

Appendix A



Stephanie Koch/USFWS

American oystercatcher, newly hatched

Species and Habitats of Conservation Concern Known or Suspected on the Refuge

Table A.1. Bird Species of Conservation Concern Known or Suspected on the Refuge.

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³	BCC 2008 ⁴	BCC National ⁵	BCR 30 ⁶	PIF ⁷	NAWCP ⁸	NAWMP ACJV ⁹	MANEM ¹⁰	US SCP ¹¹	Breeding Status ¹²
American Black Duck			X				Highest	IIC		High			B
American Green-winged Teal							Moderate			Moderate			
American Kestrel			X										
American Oystercatcher			X	S2	X	X	Highest	IA				4	B
Arctic Tern		SC	X	S1					High		Highest		HB
Bald Eagle		E	X	S1	X	X	Moderate						
Baltimore Oriole							High	IA					
Bay-breasted Warbler						X	High						
Black-and-white Warbler							High	IIA					
Black-crowned Night-Heron			X	S2			Moderate		Moderate		Highest*		B
Black Tern									Moderate		High		
Blue-winged Teal										Moderate High			
Bobolink								III	Moderate				
Bonaparte's Gull									Moderate		Moderate		
Broad-winged Hawk			X				High						
Bufflehead							High			Moderate			

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³	BCC 2008 ⁴	BCC National ⁵	BCR 30 ⁶	PIF ⁷	NAWCP ⁸	NAWMP ACJV ⁹	MANEM ¹⁰	US SCP ¹¹	Breeding Status ¹²
Canada Goose (Atlantic)							Highest			High			B
Canada Goose (North Atlantic)							High			Moderate High			B
Common Eider			X	S1			High			High			
Common Loon		SC	X	S1B					Moderate		Highest		B
Common Tern		SC	X	S3			Moderate				Highest*		B
Cooper's Hawk													
Double-crested Cormorant											*		B
Eastern Kingbird							High						
Eastern Towhee			X				High	IIA					
Field Sparrow			X				High						
Gadwall							Moderate			Moderate			
Glossy Ibis							High				Highest*		
Great Blue Heron											High		
Great Cormorant									Moderate		High		
Greater Yellowlegs							High					3	
Herring Gull											High*		B
Killdeer							Moderate					3	

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³	BCC 2008 ⁴	BCC National ⁵	BCR 30 ⁶	PIF ⁷	NAWCP ⁸	NAWMP ACJV ⁹	MANEM ¹⁰	US SCP ¹¹	Breeding Status ¹²
Leach's Storm Petrel		E	X	S1							Moderate		B
Least Bittern		E	X	S1	X		Moderate		High		Highest*		
Least Tern		SC	X	S3	X	X	High		High		Highest*		HB
Little Blue Heron							Moderate		High		Highest		
Mallard							High		High				B
Northern Flicker							High						
Northern Gannet							High				Moderate		
Northern Harrier		T	X	S1									UB
Peregrine Falcon		E	X	S1	X	X							
Piping Plover	T	T	X	S2			Highest	IA				5	HB
Redhead										Moderate High			
Red-headed Woodpecker					X		Moderate						
Red-throated Loon					X		Highest		High		Highest*		
Rose-breasted Grosbeak													
Roseate Tern	E	E	X	S2			Highest	IV	High		Highest*		HB
Sharp-shinned Hawk		SC	X	S3									
Short-billed Dowitcher			X	SNA	X	X	High					4	

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³	BCC 2008 ⁴	BCC National ⁵	BCR 30 ⁶	PIF ⁷	NAWCP ⁸	NAWMP ACJV ⁹	MANEM ¹⁰	US SCP ¹¹	Breeding Status ¹²
Snipe							Moderate					3	
Snowy Egret			X	S1	X		Moderate		High		Highest*		B
Spotted Sandpiper							Moderate						
Upland Sandpiper		E	X	S1	X	X	Moderate	IB				2	
Vesper Sparrow		T	X	S2									
Virginia Rail									Moderate				
White-winged Scoter							High			Moderate High			
Willow Flycatcher			X			X	High						

1 Federal and State Legal Status Codes (under Federal & State Endangered Species Acts)

E = Federal or State Endangered T= Federal or State Threatened SC= State species of Special Concern
(Administrative category without legal standing) PT = Proposed Threatened PE= Proposed Endangered
PN= Proposed None PTB= Proposed threatened (breeding only) PEB= Proposed Endangered (breeding only)

2 Massachusetts Comprehensive Wildlife Conservation Strategy (CWCS): Species of greatest conservation concern (SGCN) (MA DFW 2006)

3 Massachusetts Natural Heritage Inventory Rarity Ranks (MA DFW 2006, NatureServe 2009)

S1 = Critically imperiled.
S2 = Imperiled
S3 = Either very rare or uncommon, vulnerable
S4 = Widespread, abundant, apparently secure
S5= Secure
SH = Historical
SX = Presumed extirpated
B = Breeding
M = Migrating
N = Non-breeding
Species included in table only if Srank < S3

4 Birds of Conservation Concern (BCC) 2008 (Bird Conservation Region 14 List) (USFWS 2008)

5 Birds of Conservation Concern (BCC) National List (USFWS 2008)

⁶ BCR 30: New England / Mid-Atlantic Coast Conservation Priority Category (Steinkamp 2006)

Highest Priority: High BCR Concern and High BCR Responsibility and (High or Moderate Continental Concern)
High Priority: High Continental Concern and Moderate BCR Responsibility OR Moderate BCR Concern and High BCR Responsibility
Moderate Priority: Moderate BCR Concern and Moderate BCR Responsibility OR High Continental Concern and Low BCR Responsibility OR High BCR Responsibility and Low BCR Concern

7 Partner's in Flight (PIF) Bird Conservation Plan for Southern New England: Physiographic Area 09 (Dettmers and Rosenberg 2000)

IA = High continental concern & high regional responsibility
IB = High continental concern & low regional responsibility
IIA = High regional concern
IIB = High regional responsibility
III = Additional Federal listed
IV = Additional State listed

8 North American Waterbird Conservation Plan (NAWCP) Categories of Conservation Concern (Kushlan et al. 2002)

Highly Imperiled: includes all species with significant population declines and either low populations or some other high risk factor.

High Concern: Species that are not Highly Imperiled. Populations of these species are known or thought to be declining, and have some other known or potential threat as well.

Moderate Concern: Species that are not Highly Imperiled or High Concern. Populations of these species are either a) declining with moderate threats or distributions; b) stable with known or potential threats and moderate to restricted distributions; or c) relatively small with relatively restricted distributions.

Species included in table only if > moderate

9 North American Waterfowl Management Plan (NAWMP), Atlantic Coast Joint Venture (ACJV) (ACJV 2005)

Conservation Tier Priorities = Highest, High, Moderately High, Moderate, Moderately Low, Low

Species included in table only if priority moderate or higher

¹⁰ Mid-Atlantic / New England / Maritimes (MANEM) Regional Waterbird Conservation Plan Priorities (MANEM 2006a, 2006b)

* = MANEM Focal Species for Southern New England

Highly Imperiled: includes all species with significant population declines and either low populations or some other high risk factor.

High Concern: Species that are not Highly Imperiled. Populations of these species are known or thought to be declining, and have some other known or potential threat as well.

Moderate Concern: Species that are not Highly Imperiled or High Concern. Populations of these species are either a) declining with moderate threats or distributions; b) stable with known or potential threats and moderate to restricted distributions; or c) relatively small with relatively restricted distributions.

Species included in table only if > moderate

11 U.S. Shorebird Conservation Plan (US SCP) Codes (Brown et al. 2001, Clark and Niles 2000)

5 = Highly imperiled

4 = Species of high concern

3 = Species of moderate concern

2 = Species of low concern

1 = Species not at risk

Species included in table only if >3

12 Breeding Status

B = Breeds on Refuge

HB = Historically bred on Refuge

UB = Suspected but unconfirmed breeding on Refuge

Table A.2. Fish Species of Conservation Concern Known or Suspected on the Refuge.

Species	Federal Legal Status¹	MA Legal Status¹	MA CWCS²	MA Rarity Rank³	AFS Status⁴
American Eel			X		
Snowy Grouper					V
Thorny Skate					V

1 Federal and State Legal Status Codes (under Federal & State Endangered Species Acts)

E = Federal or State Endangered T= Federal or State Threatened SC= Federal or State species of Special Concern (Administrative category without legal standing) PT = Proposed Threatened PE= Proposed Endangered PN= Proposed None PTB= Proposed threatened (breeding only) PEB= Proposed Endangered (breeding only)

2 Massachusetts Comprehensive Wildlife Conservation Strategy: Species of greatest conservation concern

3 Massachusetts Natural Heritage Inventory Rarity Ranks

S1 = Critically imperiled.
 S2 = Imperiled
 S3 = Either very rare or uncommon, vulnerable
 S4 = Widespread, abundant, apparently secure
 S5= Secure
 SH = Historical
 B = Breeding
 N = Non-breeding
 Species included in table only if Srank < S3

⁴ American Fisheries Society (AFS) Marine, Estuarine and Diadromous Fish Stocks at Risk of Extinction (Musick et al. 2000)

E = Endangered
 T = Threatened
 V = Vulnerable
 CD = Conservation Dependent

Table A.3. Amphibian and Reptile Species of Conservation Concern Known or Suspected on the Refuge.

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³
Blanding's Turtle		T	X	S2
Green Sea Turtle	T	T	X	S1
Hawksbill Sea Turtle	E	E	X	S1
Kemp's Ridley Sea Turtle	E	E	X	S1
Leatherback Sea Turtle	E	E	X	S1S2
Loggerhead Sea Turtle	T	T	X	S1
Spotted Turtle			X	S3

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 S3 = Either very rare or uncommon, vulnerable
 S4 = Widespread, abundant, apparently secure
 S5= Secure
 SH = Historical.
 B = Breeding
 N = Non-breeding
 Species included in table only if Srank < S3

Table A.4. Invertebrate Species of Conservation Concern Known or Suspected on the Refuge.

Species	Federal Legal Status ¹	MA Legal Status ¹	MA CWCS ²	MA Rarity Rank ³
Chain Dot Geometer		SC	X	S2S3
Drunk Apamea Moth		SC	X	S2S3
Dune Noctuid Moth		SC	X	S2S3
Regal Fritillary				SH
Spartina Borer Moth		SC	X	S1S3

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E = Federal or State Endangered T= Federal or State Threatened SC= State species of Special Concern
 (Administrative category without legal standing) PT = Proposed Threatened PE= Proposed Endangered
 PN= Proposed None PTB= Proposed threatened (breeding only) PEB= Proposed Endangered (breeding only)

2 Massachusetts Comprehensive Wildlife Conservation Strategy: Species of greatest conservation concern

3 Massachusetts Natural Heritage Inventory Rarity Ranks

S1 = Critically imperiled.
 S2 = Imperiled
 S3 = Either very rare or uncommon, vulnerable
 S4 = Widespread, abundant, apparently secure
 S5= Secure
 SH = Historical.
 B = Breeding
 N = Non-breeding
 Species included in table only if Srank < S3

Table A.5. Plant Species of Conservation Concern Known or Suspected on the Refuge.

Species	Federal Legal Status ¹	MA Legal Status ¹	MA Rarity Rank ²
Arethusa		T	S2
Purple Needlegrass		T	S2
(Saltmarsh) Toad Rush			S1?
Sandplain Blue-eyed-grass		SC	S3
Seabeach Knotweed		SC	S3
Shore Pygmy-weed		T	S2
Sickle-leaf Golden-aster			
Saltpond Pennywort		T	S2
Yellow Thistle		Watch list	SNR

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 PN= Proposed None PTB= Proposed threatened (breeding only) PEB= Proposed Endangered (breeding only)

2 Massachusetts Natural Heritage Inventory Rarity Ranks

S1 = Critically imperiled.
 S2 = Imperiled
 S3 = Either very rare or uncommon, vulnerable
 S4 = Widespread, abundant, apparently secure
 S5= Secure
 SH = Historical.
 B = Breeding
 N = Non-breeding
 Species included in table only if Srank < S3

Table A.6. Plant Communities of Conservation Concern Known or Suspected on the Refuge.

Massachusetts Community Type	MA CWCS¹	MA Natural Heritage Inventory State Rarity Rank²
Maritime beach strand	Coastal Dunes, Beaches and Small Islands	S3
Maritime dune	Coastal Dunes, Beaches and Small Islands	S2
Maritime shrubland	Young Forests and Shrublands	S3

1 Massachusetts Comprehensive Wildlife Conservation Strategy: Habitats of greatest conservation concern

2 Massachusetts Natural Heritage Inventory Rarity Ranks

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S2 = Imperiled

S3 = Either very rare or uncommon, vulnerable

S4 = Widespread, abundant, apparently secure

S5= Secure

SH = Historical.

Communities included in table only if Srank < S3

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