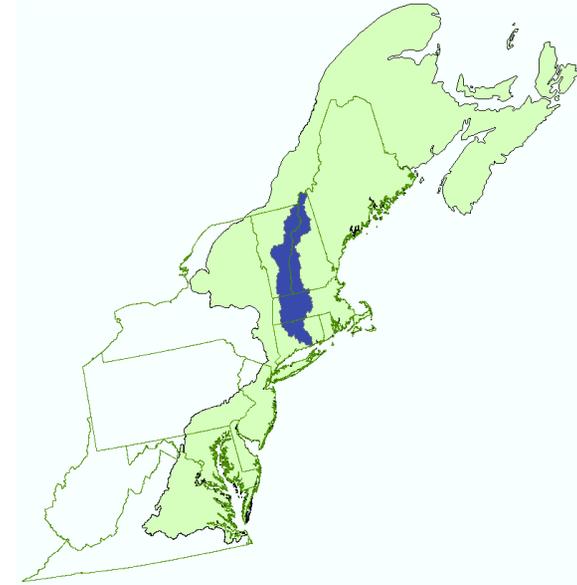


January 13, 2014

Representative Species of the North Atlantic Occurring in the Connecticut River Watershed
That are Being Modeled for *Designing Sustainable Landscapes*

Background: The Northeast Region has designated an initial set of representative species (also known as surrogate species) in the North Atlantic LCC region as a tool for strategically conserving habitat at landscape scales. A representative species is one that, because of its habitat use, ecosystem function, or management response, typifies lifecycle or habitat requirements for a larger group of species. The Northeast Region sponsored a project with the University of Massachusetts Amherst that considered several hundred candidates to serve as representative species. The species consisted primarily of: (a) Federal Trust Species, and (b) Species of Greatest Conservation Need identified by at least six states in the region. Given the diverse ecosystems of the region, representative species were identified for each of three sub-regions: northern New England and New York, southern New England and New York, and mid-Atlantic. At 2011 workshops in each of the three sub-regions, Service scientists and other experts selected a total of 87 terrestrial and wetland representative species. This table summarizes the initial set of representative species chosen by the North Atlantic LCC for habitat suitability modeling that occur in the Connecticut River Watershed (Figure).



Connecticut River Watershed (blue) within North Atlantic LCC region (green) and Northeastern U.S.

Explanation of the Tables:

- The left column of the table lists only the representative species for which habitat capability models have been developed or are in development for species under the *Designing Sustainable Landscapes* project led by U. Mass. Amherst.
- Models **for the 13 species in bold** are expected to be completed first (tentatively, by February 2014).
- The table also includes species that were not originally selected as representative species at the 2011 workshops but that complement the original set due to requirements of large areas of connected habitat or other characteristics. Currently there are four such species (*designated by italics*): *Black Bear*, *Cerulean Warbler*, *Snowshoe Hare*, and *Moose*.
- The table also lists examples of other species that are believed to be represented by the representative/surrogate species. Many other species that share these habitats are also expected to be represented.
- Experts frequently picked more than one representative species per general habitat group to better encompass a mix of vegetation structures, habitat types, and geographic ranges. The table provides more specific habitat information related to why multiple species were selected.

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Representative Species	Specific Habitat Requirements	General Habitat Type	Acres in LCC (million)	Examples of Species Represented
<p>American Woodcock</p> <p><i>Black Bear</i></p> <p>Blackburnian Warbler</p> <p><i>Cerulean Warbler</i></p> <p>Louisiana Waterthrush</p> <p><i>Moose</i></p> <p>Ovenbird</p> <p>Red-shouldered Hawk</p> <p>Ruffed Grouse</p> <p>Wood Thrush</p>	<p>Early successional forest juxtaposed with open areas for male displays</p> <p>Requires very large areas, including forests with hard and soft mass (nuts, fruit) and wetlands</p> <p>Mixed deciduous-coniferous forest</p> <p>Large tracts of mature deciduous forest</p> <p>Riparian forests along streams and small rivers</p> <p>Requires large areas, including a mix of coniferous and deciduous forest types (young forests for feeding, dense stands for winter shelter) and wetlands (summer feeding)</p> <p>Mature forest</p> <p>Mature forest, especially in in floodplains or with wetlands; moderately large area requirements</p> <p>Young forest</p> <p>Mature, moist forest, moderately sensitive to fragmentation, rarer in north</p>	<p>Hardwood-dominated forests</p>	<p>37.0</p>	<p>American Redstart Barred Owl Black-and-white Warbler Black-billed Cuckoo Black-throated Blue Warbler Broad-winged Hawk Cooper's Hawk Eastern Hognose Snake Eastern Whip-poor-will Eastern Wood-pewee Great-crested Flycatcher Hairy Woodpecker Indiana Bat Jefferson Salamander Long-eared Owl Marbled Salamander Northern Goshawk Scarlet Tanager Sharp-shinned Hawk Silver-haired Bat Small Whorled Pogonia Yellow-bellied Sapsucker</p>
<p>Bicknell's Thrush</p> <p>Blackpoll Warbler</p> <p><i>Moose</i></p> <p><i>Snowshoe Hare</i></p>	<p>High elevation fir forest and krummholz</p> <p>Spruce-fir forests, especially high elevation</p> <p>Requires large areas, including a mix of coniferous and deciduous forest types (young forests for feeding, dense stands for winter shelter) and wetlands (summer feeding)</p> <p>Young spruce-fir forests</p>	<p>Spruce-fir dominated forests</p>	<p>7.0</p>	<p>Bay-breasted Warbler Black-throated Green Warbler Boreal Chickadee Boreal Owl Brown Creeper Cape May Warbler Gray Jay Lynx Northern Saw-whet Owl Palm Warbler Pine Grosbeak Purple Finch Yellow-bellied Flycatcher</p>

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Prairie Warbler	Pine barrens and early successional forests	Pine barrens & pine forest	1.0	Brown Thrasher Eastern Towhee Field Sparrow Gray Catbird Karner Blue Butterfly Orchard Oriole Pine Warbler
Eastern Meadowlark	Pastures and grasslands	Pasture/hay/grassland	12.1 (includes all agriculture)	American Kestrel Buff-breasted Sandpiper Horned Lark Killdeer Long-eared Owl Northern Bobwhite Northern Harrier Short-eared Owl Vesper Sparrow
Northern Waterthrush Wood Duck Wood Turtle	Forested wetlands Swamps and floodplain forests along larger rivers Forested streams and adjacent uplands; dispersal limited (sensitive to fragmentation and aquatic barriers)	Forested wetlands and floodplains	5.5	Bald Eagle Baltimore Oriole Canada Warbler Eastern Kingbird Eastern Ribbonsnake Fowler's Toad Great-crested Flycatcher Hooded Merganser Hessel's Hairstreak Indiana Bat Marbled Salamander Rapids Clubtail Rose-breasted Grosbeak Rusty Blackbird Veery Yellow-throated Vireo Yellow-billed Cuckoo

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Representative Species	Specific Habitat Requirements	General Habitat Type	Acres in LCC (million)	Examples of Species Represented
<p>American Black Duck</p> <p>Virginia Rail</p> <p>Marsh Wren</p>	<p>Freshwater marshes, ponds, and bogs; sensitive to human disturbance during breeding season</p> <p>Freshwater marshes and saltmarshes</p> <p>Freshwater marshes and saltmarshes</p>	<p>Freshwater marshes</p>	<p>1.8</p>	<p>American Coot Blue-winged Teal Canada Goose Common Gallinule Gadwall Green-winged Teal Least Bittern Least Sandpiper Lesser Yellowlegs Mallard Northern Harrier Northern Pintail Pectoral Sandpiper Pied-billed Grebe Ruddy Duck Sedge Wren Snowy Egret Solitary Sandpiper Sora</p>
<p>American Black Duck</p> <p>N. Diamond-backed Terrapin</p> <p>Saltmarsh Sparrow</p> <p>Snowy Egret</p>	<p>Winter habitat: saltmarshes and coastal mudflats</p> <p>Juxtaposition of saltmarshes, beaches (for nesting), and shallow subtidal areas</p> <p>Obligate saltmarsh breeding species</p> <p>Feeds in saltmarsh ponds and other shallow estuarine sites</p>	<p>Saltmarshes</p>	<p>0.7</p>	<p>American Wigeon Brant Canada Goose Common Tern Forster's Tern Gadwall Greater Scaup Greater Yellowlegs Green-winged Teal Horned Grebe Hudsonian Godwit Least Bittern Lesser Yellowlegs Northern Harrier Northern Pintail Ruddy Duck Semipalmated Plover Short-billed Dowitcher Short-eared Owl Snow Goose Sora Whimbrel Wilson's Phalarope</p>
<p>(No species selected yet for modeling)</p>		<p>Peatland (bogs, fens)</p>	<p>0.5</p>	<p>Black-backed Woodpecker Bog Turtle Eastern Ribbonsnake Olive-sided Flycatcher Southern Bog Lemming Spatterdock Darner</p>

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Representative Species	Specific Habitat Requirements	General Habitat Type	Acres in LCC (million)	Examples of Species Represented
American Black Duck American Oystercatcher Sanderling	Winter habitat: saltmarshes and coastal mudflats Saltmarshes, beaches, and shellfish beds Migration and winter habitat: primarily sandy coastal beaches but also other shorelines	Sandy beaches and mudflats	Est. <0.2	American Golden-Plover Black-bellied Plover Dunlin Gull-billed Tern Forster's Tern Hudsonian Godwit Marbled Godwit Royal Tern Snowy Egret Tricolored Heron Western Sandpiper
Common Loon	Large lakes in north for breeding	Lacustrine & palustrine open water	Est. not available	Bald Eagle Black Tern Common Gallinule Common Goldeneye Gadwall Hooded Merganser Northern Pintail Pied-billed Grebe Red-breasted Merganser Redhead