important Common Tern sites include; Falkner Island, Bluff Island, Gull Rock, Shore Rock and Tuxis Island (Falkner and Bluff Island continuously occupied since 1980).</p> <p>To maintain and further enhance nesting colonies:</p> <ul style="list-style-type: none"> Decrease human disturbance Research needs include information about foraging habitat, winter habitat and relationship between forage fish abundance and availability Maintain successful management techniques including: fencing, vegetation control, predator control, sign posting, wardens and education programs. (Tern Management Handbook)
Great Black-backed Gull	Over 45 sites have been surveyed. Population numbers range from 2 individuals to over 400 individuals. (Waterbird Monitoring Partnership http://www.mp2-pwrc.usgs.gov/cwb/Retrieval/CustSpeciesSearch_Action.cfm for list)	Threats include human disturbance, susceptible to oil contamination and aircraft collisions.

Red-throated loon		Threats include human disturbance, susceptible to oil contamination, collisions with wires and wind facilities, and human disturbance.
Roseate Tern	<p>At the 2001 census, 95 pairs were observed. Maintain current population on Falkner Island. Population considered stable (Tern Management Handbook) but too few colonies exist.</p> <p>See Recovery Plan—available ??????????</p>	<p>Between 1989-and 2001, Falkner Island has been the only nesting site for this species. The biggest issue on the island is erosion. Successful management techniques at nesting islands include:</p> <ul style="list-style-type: none"> • Restoration of historical sites using social attraction, vegetation control, predator control, nest shelters, artificial nest habitat, sign posting, wardens, education programs, and law enforcement. (Tern Management Handbook) • Continue research foraging habitat, migration routes, winter habitat use, protection and management.

Maritime Marsh, Estuaries and Bays

Associated focal species:

Species	B	M	W	Species	B	M	W
American Bittern	X		X	Saltmarsh Sharp-tailed Sparrow	X		
American Oystercatcher	X			Sanderling		X	X
Black-bellied Plover		X	X	Semipalmated Sandpiper	X	X	
Common Loon		X	X	Short billed Dowitcher		X	
Common Tern	X			Snowy Egret	X		X
Glossy Ibis	X			Spotted Sandpiper	X	X	
Great Egret	X			Roseate Tern	X	X	
Green Heron	X			Whimbrel		X	
Little Blue Heron	X			White-rumped Sandpiper		X	
Least Sandpiper		X					
Lesser Yellowlegs		X					
Red Knot		X					

Issues

This habitat type is tied with mature deciduous forest for harboring the largest number of high priority species in Southern New England. Because of the combination of this large number of priority species and the tremendous pressure from human development along the coastline, this habitat types is clearly the one most in need of immediate conservation attention in this planning unit (from PIF Plan).

Substantial threats include:

- Human disturbance
- Pollution
- Increasing predator populations
- Exotic species
- Entanglement (fishing lines and nets)
- Disease

Goal

Conserve, restore and enhance populations of focal species in the maritime marsh, estuary, and bay habitat to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats.*

Strategy	Task
Identify priority habitats for protection.	<ul style="list-style-type: none"> • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Implement a region-wide habitat identification and ownership analysis; collect ownership/contact information (BCR 30 workshop) This project has been completed—refer to http://fsweb.wm.edu/ccb/habitat/habitat_home.cfm • Research best method of protection—acquisition, fee or easements from willing sellers • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop) • Maintain and coordinate habitat protection of areas already owned by federal, state, local government or NGO's. • Create and restore habitat in focus areas through manipulation, augmentation, etc.

	<ul style="list-style-type: none"> • Protect marshes from chemical contamination, siltation, eutrophication, and other forms of pollution. • Train land managers to manage habitat for shorebirds by increasing the number of Manomet habitat management workshops. (MANEM working group)
Implement best management practices at all appropriate impoundments.	<ul style="list-style-type: none"> • Develop and implement a program for adaptive impoundment management in the northeast in cooperation with the project underway in the southeast. (BCR 30 workshop) • Develop list of all managed impoundments; include contact information request that managers participate in achieving regional goals for managed wetland area. (BCR 30 workshop) • Incorporate shorebird management at all appropriate impoundments. (BCR 30 workshop) • Restore high marsh areas that have been flooded for impoundments in order to provide additional habitat for Saltmarsh Sharp-tailed Sparrows (PIF)
Restore degraded habitat	<ul style="list-style-type: none"> • Assess habitat quality for foraging shorebirds through resource or energetic studies in representative habitats throughout the BCR. (BCR 30 workshop) • Continue or develop and implement invasive species removal program • Conduct vegetation studies (MANEM working Group) • Restore Norwalk Island (MANEM working Group)
Plan for oil spill response.	<ul style="list-style-type: none"> • Implement planning and simulations or partner with those that are currently participating in these types of activities. (MANEM working group) • Monitor and quantify habitat and food resources prior to spill as preparation for quantifying the direct and indirect impacts of a spill. (MANEM working group) • Implement post spill surveys to accurately quantify spill damages. (MANEM working group) • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds. (S. Atlantic Migratory Bird Initiative)
Secure adequate upland buffers (drier habitats adjoining wet marsh areas), especially for marshes near agricultural lands and human development. (PIF)	<ul style="list-style-type: none"> • Identify landowners of upland buffers • Determine best protection—acquisition, fee, easement. • Initiate landowner contact.

2. *Maintain or enhance populations of high priority species.*

Strategy	Task
Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	<ul style="list-style-type: none"> • Participate in the implementation of the Program for Regional and International Shorebird Monitoring (PRISM) • Develop and implement a regional monitoring program targeting coastal marshes in order to track population trends and estimate population sizes for all groups of birds • Design and conduct coordinated aerial survey targeting migrating shorebirds in spring (BCR 30 workshop) • Develop a targeted monitoring program for high priority shorebird species, including staging and migration sites (coordinate with PIF projects). (BCR 30 workshop) • Monitor shorebirds for responses to current management practices. (BCR 30 workshop)

	<ul style="list-style-type: none"> • Analyze threats to priority shorebird sites. (BCR 30 workshop) • Study how land-use practices such as ditching, impounding, dredging, open marsh water management, burning, and marsh restoration impact species in this suite (especially sparrows and rails) to determine optimal habitat management practices. (PIF) • Conduct studies of productivity and survival of sparrow and rail populations across the planning unit to understand factors regulating population size and persistence. (PIF) • Investigate possible negative impacts that rising ocean levels from global climate change could have on marsh-nesting species. (PIF) • Conduct rail research-abundance and distribution (MANEM Working Group and BCR 30 workshop) • Support existing studies on disease (BCR 30 workshop)
<p>Develop appropriate predator control programs, especially for smaller marshes and marshes near human population concentrations</p>	<ul style="list-style-type: none"> • Expand existing beach nesting bird protection programs to increase shorebird roosting • Maintain breeding season exclosures and monitor their effectiveness (BCR 30 workshop) • Partner with the Atlantic Flyway to manage adverse effects of Mute Swans (BCR 30 workshop)
<p>Eliminate or reduce human disturbance.</p>	<ul style="list-style-type: none"> • Research, assess, and implement control programs for mammalian and avian predators for high priority beach nesting birds (BCR 30 workshop) • Develop and implement outreach projects to reduce human disturbance (BCR 30 workshop) • Partner with existing organizations to enhance efforts • Increase law enforcement at protected sites. • Increase agency capacity focused on permit and technical assistance for shorebird, landbird, waterbird species. • State agencies should fund incentives or measures to eliminate waterbird bycatch; specific suggestion for mid-Atlantic is to buy out gill-net fisheries. (BCR 30 workshop) • Fund independent assessment for addressing effects of bird strikes at wind power facilities. (BCR 30 workshop) • Encourage local planning (e.g., rolling setbacks and other tools) to ensure important breeding and non-breeding habitat is not affected by sea level rise due to climate change. (BCR 30 workshop) • Develop partnerships with fishery industry and sport anglers. (S. Atlantic Migratory Bird Initiative) • Encourage state fishery programs to include impacts to birds in future fishery plans. (S. Atlantic Migratory Bird Initiative) • Appoint a state colonial waterbird coordinator. (S. Atlantic Migratory Bird Initiative)
<p>Assess impacts of aquaculture on shorebirds in all states where significant activity is underway, and predict probable impacts of proposed aquaculture development.</p>	<ul style="list-style-type: none"> • Conduct an immediate analysis of current threats to shorebirds from ongoing aquaculture projects. (BCR 30 workshop) • Ensure that an appropriate staff person from each state is involved with the aquaculture regulatory process. (BCR 30 workshop) • Develop Best Management Practices for aquaculture that minimize impacts to shorebirds. (BCR 30 workshop)

Incorporate protection of priority species into oil spill response plans.	<ul style="list-style-type: none"> • Coordinate with appropriate partners..... • Identify key tern foraging sites, prey base and stocks (MANEM working group) • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds. (S. Atlantic Migratory Bird Initiative)
---	--

Species Specific Objectives

	Population Objective/Index	Habitat Objective
American Bittern	Historic and current populations unknown. (MANEM Regional Working Group)	<p>Threats include: habitat loss and degradation due to drainage, filling, and conversion to agriculture; pesticides/contaminants, acid precipitation, hunting, human disturbance, and parasitic nematode can be contracted. (MANEM Working Group)</p> <p>Management recommendations:</p> <ul style="list-style-type: none"> • Conduct surveys to gather population numbers and distribution. • Preservation of priority saltmarsh and freshwater wetland habitats where species occurs. • Protection from chemical contamination and pollution. • Increase populations at protected/managed sites.
American Oystercatcher	Observed pairs are very low, ranging from 1-6 pairs at various sites. (USGWS Waterbird Monitoring Partnership) Maintain and enhance current populations.	<p>Menunketesuck Island is one of eight sites this species has been observed on. (Waterbird Monitoring Partnership)</p> <p>Threats include human/dog disturbance, predation, pollution, turbidity and habitat degradation.</p> <p>Management should include:</p> <ul style="list-style-type: none"> • Maintain successful management techniques including: fencing, predator control, sign posting, wardens and education programs. • Acquisition or some form of protection of highest priority parcels critical.
Black-bellied Plover	<p>The latest survey on Sandy Point and Morse Point counted 300 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Point counted 500 individuals. (International Shorebird Survey maximum count data).</p> <p>The latest survey on Menunketesuck Island counted 73 (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	<p>Four sites have been identified as important for this species (A Plan for Monitoring Shorebirds During Non-breeding Season-Draft) Sandy Point, Morse Point, Milford Point, and Menunketesuck Island -primary stopover habitat.</p> <ul style="list-style-type: none"> • <i>See Lesser Yellowlegs for guidance on habitats.</i>
Common Loon	Wintering areas along coast need protection from oil spills, entanglement and pollutants.	
Common Tern	<i>See Coastal habitat for objectives.</i>	
Glossy Ibis	Five islands have been surveyed for the Waterbird Monitoring Partnership over several	Threats include pesticides, oil spill, degradation of habitat, and predation.

	<p>years. Maintain/enhance these populations: Chimon Island-average of 20 individuals Duck Island-14 individuals Ram Island-2 individuals Shea Island-average 20 individuals Tuxis Island-16 individuals (These numbers reflect the most current survey date. Averages are from multiple surveys for same year).</p>	<p>Wetland preservation is critical for this species (MANEM Working Group)</p>
Great Egret	<p>Eight islands have been surveyed for the Waterbird Monitoring Partnership over several years. Maintain/enhance these populations: Charles Island-8 individuals Chimon Island-74 individuals Cockenoe Island-5 individuals Duck Island-10 individuals Great Captain Island-95 individuals Ram Island-14 individuals Shea Island-2 individuals Tuxis Island-12 individuals (These numbers reflect the most current survey date.)</p>	<ul style="list-style-type: none"> Species Responds well to restoration of wetland habitats. Need to improve monitoring to determine population status. (MANEM Working Group)
Green Heron	<p>Eight islands have been surveyed for the Waterbird Monitoring Partnership over several years. Maintain/enhance these populations: Chimon Island-8 individuals Duck Island-2 individuals Great Meadows-10 individuals Lewis Island-2 individuals Ram Island-14 individuals Shea Island-2 individuals Sumac Island-2 individuals Tuxis Island-10 individuals (These numbers reflect the most current survey date.)</p>	<ul style="list-style-type: none"> Primary concern is conservation and management of wetlands and should involve specie's foraging/habitat needs. Some man-made water bodies have created suitable artificial habitat, such as reservoirs, water marshes used for mosquito control, and dredged material islands. (MANEM Working Group)
Least Sandpiper	<p>The latest survey on Milford Point counted 300 individuals (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	<p>Milford Point- primary stopover habitat. Access to area is limited due to federal ownership, during nesting season but the island has become attached to the mainland which may increase predation and disease.</p> <ul style="list-style-type: none"> Partner with landowners to monitor site and implement new surveys as stated in A Plan for Monitoring Shorebirds During Non-breeding Season-Draft.
Lesser Yellowlegs	<p>The latest survey on Sandy Point and Morse Point counted 80 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Pointed counted 35 individuals. (International Shorebird Survey maximum count data).</p> <p>The latest survey on Menunketesuck Island counted 23 (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide</i></p>	<p>Four sites have been identified as important for this species (A Plan for Monitoring Shorebirds During Non-breeding Season-Draft)</p> <p>Sandy Point and Morse Point-primary stopover habitat. Management issues include habitats are very fragile and subject to hydrologic change; human disturbance: birders, anglers, dogs; species (plovers, terns, & other migrating shorebirds) are susceptible to predation.</p> <ul style="list-style-type: none"> Implement and conduct new surveys as stated in A Plan for Monitoring Shorebirds During Non-breeding Season-Draft. <p>Milford Point- primary stopover habitat. Access to area is limited due to federal ownership, during</p>

	<i>suitable or improved habitat.</i>	<p>nesting season but the island has become attached to the mainland which may increase predation and disease.</p> <ul style="list-style-type: none"> Partner with landowners to monitor site and implement new surveys as stated in A Plan for Monitoring Shorebirds During Non-breeding Season-Draft. <p>Menunketesuck Island-primary stopover habitat. Management issues include: private ownership, human and dog disturbance.</p> <ul style="list-style-type: none"> Research willingness of landowners for acquisition, fee, or easement. Work with owners to reduce disturbance during critical times of migration. Partner with landowners to monitor site and implement new surveys as stated in A Plan for Monitoring Shorebirds During Non-breeding Season-Draft.
Little Blue Heron	<p>Four islands have been surveyed for the Waterbird Monitoring Partnership over several years. Maintain/enhance these populations: Chimon Island-24 individuals Cockenoe Island-2 individuals Great Captain Island-1 individual Shea Island-4 individuals (These numbers reflect the most current survey date.)</p>	<ul style="list-style-type: none"> Prohibit trespassing into heron colonies and surrounding buffer zones, especially during the breeding season. (MANEM regional working group)
Red Knot	<p>The latest survey on Sandy Point and Morse Point counted 75 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Pointed counted 54 individuals. (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	<p>Three sites have been identified as important for this species (A Plan for Monitoring Shorebirds During Non-breeding Season-Draft) Sandy Point, Morse Point and Milford Point - primary stopover habitat.</p> <ul style="list-style-type: none"> <i>See Lesser Yellowlegs for guidance on habitats.</i>
Roseate Tern	<i>See Coastal habitat for objectives.</i>	
Saltmarsh Sharp-tailed Sparrow	<p>Due to lack of reliable population estimates, numerical objectives have not been determined.</p>	<p>Due to lack of reliable population estimates, numerical population and habitat-area objectives have not been determined.</p> <ul style="list-style-type: none"> Protecting all remaining habitat, especially the largest patches, should receive high conservation attention.
Sanderling	<p>The latest survey on Sandy Point and Morse Point counted 400 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Pointed counted 350 individuals. (International Shorebird Survey maximum count data).</p> <p>The latest survey on Menunketesuck Island counted 175 (International Shorebird Survey maximum count data).</p>	<p>Four sites have been identified as important for this species (A Plan for Monitoring Shorebirds During Non-breeding Season-Draft) Sandy Point, Morse Point, Milford Point, and Menunketesuck Island -primary stopover habitat.</p> <ul style="list-style-type: none"> <i>See Lesser Yellowlegs for guidance on habitats.</i>

	<p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	
Semipalmated Sandpiper	<p>The latest survey on Sandy Point and Morse Point counted 1500 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Point counted 3000 individuals. (International Shorebird Survey maximum count data).</p> <p>The latest survey on Menunketesuck Island counted 57 (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	<p>Four sites have been identified as important for this species (A Plan for Monitoring Shorebirds During Non-breeding Season-Draft) Sandy Point, Morse Point, Milford Point, and Menunketesuck Island -primary stopover habitat.</p> <ul style="list-style-type: none"> • <i>See Lesser Yellowlegs for guidance on habitats.</i>
Short Billed Dowitcher		
Snowy Egret	<p>Renewed need for monitoring and research due to decreasing populations across part of range. Species responds well to protective management measures.</p>	
Spotted Sandpiper		
Whimbrel		
White-rumped Sandpiper		

Beach, Dune, and Islands

Associated Focal Species

Species	B	M	W	Species	B	M	W
American Oystercatcher	X			Roseate Tern	X	X	
Black Skimmer	X			Ruddy Turnstone		X	X
Common Tern	X			Sanderling		X	X
Herring Gull	X		X	Snowy Egret	X		X
Least Tern	X			White-rumped Sandpiper		X	
Piping Plover	X						
Red Knot		X					

Issues

This habitat type is home to two species covered under the Endangered Species Act: the endangered Roseate Tern and the threatened (along the Atlantic Coast) Piping Plover. Like other habitats associated with coastal areas in the eastern U.S. where dense human populations exist, most beach and dune ecological communities in Southern New England face tremendous pressures from humans, especially recreational activities. However, this habitat also supports some very large concentrations of colonially nesting waterbirds, such as Herring Gulls, which can grow to nuisance levels. Both of these situations (endangered species and nuisance-level concentrations) highlight the problems common in areas where large human populations exist along coastal areas. Human disturbance and loss of habitat are the main problems for the threatened and endangered species, while high probability of contact with people lead to increasing chances for common species to create nuisance situations or situations potentially harmful to human safety (e.g., gulls congregating around airports).

Substantial threats include:

- Human disturbance
- Nuisance/predator species
- Loss of habitat
- Flooding

Goal

Conserve, restore and enhance populations of focal species in the beach, dune and island habitat to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats.*

Strategy	Task
Identify priority habitats for protection.	<ul style="list-style-type: none"> • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Implement a region-wide habitat identification and ownership analysis; collect ownership/contact information (BCR 30 workshop) • Research best method of protection—acquisition, fee or easements from willing sellers • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop) • Maintain and coordinate habitat protection of areas already owned by federal, state, local government or NGO's. • Train land managers to manage habitat for shorebirds by increasing the number of Manomet habitat management workshops. (MANEM working group)
Restore degraded habitats.	<ul style="list-style-type: none"> • Continue to support state IBA Program • Dredge material has been successfully used in some instances to create new habitat, especially for Least Terns

	<p>and Common Terns, although all habitat alterations should be conducted with caution and after consultation with experts; new substrates should not be overly silty and depositions with over 20% shell material could interfere with nest construction. (PIF)</p> <ul style="list-style-type: none"> • Utilize dredged material to implement erosion control efforts. (Tern Management Handbook) • Vegetation encroachment can degrade habitat for terns and should be prevented at important nesting sites. Addition of dredge spoils on vegetated beach areas may impede succession. (PIF) • Assess habitat quality for foraging shorebirds through resource or energetic studies in representative habitats throughout the BCR. (NAWCP workshop) • Continue or develop and implement invasive species removal program • Conduct vegetation studies and remove vegetation where it is deemed excessive with the appropriate tools (fire, hand-pulling, grazing, etc). (MANEM working Group and Tern Management Handbook)) • Implement floating rafts where flooding threatens nesting species. (Tern Management Handbook) • Identify key areas for Phragmites control and target priority areas. (MANEM working group) • Compile current knowledge and assess impacts of beach replenishment and shoreline hardening on shorebirds. (BCR 30 workshop)
Identify and protect adequate buffers (inland and offshore).	<ul style="list-style-type: none"> • Identify landowners of upland buffers • Determine best protection—acquisition, fee, easement. • Initiate landowner contact.

2. *Maintain or enhance populations of high priority species.*

Strategy	Task
Actively deter, reduce or eliminate predators.	<ul style="list-style-type: none"> • Use fences and other barriers to reduce predator impacts • Implement predator control plans where they do not already exist. • Utilize predator control management techniques in Tern Management Handbook.
Reduce or eliminate human disturbance	<ul style="list-style-type: none"> • Restrict access to nesting beaches during late May to late July. • Prohibit free-running dogs. • Post signs to alert and educate public to presence of nesting birds. • Use fences and other barriers to reduce human impacts. • Protect breeding sites from habitat alteration and overuse from recreational activities, including nighttime activities. • Implement or utilize existing (partners) outreach opportunities to educate public about their impacts to wildlife (Ct. DEP program). • Increase law enforcement at sites with high human disturbance. • Increase outreach activities to gain support for protection of species. (Tern Management Handbook)
Monitor breeding and non-breeding populations of focal species to determine population size, status and trends.	<ul style="list-style-type: none"> • Participate in the implementation of the Program for Regional and International Shorebird Monitoring (PRISM)

	<ul style="list-style-type: none"> • Design and conduct coordinated aerial survey targeting migrating shorebirds in spring (BCR 30 workshop) • Develop a targeted monitoring program for high priority shorebird species, including staging and migration sites (coordinate with PIF projects). (BCR 30 workshop) • Monitor shorebirds for responses to current management practices. (BCR 30 workshop) • Analyze threats to priority shorebird sites. (BCR 30 workshop) • Investigate possible negative impacts that rising ocean levels from global climate change could have species. (PIF) • Support existing studies on disease (BCR 30 workshop) • Continue to evaluate factors that limit populations of the priority species from this habitat suite and impede recovery, including studies of (a)habitat requirements for breeding, foraging, and staging, (b) demographics, (c) causes of mortality, and (d) factors limiting growth and survival of young • Investigate the behavior and population ecology of predators impacting the priority bird species to provide a better understanding of how to protect the birds from depredation. • Investigate potential threats from pesticide and heavy metal accumulation. • Utilize monitoring techniques as stated in Tern Management Handbook.
Plan for oil spill response.	<ul style="list-style-type: none"> • Implement planning and simulations or partner with those that are currently participating in these types of activities. (MANEM working group) • Monitor and quantify habitat and food resources prior to spill as preparation for quantifying the direct and indirect impacts of a spill. (MANEM working group) • Implement post spill surveys to accurately quantify spill damages. (MANEM working group) • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds. (S. Atlantic Migratory Bird Initiative)

Species Specific Objectives

	Population Objective/Index	Habitat Objective
American Oystercatcher	<i>See Oystercatcher in Maritime Marsh, Estuaries and Bays for objectives.</i>	
Black Skimmer		Threats include flooding, predation, and human disturbance. <ul style="list-style-type: none"> • Protection of suitable breeding sites is crucial, especially considering the expansion of human populations and their attraction to coastal areas. • Large colonies can be protected by restricting development, prohibiting the use of recreational vehicles in nesting areas, and through educating the public.
Common Tern	<i>See Common Tern in Maritime Marsh, Estuaries and Bays for objectives.</i>	

Herring Gull	Although populations have been declining due to oil pollution, pesticides, and food reduction from fishing, this species has been identified as a priority for its' role as a predator to priority species in this habitat. Predator control efforts appear ineffective on large scale, but have been successful in smaller colonies.	
Least Tern	From 1989-1998 Least Tern populations nested at only four sites. Maintain and enhance populations of 750 pairs (maximum count).	Four sites have been identified as extremely important: Griswold point, Long Beach, Milford Point, and Sandy Point. While regional populations are likely increasing, colonies are very susceptible to human recreation and disturbance and predation. Continued management for these problems is necessary.
Piping Plover	See the Piping Plover Recovery Plan: http://pipingplover.fws.gov/recplan/index.html	Threats include human/dog disturbance, predation, and habitat degradation. Management should include: <ul style="list-style-type: none"> • Maintain successful management techniques including: fencing, predator control, sign posting, wardens and education programs.
Red Knot	<i>See Maritime Marsh, Estuaries and Bays for objectives.</i>	
Roseate Tern	<i>See Coastal habitat for objectives.</i>	
Ruddy Turnstone	<p>The latest survey on Sandy Point and Morse Point counted 100 individuals (International Shorebird Survey maximum count data).</p> <p>The latest survey on Milford Pointed counted 225 individuals. (International Shorebird Survey maximum count data).</p> <p>The latest survey on Menunketesuck Island counted 106 (International Shorebird Survey maximum count data).</p> <p><i>While impossible to give specific population objectives for non-breeders, implementing habitat objectives is recommended to provide suitable or improved habitat.</i></p>	<i>See Lesser Yellowlegs for habitat objectives and management suggestions.</i>
Sanderling	<i>See maritime marsh for objectives.</i>	
Snowy Egret	<i>See maritime marsh for objectives.</i>	
White-rumped Sandpiper		

Freshwater Wetland/River –Lake

Associated Focal Species

Species	B	M	W	Species	B	M	W
American Bittern	X		X	Lesser Yellowlegs		X	
Clapper Rail	X			Semipalmated Sandpiper		X	
Common Loon		X	X	Solitary Sandpiper		X	
Double-crested Cormorant	X	X		Spotted Sandpiper	X	X	
Glossy Ibis	X			Snowy Egret	X		X
Great Egret	X		X				

Issues

The amount of freshwater wetlands that have been lost or degraded during the last century is huge. The greatest threats to most species in this habitat suite are continuing loss and alteration of wetland habitat through draining, dredging, filling, pollution, acid rain, agricultural practices, and siltation. Various contaminants (e.g., pesticides, insecticides, heavy metals, acid deposition, etc.) from industrial, agricultural, and urban/suburban sources can degrade wetland ecosystems and impair reproductive abilities of the birds. The size of wetlands is also an important consideration for some of the priority species in this habitat suite. Many of these species occur more often and at higher abundances in larger wetlands. Loss of wetland habitat continues to be the primary concern for the species of this habitat suite, and preservation of existing wetland sites should be the first priority for conservation actions in this habitat type.

Substantial Threats Include:

- Loss/alteration of habitat
- Contamination from various pollutants
- Invasive Species

Goal

Conserve, restore and enhance populations of focal species in the wetland, river and lake habitat to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats.*

Strategy	Task
Identify priority habitats for protection.	<ul style="list-style-type: none"> • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Implement a region-wide habitat identification and ownership analysis; collect ownership/contact information (BCR 30 workshop) • Research best method of protection—acquisition, fee or easements from willing sellers • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop) • Preserve all large (> 10 ha) freshwater wetlands from development, draining, and other forms of habitat loss. (PIF) • Evaluate habitat requirements, including nest site characteristics, water quality, and minimum wetland area needed during both the breeding and non-breeding seasons. (PIF)
Maintain and manage priority habitats already protected.	<ul style="list-style-type: none"> • Coordinate habitat protection of areas owned by federal, state, local government or NGO's. • Continue to implement Wetland Protection regulations. • Investigate wetland management alternatives that can provide a variety of wetland habitat conditions that are

	<p>suitable to the various needs of the priority species in this habitat suite. (PIF)</p> <ul style="list-style-type: none"> • Evaluate habitat requirements, including nest site characteristics, water quality, and minimum wetland area needed during both the breeding and non-breeding seasons. (PIF) • Develop and implement a program for adaptive impoundment management (in the Northeast) in cooperation with the project underway in the southeast. (BCR 30 workshop) • Design a regional management program for these wetland species that continue to be threatened by habitat loss, including increased coordination among managers and biologists to prevent duplication of research efforts and to share current information. • Creation of new nesting habitat may be needed for some species in this physiographic area. Minor alterations to existing management activities for waterfowl, such as leaving some dense stands of cattail and bulrush for nesting sites and maintaining fairly stable water levels during the nesting season, should benefit many of these species. Complete drying of impoundments during drawdowns should be avoided to prevent the die-off of small fish, amphibians, and dragonflies, which are a major food sources for many of these bird species. Slow drawdowns should benefit bitterns by providing suitable foraging habitat and encouraging dense stands of emergent vegetation for nesting. (PIF)
Reduce/eliminate wetland alteration and degradation.	<ul style="list-style-type: none"> • Implement new and existing outreach efforts to the general public to gain support for wetland protection. • Wetlands used as breeding sites should be protected from chemical contamination, siltation, eutrophication, and other forms of pollution/contamination that could directly harm breeding birds or their food supply. (PIF) • Hemi-marsh conditions favored by grebes and ducks need to be maintained by periodic reversal of vegetation succession to open up some of the extensive stands of emergent vegetation, but suitable habitat for nesting needs to be maintained in nearby areas during wetland management. (PIF)
Reduce/eliminate invasive species.	<ul style="list-style-type: none"> • Evaluate effects of invasive plants such as <i>Phragmites</i> and purple loosestrife. (PIF) • Work with partners to remove invasive species from infested priority habitats. • Coordinate with IPANE (http://invasives.eeb.uconn.edu/ipane) and other invasive species groups for guidance on removal. • Mute swans??????

2. *Maintain and enhance populations of high priority species.*

Monitor breeding and non-breeding populations of focal species to determine population size, status and trends.	<ul style="list-style-type: none"> • Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Utilize standard methods for conducting point-counts using tape-recorded vocalization playback. (PIF) • Determine causes of breeding failure and mortality of young and adults. (PIF)
---	--

Species Specific Objectives

	Population Objective/Index	Habitat Objective
American Bittern	<i>See Maritime marsh, Estuary and Bay objectives.</i>	
Clapper Rail		<ul style="list-style-type: none"> Continued implementation of wetland protection laws is the most effective management technique for this species. (MANEM working Group) Tidal restoration and open-marsh water management would also be necessary and translocation to increase genetic variation of certain species has also been shown to be beneficial. (MANEM working Group)
Common Loon		<ul style="list-style-type: none"> Breeding conservation programs and monitoring/protection of nesting sites in areas of human recreation are essential. (MANEM working Group) Wintering areas along the coasts need protection from oil spills. (MANEM working Group)
Double-crested Cormorant	<p>Populations on the rise.</p> <p>This species is hypothesized to have two potential effects on other colonial waterbird species: competition for nest sites and habitat degradation. Direct interspecific competition for nests and nest sites may occur but has not been documented through careful study. Most impacts appear to occur indirectly through habitat degradation (e.g. defoliation, tree die-off). While there is some evidence that they may displace other species, no studies have clearly established DCCO impact on other birds at even a colony level scale To reduce cormorant impacts primarily to fisheries, aquaculture, vegetation and other colonial waterbirds, a large number of techniques has been developed or proposed. These techniques utilize lethal and non-lethal measures and may be used at local, regional or population levels. “<i>Status of the Double-crested Cormorant (Phalacrocorax auritus) in North America</i>”, USFWS document.</p>	
Glossy Ibis	<i>See Maritime Marsh, Estuary, and Bay for objectives.</i>	
Great Egret	<p>Eight islands have been surveyed for the Waterbird Monitoring Partnership over several years.</p> <p>Maintain/enhance these breeding populations:</p> <p>Charles Island-8 individuals Chimon Island-74 individuals Cockenoe Island-5 Duck Island-10 individuals Great Captain Island-95 individuals Ram Island-14 individuals Shea island-2 individuals Tuxis Island-12 individuals (These numbers reflect the most current survey date)</p>	<p>Populations respond well to the protection of nesting and foraging sites and wetland restoration.</p> <p>Threats include: habitat loss, ingestion of mercury and other chemicals and contaminants.</p> <p>(MANEM Regional Working Group)</p>
Lesser Yellowlegs	<i>See Maritime Marsh, Estuary, and Bay for objectives.</i>	
Semipalmated Sandpiper	<i>See Maritime Marsh, Estuary, and Bay for objectives.</i>	
Snowy Egret	<p>Eight islands have been surveyed for the Waterbird Monitoring Partnership over several years.</p>	<p>Populations respond well to the protection of nesting and foraging sites and wetland restoration.</p>

	<p>Maintain/enhance these breeding populations: Charles Island-150 individuals Chimon Island-462 individuals Cockenoe Island-35 Duck Island-22 individuals Great Captain Island-100 individuals Ram Island-40 individuals Shea island-200 individuals Tuxis Island-66 individuals (These numbers reflect the most current survey date)</p>	<p>Threats include; vulnerability to pesticide contamination, ingestion of plastic and Styrofoam, loss/degradation of habitat.</p> <p>(MANEM Regional Working Group)</p>
Solitary Sandpiper		
Spotted Sandpiper		

Mature Deciduous/Mixed Forest

Associated Focal Species

Species	B	M	W	Species	B	M	W
Black-throated Blue Warbler	X			Louisiana Waterthrush	X		
Canada Warbler	X			Wood Thrush	X		
Cerulean Warbler	X			Worm-eating Warbler	X		

Issues

Most of the priority species in this habitat suite are typically described as needing large tracts of mature deciduous forest. Although estimates of minimum forest area in which the different species are likely to breed, the landscape context and overall levels of forest cover on a regional basis are likely to be a more important factor than tract size in determining important parameters such as probability of occurrence and nest success. In general, most of the studies that have been done on these species suggest that within regions that have relatively high overall forest cover (e.g., $\geq 70\%$), negative impacts from edge effects, predation pressure, and parasitism are less than in less forested regions (e.g., Robinson et al. 1995, Gale et al. 1997, Hoover and Brittingham 1993, Rosenberg et al. 1999).

The current estimates of land cover within the Southern New England physiographic area indicate it is about 40% forested, suggesting that impacts of forest fragmentation are a major concern within this planning unit. Urbanization and agricultural uses have reduced overall forest cover and tract size in what historically was a well-forested area. Thus, conservation efforts for this habitat type within this physiographic area should be concentrated on maintaining the existing large tracts of mature deciduous forest and well-forested landscapes, while also looking for ways to reduce edge effects and create larger forest blocks.

While these factors indicate significant conservation concerns within this planning unit, several other characteristics of this unit provide positive qualities from which to base conservation efforts. Southern New England is within the overall well-forest region of the northeastern U.S. Forest cover within many parts of this region has returned to levels near what existed at the time of European settlement. Also, within the Southern New England physiographic area, numerous landscapes with high overall forest cover exist and these landscapes apparently support stable or even increasing populations of some of the highest priority species in this habitat suite. Areas like southwestern Connecticut, the Hudson Highlands in southeastern New York, and the New Jersey Highlands in northeastern New Jersey are areas that all have relatively high forest cover and significant populations of species like Cerulean Warbler, Wood Thrush, Worm-eating Warblers, and Louisiana Waterthrush. These landscapes have the ability to provide source populations of these species and thereby supply individuals to potential sink populations in less forested landscapes throughout this physiographic area. These important areas need to be protected from development and the forests in these areas need to be managed in such a way to promote the vegetation structure and composition most suitable for these species. (PIF)

Substantial Threats Include:

- Edge effect
- Predation pressure
- Parasitism
- Fragmentation/habitat loss and alteration

Goal

Conserve, restore and enhance populations of focal species in the mature deciduous/mixed forest to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats.*

Strategy	Task
Identify priority habitats for protection.	<ul style="list-style-type: none"> • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Conduct land use analysis to identify all remaining large forest block (e.g., ≥ 350 ha) and landscapes with high % forest cover (e.g., $> 70\%$). (PIF)
Target large forest blocks for protection. (PIF)	<ul style="list-style-type: none"> • Collect ownership/contact information. • Research best method of protection—acquisition, fee or

	<p>easements from willing sellers</p> <ul style="list-style-type: none"> • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop)
Maintain and manage priority habitats already protected.	<ul style="list-style-type: none"> • Coordinate habitat protection of areas already owned by federal, state, local government or NGO's. (BCR 30 workshop) • Create and restore habitat in focus areas through manipulation, augmentation, connecting smaller forest blocks to create large patches, etc (PIF) • Assess vegetation structure to ensure that appropriate structural characteristics of the habitat are being maintained. (PIF) • If forest stands have reached a late-successional stage but have little shrub or mid-canopy vegetation and few breaks in the canopy, low-level management through selective cuts or thinning may improve habitat conditions. (PIF) • Assess the effects of various logging practices (especially selection and shelterwood cuts) on occurrence, breeding density, and nesting success of the priority species in this habitat suite. (PIF) • Develop specific forest management guidelines for high priority species. (BCR 30 workshop) • Develop guidelines for recommended deer densities that are compatible with reversing declines of priority forest birds. (BCR 30 workshop)

2. Maintain or enhance populations of high priority species.

Monitor populations of focal species and species from the suite to determine population sizes, statuses, and trends.	<ul style="list-style-type: none"> • Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Design and conduct targeted monitoring program to track population trends of forest interior species that are not well-covered by BBS in this physiographic area. (PIF) • Monitor reproductive success of this suite of species at different locations throughout region to better understand where forest fragmentation causes problems and where it does not. (PIF) • Assess sensitivity of species in this habitat suite to pesticides currently being used to control gypsy moths and other insect pest species. (PIF) • Studies of reproductive success, lingering impacts of pesticide use, prey population levels, habitat characteristics of nest sites and preferred foraging areas, and interactions with competitors are needed for most woodland raptors, including Cooper's Hawk, Barred Owl, and Red-shouldered Hawk. (PIF) • Determine relative importance and use of other habitat types during the post-fledging period prior to migration. (PIF)
--	--

Species Specific Objectives

	Population Objective	Habitat Objective
Black-throated Blue Warbler	Current population estimates of this species, in the state of Connecticut are	9,410 hectares of suitable habitat are necessary to support current populations

	<p>2,826 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be maintained.</p>	<p>at an average density of 3.33 hectares per pair.</p>
Canada Warbler	<p>Current population estimates of this species, in the state of Connecticut are 802 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 880 pairs.</p>	<p>2,931 hectares of suitable habitat are necessary to support 880 pairs at an average density of 3.33 hectares per pair.</p>
Cerulean Warbler	<p>Current population estimates of this species, in the state of Connecticut are 80 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 88 pairs.</p>	<p>352 hectares of suitable habitat are necessary to support 88 at an average density of 4 hectares per pair.</p> <ul style="list-style-type: none"> Determine range of suitable habitats and identify present breeding sites for Cerulean Warbler in this region; develop better understanding of site conditions that attract these birds. (PIF)
Louisiana Waterthrush	<p>Current population estimates of this species, in the state of Connecticut are 1,447 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 1,592 pairs.</p>	<p>11,145 hectares of suitable habitat (ie: forested stream) are necessary to support 1,592 at an average density of 7 hectares per pair.</p> <ul style="list-style-type: none"> Headwater streams and wetlands of high water quality within large forest patches should be the targeted habitat. In smaller forest tracts, maintain at least a 100-meter buffer of mature forest cover along streamside and ravine habitat. (PIF) Conduct population ecology studies of species. (PIF)
Wood Thrush	<p>Current population estimates of this species, in the state of Connecticut are 63,284 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 88,590 pairs.</p>	<p>295,006 hectares of suitable habitat are necessary to support 88,590 pairs at an average density of 3.33 hectares per pair.</p> <ul style="list-style-type: none"> Selective logging and thinning of “overmature” trees may create favorable vegetation conditions. (PIF) Determine factors limiting Wood Thrush populations in this region and causes of population declines. (PIF)
Worm-eating Warbler	<p>Current population estimates of this species, in the state of Connecticut are 3,404 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 3,733 pairs.</p>	<p>12,431 hectares of suitable habitat is necessary to support 3,733 pairs at an average density of 3.3 hectares per pair.</p> <ul style="list-style-type: none"> Selective logging and thinning of “overmature” trees may create favorable vegetation conditions. (PIF)

Early Successional Shrub/Pitch Pine Barrens

Species	B	M	W	Species	B	M	W
American Woodcock	X	X	X	Eastern Towhee	X		
Blue-winged Warbler	X			Golden-winged Warbler	X		

Issues

Many species of shrubland birds have been experiencing steep population declines in the Northeast over the last several decades, including in this planning unit. While many of these species are still fairly widespread and common, these steep declines warrant some attention. (PIF)

Threats to Early Successional Shrub Habitat

- Urban/suburban development
- Habitat fragmentation
- Lack of adequate disturbance events in remaining forested areas

Threats to Pine Barrens

- Fire suppression
- Development pressures particularly for recreational activities
- Overuse associated with recreation
- Over-extraction or pollution of groundwater.

Goal

Conserve, restore and enhance populations of focal species in the early successional shrub/pitch pine barren to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats. (Refer to PIF Physiographic Area 9 plan for a comprehensive discussion on management and implementation strategies.)*

Identify and protect high priority habitat.	<ul style="list-style-type: none"> • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Identify and protect all remaining pine barren habitat. • Collect ownership/contact information. • Research best method of protection—acquisition, fee or easements from willing sellers • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop) • Identify powerline rights-of-way to be managed to provide habitat for shrubland birds. (PIF)
Maintain, manage and monitor priority habitats already protected.	<ul style="list-style-type: none"> • Sustain habitat through collaborative management of areas that already are subjected to frequent human disturbance from agriculture, forestry, or the maintenance of roads and rights-of-way. (PIF) • Coordinate habitat protection of areas already owned by federal, state, local government or NGO's. (BCR 30 workshop) • Compare early successional habitats resulting from natural disturbances vs. forestry practices vs. power line rights-of-way with regard to suitability for high-priority species, including breeding densities and nesting success. (PIF) • Determine if there is relationship between patch size and nesting success for shrubland birds, and between patch size and breeding density for the more area sensitive species. (PIF) • Continue clearcutting as a management as a means of

	<p>providing shrub habitat on state forests. (PIF)</p> <ul style="list-style-type: none"> • Implement careful planning of rotational harvest schedules. (PIF) • Maintain right-of-ways by selectively spraying herbicide on the base of tall-growing trees. (PIF) • Develop and implement integrated management plans for grasslands on civilian and military airfields. (BCR 30 workshop)
--	---

2. Maintain or enhance populations of high priority species.

Utilize existing programs to increase populations of grassland species.	<ul style="list-style-type: none"> • Increase utilization of Farm Bill programs to benefit priority grassland and shrubland birds. • Expand traditional game management in early successional habitats to include nongame bird priorities and objectives; including evaluation of effects of traditional game management on priority nongame species
Monitor species to determine population size, status and trends.	<ul style="list-style-type: none"> • Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Research/monitoring is needed on effects of cowbird parasitism on shrubland birds. (PIF) • Determine effects of woodcock habitat management techniques on other priority, early-successional bird species. (PIF) • Develop targeted monitoring/research program on demographics and habitat-area relationships for priority grassland birds building on and expanding the techniques developed by Massachusetts Audubon. (BCR 30 workshop)

Species Specific Objectives

	Population Objectives	Habitat Objectives
American Woodcock	Maintain stable breeding population; reverse recent population declines.	
Blue-winged Warbler	<p>Current population estimates of this species, in the state of Connecticut are 9,039 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 12,656 pairs.</p>	<p>20,249 hectares of suitable habitat is necessary to support 12,656 pairs at an average density of 1.6 hectares per pair.</p> <ul style="list-style-type: none"> • Determine range of suitable habitats and identify present breeding sites for Golden-winged Warblers and Blue-winged Warblers. Present breeding sites are being surveyed through the Golden-winged Warbler Atlas Project by the Lab of Ornithology, with field work being conducted for this project beginning in 2000. (PIF)
Eastern Towhee	<p>Current population estimates of this species, in the state of Connecticut are 12,384 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 24,767 pairs.</p>	<p>24,767 hectares of suitable habitat is necessary to support 24,767 pairs at an average density of 1 hectares per pair.</p>
Golden-winged Warbler	Current population estimates of this	144 hectares of suitable habitat is

	<p>species, in the state of Connecticut are 18 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 36 pairs.</p> <ul style="list-style-type: none"> • Analyze the effects of Blue-winged Warblers on recruitment, habitat selection, and nesting success of Golden-winged Warblers. (PIF) • Further monitoring of cowbird parasitism rates and effects on reproductive success of Golden-winged Warblers is also needed. (PIF) 	<p>necessary to support 36 pairs at an average density of 4 hectares per pair.</p> <ul style="list-style-type: none"> • Determine range of suitable habitats and identify present breeding sites for Golden-winged Warblers and Blue-winged Warblers. Present breeding sites are being surveyed through the Golden-winged Warbler Atlas Project by the Lab of Ornithology, with field work being conducted for this project beginning in 2000. (PIF) • Optimal management for this species would include rotational burning or intermittent farming. (PIF)
--	---	--

Grassland/Agriculture

Associated Focal Species

Species	B	M	W
Grasshopper Sparrow	X		
Upland Sandpiper	X		

Issues

While little naturally maintained grassland habitat currently exists in this unit, the combination of agricultural and grass lands accounts for nearly 1 million hectares across Southern New England, representing a substantial base of open land with the *potential* for providing suitable habitat for grassland birds. The strongest emphasis should be placed on preserving or restoring naturally occurring habitat for sustaining grassland bird populations. However, given the paucity of these natural communities, identifying and properly managing human-influenced locations supporting significant grassland bird populations will be needed if this suite of species is to remain a component of the avian diversity of Southern New England. (PIF)

Threats

- Loss of open land associated with declining farm practices including residential development and reversion to forest.

Goal

Conserve, restore and enhance populations of focal species in the early successional shrub/pitch pine barren to ensure the overall conservation of all native species within this habitat.

General Objectives

1. *Protect and maintain high priority habitats. (Refer to PIF Physiographic Area 9 plan for a comprehensive discussion on management and implementation strategies.)*

Identify high priority habitats for protection.	<ul style="list-style-type: none"> • Identify and protect key areas, especially large grasslands, for immediate conservation efforts. (PIF) • Create a patch-based, GIS system for evaluating priority habitats (BCR 30 workshop) • Collect ownership/contact information. • Research best method of protection—acquisition, fee or easements from willing sellers • Implement Landowner information/incentive program (LW) (coordinate with PIF recommendations) for high priority species. (BCR 30 workshop) • Determine if differences exist in grassland breeding bird diversity and abundance in the Northeast between warm season and cool season grass types. (PIF)
Maintain, manage and monitor priority habitats already protected.	<ul style="list-style-type: none"> • Coordinate with other states to develop and implement a comprehensive grassland management plan for the entire New England region. (PIF) • Mowing, burning, and controlled grazing can be used to maintain grasslands, but the most appropriate methods for each site must be carefully considered and input from regional grassland experts is strongly encouraged. (PIF) • Coordinate habitat protection of areas already owned by federal, state, local government, private landowners and NGO's. (BCR 30 workshop) • Consider consolidation of adjacent grassland fields, through the elimination of hedgerows, stone fences, or tree lines, in areas where open land occupies a considerable amount of the surrounding landscape and grassland management can be identified as a reasonable management alternative. (PIF) • Implement a prescribed fire program where this management technique would be considered appropriate. (PIF)

	<ul style="list-style-type: none"> • Determine if current mixtures of warm season grasses has failed to provide adequate habitat for grassland breeding birds. Focus on cool season grasslands if needed. (PIF) • Implement mowing program where appropriate. (PIF) • Continue monitoring grassland habitats within the physiographic area as part of a regional effort within New England to better assess grassland bird abundance trends. (PIF) • Further research on different management techniques is needed to understand the appropriateness of prescribed burning, mowing, and other methods for maintaining suitable habitat for Northeastern grassland birds. (PIF)
--	--

1. Maintain or enhance populations of high priority species.

<p>Monitor populations of focal species to determine population size, status and trends.</p>	<ul style="list-style-type: none"> • Conduct demographic studies (productivity, survival, dispersal) of priority species to provide information needed for determining causes of population declines and understanding metapopulation dynamics
--	---

Species Specific Objectives

	Population Objective	Habitat Objective
Grasshopper Sparrow	<p>Current population estimates of this species, in the state of Connecticut are 35 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 70 pairs. (Grasshopper Sparrow population estimate based on Grassland Bird Database)</p>	<p>280 hectares of suitable habitat is necessary to support 70 pairs at an average density of 4 hectares per pair.</p>
Upland Sandpiper	<p>Current population estimates of this species, in the state of Connecticut are 8 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 15 pairs. (Upland Sandpiper population estimate based on Grassland Bird Database)</p>	<p>750 hectares of suitable habitat is necessary to support 15 pairs at an average density of 50 hectares per pair.</p>

Urban/Suburban

Associated Focal Species

Species	B	M	W
Chimney Swift	X		

Issues

Urban/suburban habitat provides suitable habitat for a number of species for which historical habitat(s) have been significantly altered or reduced. (PIF)

Threats

- Changes in modern building construction
- Use of pesticides for mosquito control

Goal

Conserve, restore and enhance populations of focal species in the early successional shrub/pitch pine barren to ensure the overall conservation of all native species within this habitat.

General objectives

1. *Maintain and enhance populations of high priority species.*

<p>Monitor populations of focal species to determine population size, status and trends.</p>	<ul style="list-style-type: none"> • Participate/establish a network of managers, biologists, and researchers are needed across Southern New England to more effectively address the needs and coordinate conservation efforts for the high priority urban birds. (PIF) • Surveying efforts, identification of significant breeding locations, and public education/outreach should be coordinated on a regional basis. (PIF) • Develop an appropriate survey method for tracking populations of Chimney Swifts and Common Nighthawks and conduct a thorough status assessment of these species. (PIF) • Understand impacts of pesticides (e.g., urban/suburban mosquito spraying) on this suite of species, including links to the current outbreak of West Nile virus. (PIF) • Compile better life history information on these species, such as kinds of nest predators and levels of nest depredation, breeding longevity and reproductive effort over time, characteristics of preferred nesting requirements, fidelity to breeding and wintering sites, and better assessment of migration routes and destinations. (PIF)
--	--

Species Specific Objectives

	Population Objectives	Habitat Objectives
Chimney Swift (B)	<p>Current population estimates of this species, in the state of Connecticut are 22,710 pairs.</p> <p>To support the population objectives of the PIF plan, populations in the state of Connecticut should be increased to 31,795 pairs.</p>	<p>59,774 hectares of suitable habitat is necessary to support 31,795 pairs at an average density of 1.88 hectares per pair.</p> <ul style="list-style-type: none"> • Identify key breeding locations area for Purple Martins, Chimney Swifts, and Common Nighthawks should be identified for immediate conservation efforts. (PIF) • Landowner contacts should be made at each site to encourage

		<p>proper management for these species. (PIF)</p> <ul style="list-style-type: none">• distribute information materials on the use of rooftops and chimneys as nesting sites. (PIF)• Develop and implement public education programs to encourage reports Chimney Swifts; develop urban public education in schools to aid in the monitoring and assessment of populations of these species. (PIF)
--	--	--