

**Common Name:** Blanding's turtle  
**Scientific Name:** *Emydoidea blandingii*  
**Taxon:** Reptiles

**SGCN – High Priority**

**Federal Status:** Not Listed  
**New York Status:** Threatened

**Natural Heritage Program Rank:**  
 Global: G4  
 New York: S2S3  
 Tracked: Yes

**Synopsis:**

This large, semi-aquatic turtle inhabits wetland and upland habitats primarily in the Great Lakes region of the United States and Canada. This species is rare throughout its range, about 80% of which occurs in the United States. Isolated populations occur in coastal areas of New England and extreme southwestern Ontario and Quebec, as well as in a small area of Nova Scotia. Four disjunct populations occur in New York. The northern and western populations can be regarded as contiguous with the Great Lakes population.

Blanding's turtles are long-lived, have low annual reproductive output, and young have high mortality rates (Congdon et al. 1993). In New York populations are threatened primarily by road mortality, loss and fragmentation of habitat, and high rates of nest predation (Ross and Johnson 2013). While the population trend is difficult to assess, a downward trend can be inferred given the combination of known threats and life history characteristics (Compton 2007).

A population viability assessment was conducted for three Blanding's turtle populations in New York: Northern NY, Dutchess, and Saratoga (Ross and Johnson 2013). The probability of extinction over 300 year for each population was 43.8%, 80.8%, and 99.6% respectively. The sensitivity analysis indicated that mortality of individuals had the greatest influence on the stochastic population growth rate (mortality of <14-year-olds having a greater effect than adult mortality), followed by road mortality, number of females breeding, and the effects of inbreeding. The Northern New York population is the most extensive and may have the greatest viability of the four populations in the state (Ross and Johnson 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Moderate Decline	Moderate Decline
6% to 10%	X	Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

Blanding's turtles require large tracts of land with a variety of permanent and temporary wetlands and upland habitats including ponds, rivers, marshes, fens, swamps, vernal pools, meadows, forests, and shrublands. New York populations are found in shallow emergent marsh and scrub/shrub wetlands with abundant aquatic vegetation dominated by buttonbush (*Cephalanthus occidentalis*) in southern populations and by willow (*Salix* spp.) in northern populations (Ross and Johnson 2013).

Nesting occurs in exposed areas such as plowed fields, pastures, dirt road edges, sand and gravel pits, and bedrock outcrops (Joyal et al. 2001). Johnson (unpublished data in Ross and Johnson 2013) observed nesting in piles of topsoil and along dirt roads. Johnson and Crockett (2009) suggested that the Blanding's turtle's frequent use of agricultural fields for nesting may be an ecological trap because the growing vegetation shades the nest and results in cooler soil temperatures, thus reducing nest success.

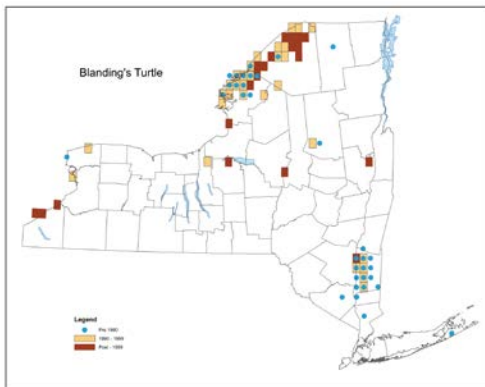
Brumation occurs under the ice in a variety of permanent wetland types, typically in which the water depth is less than 1.5 to 2 meters and have relatively deep organic substrate (Ross and Johnson 2013). Most individuals overwinter in the wetland where they spent the summer.

Primary Habitat Type
Freshwater Marsh
Great Lakes Freshwater Estuary Marsh
Open Acidic Peatlands
Vernal Pool
Wet Meadow/Shrub Marsh

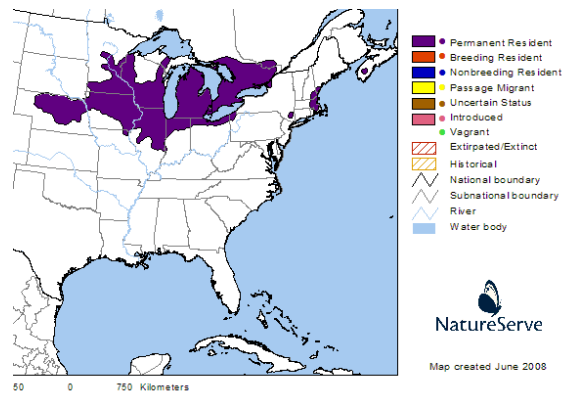
**Distribution:**

The New York Herpetology database contains records from the Atlas period (1990-99), as well as historical records (pre-1990) and records collected since 2000. Blanding's turtles were found in a total of 29 survey quads during the survey period 1990-99. The distribution map generated from this database suggests the loss of historical locations from several survey quads in the state (the record in Orange County represents released individuals and does not indicate a loss; J. Jaycox, personal communication). These historical locations, from museum records and researchers' notebooks, are on the edges of the lower Hudson Valley populations, and also suggest that Blanding's turtles have been extirpated from Long Island. Records were added in six additional survey quads since 1999, most significantly at the Wilton Wildlife Preserve in Saratoga County in 2003, and in the Town of Clay, Onondaga County, areas where the species had not been previously documented.

Blanding's turtles in the state are recognized in four populations: (1) Niagara and Erie counties, (2) Jefferson, St. Lawrence, Lewis and western Franklin counties, (3) Saratoga County, and (4) Dutchess County. New York's northern and western populations can be regarded as contiguous with the Great Lakes population (Ross and Johnson 2013).



NYSDEC (2015)



Distribution of Blanding's turtle (NatureServe 2013). Not shown is a disjunct population in Saratoga County, NY.

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Residential & Commercial Development	Housing & Urban Areas (loss and degradation of habitat)	W	M	H
2. Transportation & Service Corridors	Roads & Railroads (road mortality)	P	M	H
3. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collecting)	P	M	M
4. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (susceptibility to newly emerging disease)	N	L	V
5. Invasive & Other Problematic Species & Genes	Problematic Native Species (increased raccoon, fox populations due to urbanization)	P	L	H
6. Pollution	Household Sewage & Urban Waste Water (garbage in wetlands)	R	L	M
7. Natural System Modifications	Other Ecosystem Modifications (ditching/drainage of wetlands on lake plains for agriculture, flood protection)	R	L	M
8. Agriculture and Aquaculture	Annual & Perennial Non-Timber Crops (mortality from mowing; some crops reduce habitat suitability)	W	L	M

**References Cited:**

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<b>Common Name:</b>	Bog turtle	<i>SGCN – High Priority</i>
<b>Scientific Name:</b>	<i>Glyptemys muhlenbergii</i>	
<b>Taxon:</b>	Reptiles	

<b>Federal Status:</b>	Threatened	<b>Natural Heritage Program Rank:</b>
<b>New York Status:</b>	Endangered	Global: G3
		New York: S2
		Tracked: Yes

**Synopsis:**

The smallest turtle in New York and one of the most critically imperiled in North America, the bog turtle ranges from Massachusetts southward through Maryland, occurring in 350 sites (Turtle Conservation Fund 2002). In New York, it reaches the northern extent of its distribution. Of 37 extant metapopulations, 4 are in Oswego and Seneca counties and the balance are in the southeastern part of the state. Northern bog turtle populations declined by 50% from 1980 to 2000.

The federally threatened bog turtle occurs in two allopatric populations that are separated by 250 miles. The northern population is known to occur at 350 sites in seven states: Connecticut (5 sites), Delaware (4), Maryland (71), Massachusetts (3), New Jersey (165), New York (37), and Pennsylvania (75). It is listed as endangered in each of these states except Maryland, where it is threatened. The southern population is found in southern Virginia southward to northern Georgia. NEPARC (2010) lists bog turtle as a Species of Severe Concern because more than 75% of northeastern states list it as SGCN, and as a species of high responsibility because the Northeast comprises more than 50% of its distribution. Bog turtle populations in North America have experienced a 50% reduction in range and numbers from 1980 to 2000 (USFWS 2001).

The bog turtle has always been considered rare and secretive. Concern for its status was first expressed in the late 1960s and early 1970s. Perhaps as a result of increased survey efforts, many new populations have been identified since its consideration for federal listing in 1996, prompting speculation that bog turtles were more secretive than rare. A “Standardized Bog Turtle Site-Quality Analysis” defines Population Analysis Sites (PAS) to describe bog turtle occurrences based on the likelihood of turtles moving between the occurrences (Klemens 1993). In some cases, this approach inflated the number of sites by changing the definition of those sites. Many of the current 350 PAS are small, marginally viable, or under threat from development.

The New York State Amphibian and Reptile Atlas distribution map illustrates the loss of historical records from several areas in the state. A total of 55 survey quads have historic records (pre-1990), but only 17 of those still supported populations during the atlas survey period, 1990-99. Six survey quads have new records since 1999 for a total of 23 survey quads with records. This is a loss of 58% in occupied atlas survey blocks since prior to 1990.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Severe Decline	Severe Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

**Habitat Discussion:**

Bog turtles require low-lying, open calcareous wetland complexes with a variety of pockets that may be dry, saturated, and subject to flooding. These wetlands are characterized by a continuous flow of water seeping through the saturated soil surface. Within these wetlands, bog turtles need a variety of micro-habitats for basking, foraging, nesting, shelter, and hibernation including dry pockets, saturated areas, and areas that are subject to flooding. Home ranges vary from 0.5 to 2.0 ha (see Shoemaker et al. 2011).

Hibernation occurs in more densely vegetated areas of the wetland complex, where turtles use channels beneath hummocks that are covered with small trees and shrubs (USFWS 2001). Individuals may also hibernate in the soft mud of spring-fed rivulets (Gibbs et al. 2007).

The presence of beaver, deer, and sometimes livestock maintain suitable wetlands. Natural succession necessitates that bog turtles find new suitable habitat when wetlands become shrubby or are flooded due to extensive beaver activity. Bog turtles move between adjacent areas of suitable habitat.

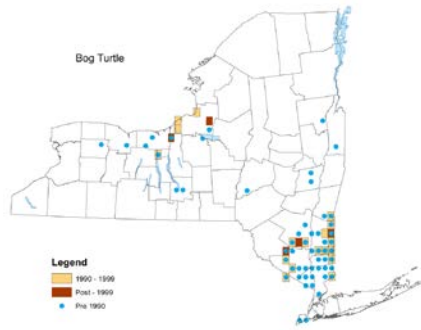
<b>Primary Habitat Type</b>
Freshwater Marsh
Great Lakes Freshwater Estuary Marsh
Mixed Hardwood Swamp
Open Acidic Peatlands
Open Alkaline Peatlands
Wet Meadow/Shrub Marsh

**Distribution:**

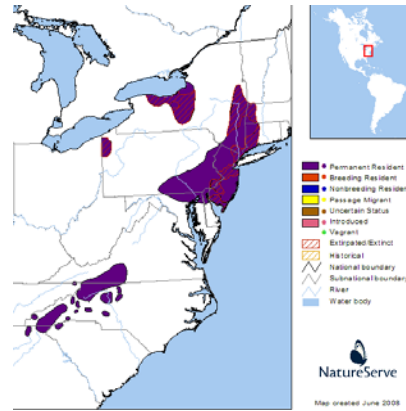
NY Natural Heritage Program tracks bog turtles using Element Occurrences (EOs), which are divided into Principle and Sub-Element occurrences (Jaycox et al. 2005). There are currently 126 filtered EOs for bog turtle, 61 of which are principle EOs and 65 of which are sub-EOs. Of the 61 principle EOs, 19 are considered extant (ranked A, B, C, D, or E) 25 are ranked as F (Failed to find), 11 are ranked as H (Historic), 5 are U (Unrankable) and 1 is X? (Extirpated).

Bog turtles are restricted primarily to the southeastern part of the state, on both sides of the Hudson River, where in 2001, 33 extant metapopulations were described in the USFWS recovery plan in small areas in seven counties. This area is divided into three recovery subunits: Hudson Valley, Harlem/Housatonic, and Wallkill. Currently, sub-EOs occur in the following distribution: Columbia (6), Dutchess (50), Orange (16), Putnam (6), Sullivan (2), Ulster (1), and Westchester (1). Additional populations are known from central New York, in Oswego (3), Seneca (1), and Wayne (1) counties. All but 2 of the 37 extant sites were ranked (USFWS 2001): 8 were classified as good, 15 fair, and 12 poor.

The USFWS is currently performing the second 5-year species status review and Population Analysis Sites re-evaluation.



NYSDEC (2013)



NatureServe (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Residential & Commercial Development	Housing & Urban Areas (habitat loss/degradation from wetland filling, indirect impacts to wetlands)	R	M	H
2. Natural System Modifications	Dams & Water Management/Use (alterations to groundwater)	R	M	M
3. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	P	H	H
4. Natural System Modifications	Other Ecosystem Modifications (natural succession)	W	M	L
5. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (exotic, invasive plants,)	W	M	H
6. Invasive & Other Problematic Species & Genes	Problematic Native Species (increased raccoon/fox due to urbanization)	N	L	M
7. Human Intrusion & Disturbance	Recreational Activities (off-road vehicles, trails)	N	L	M
8. Pollution	Household Sewage & Urban Wastewater (fertilizer, septic runoff, road salt)	N	L	H

9. Agriculture & Aquaculture	Livestock Farming & Ranching (grazing by large numbers of animals)	N	L	L
10. Invasive & Other Problematic Species & Genes	Problematic Native Species (disease: mycoplasma, ranavirus, herpes virus)	W	L	H
11. Pollution	Agricultural & Forestry Effluents (agricultural runoff)	R	L	M
12. Invasive & Other Problematic Species & Genes	Problematic Native Species (cattail dominance)	W	L	M
13. Invasive & Other Problematic Species & Genes	Problematic Native Species (changes in hydrology from beaver)	R	M	M
14. Transportation & Service Corridors	Utility & Service Lines (utility corridors)	N	L	H

#### References Cited:

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Jaycox, J. W., P. G. Novak, and A. R. Breisch. 2005. Hudson River Valley Bog Turtle Monitoring (1998-2003). Unpublished report to the New York State Department of Environmental Conservation, Hudson River Estuary Program. 44 pp.

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U.S. Fish and Wildlife Service (prepared by M. Klemens). 2001. Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan. US FWS, Hadley, MA.

<b>Common Name:</b>	Eastern hog-nosed snake	<i>SGCN – High Priority</i>
<b>Scientific Name:</b>	<i>Heterodon platirhinos</i>	
<b>Taxon:</b>	Reptiles	

<b>Federal Status:</b>	Not Listed	<b>Natural Heritage Program Rank:</b>
<b>New York Status:</b>	Special Concern	Global: G5
		New York: S3
		Tracked: No

**Synopsis:**

Formerly in the large family Colubridae, the eastern hog-nosed snake was reclassified to Xenodontidae (Collins 2006), which became Dipsadidae. Known for its elaborate displays of cobra-like behavior followed by death-feigning, this snake is found in much of the eastern United States. It occurs in open woodlands or pine barrens that provide the sandy soils, toads, and small invertebrates that this snake requires. In the Northeast, the northern limit of the range is reached in the sand plains of Saratoga County, New York, though populations are known farther north in southern Ontario. Long-term trends, especially in northern portions of the range, suggest declines due to loss of habitat, road mortality, and persecution by humans but most populations appear to be stable in the short term.

Michener and Lazell (1989) suggest that the distribution of hog-nosed snakes in eastern New England is likely limited by the availability of sandy soils, abundant toads as prey for adults, and small prey items for young. NEPARC (2010) lists eastern hog-nosed snake as a Species of Severe Concern because more than 75% of northeastern states list it as SGCN.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Moderate Decline	Unknown
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

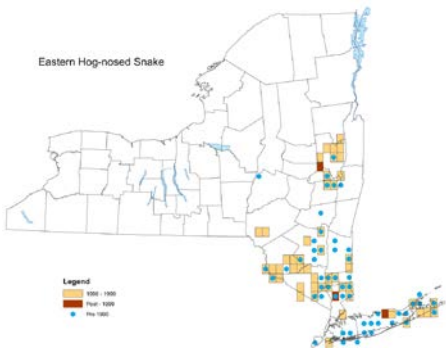
Because of the unique upturned rostral scale, hog-nosed snakes are capable of excavating their own underground burrows with their unique snout, and thus are found in areas with sandy soils (Gibbs et al. 2007). Open pine or deciduous woodlands, old fields, and beaches are preferred habitats, although they may also be found in marshes and forested bottomlands as long as sandy or sand-loamy, well-drained soils are present (Gibbs et al. 2007). In the Hudson Highlands, hog-nosed snakes occur in exposed granite outcroppings and talus as well as in some sandy lowlands (J. Jaycox, personal communication).

Primary Habitat Type
Cliff and Talus
Coastal Coniferous Barrens
Maritime Dunes
Oak Forest
Oak-Pine Forest

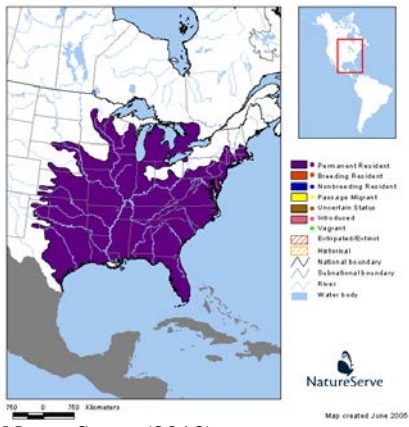
Old Field/Managed Grasslands
Pine Barrens
Riparian

**Distribution:**

The NY Amphibian and Reptile Atlas (1990–99) shows hog-nosed snakes in a total of 50 survey quads, in eastern Long Island, southern Long Island, Delaware County, and as far north as Albany and Saratoga counties. Since 2000, records were added to the NY Herpetology database in an additional 3 survey blocks, each adjacent to a known location.



NYSDEC (2013)



NatureServe (2013)

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Residential & Commercial Development	Housing & Urban Areas (habitat loss/degradation due to urbanization)	W	M	H
2. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	N	L	L
3. Biological Resource Use	Hunting & Collecting Terrestrial Animals (fear-induced persecution)	W	M	H
4. Transportation & Service Corridors	Roads & Railroads (road mortality)	W	L	H
5. Climate Change & Severe Weather	Storms & Flooding	R	M	V
6. Natural System Modifications	Other Ecosystem Modifications (succession)	W	L	L
7. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (domestic cats & dogs)	W	L	V
8. Invasive & Other Problematic Species & Genes	Problematic Native Species (raccoons)	W	L	V

### References Cited:

Collins, J.T. 2006. A re-classification of snakes native to Canada and the United States. *Journal of Kansas Herpetology* 19:18-20.

Gibbs, J. P., A. R. Breisch, P. K. Ducey, G. Johnson, J. L. Behler, and R. C. Bothner. 2007. *The amphibians and reptiles of New York State*. Oxford University Press, New York. xv + 422 pp.  
 Jaycox, Jesse. Personal communication. NYS Office of Parks, Recreation, and Historic Preservation. Staatsburg, NY.

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NEPARC. 2010. *Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern*. Northeast Partners in Amphibian and Reptile Conservation (NEPARC). Publication 2010-1.

**Common Name:** Eastern massasauga  
**Scientific Name:** *Sistrurus catenatus catenatus*  
**Taxon:** Reptiles

**SGCN – High Priority**

**Federal Status:** Candidate  
**New York Status:** Endangered

**Natural Heritage Program Rank:**  
 Global: G3G4T3Q  
 New York: S1  
 Tracked: Yes

**Synopsis:**

Previously recognized as a subspecies, eastern massasauga was recently recognized as a distinct species, *Sistrurus catenatus* (USFWS 2011). In New York, eastern massasauga currently occur in two large wetland complexes near Syracuse and Rochester, separate from one another and from the rest of the geographic distribution. The range extends from western New York and southern Ontario to Iowa and Missouri.

It is associated with a variety of habitats including bedrock, peat forest, wetlands, and prairies. Most areas throughout this rattlesnake’s range have lost more than 50% of their historic populations. Currently, less than 35% of the remaining populations are thought to be secure (USFWS 2011). The primary causes of the decline are habitat loss due to succession, and persecution (Szymanski 1998). Its status in New York is endangered and the species has been a candidate for federal listing since 1999.

Eastern massasauga is represented by numerous occurrences across its distribution but many of them may be of low quality. The species is listed as endangered or threatened in every state or province where it occurs with the exception of Michigan where it is considered Special Concern (USFWS 2011). Eastern massasauga has been designated as a species of Regional Conservation Concern in the Northeast due to its unknown population status (Therres 1999). NEPARC (2010) does not consider massasauga as a species of priority because it is found in fewer than 4 northeastern states.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Stable	Moderate Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

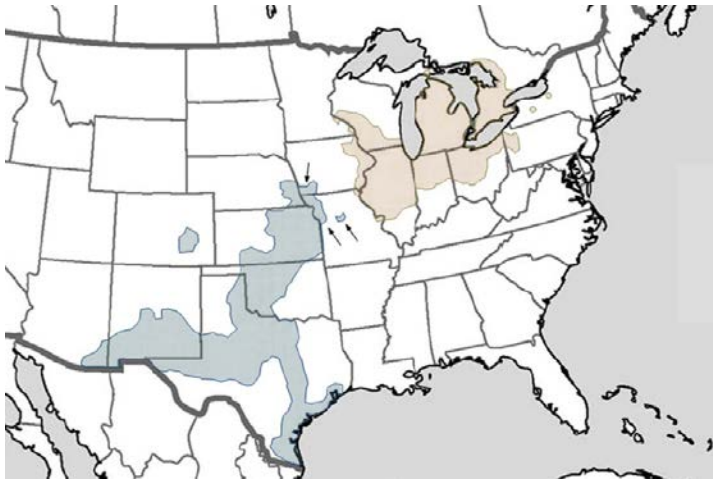
**Habitat Discussion:**

Massasaugas are associated with shallow wetland areas, but specific habitat varies regionally (Ernst and Ernst 2003). In the eastern part of the range this species uses sphagnum bogs, fens, swamps, marshes, peatlands, wet meadows, and floodplains, as well as open savannas, prairies, old fields, and dry woodland (Frost et al. 2007). There is a seasonal shift in habitat use, with drier adjacent uplands being used during the summer, and wetland areas being used during the spring and fall. Hibernation occurs in small mammal burrows, or under logs or tree roots. In New York, sphagnum hummocks are primarily used for hibernation (Johnson 1995).

Primary Habitat Type
Freshwater Marsh
Hardwood Swamp
Old Field/Managed Grasslands
Open Acidic Peatlands
Wet Meadow/Shrub Marsh

**Distribution:**

Eastern massasauga are extremely rare locally. The two extant populations in New York support an estimated 121 and 76 adults.



Historic range of the eastern massasauga in tan shading. Blue shading indicates the range of western massasauga (*Sistrurus* cf. *tergeminus tergeminus*) and desert massasauga (*Sistrurus tergeminus edwardsii*). The black arrows indicate locations formerly considered to be within the eastern massasauga distinct population segment, but now considered to be within the range of the western massasauga (USFWS 2011).

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Natural System Modifications	Other Ecosystem Modifications (succession)	P	L	L
2. Biological Resource Use	Hunting & Collecting Terrestrial Animals (pet trade)	P	M	H
3. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species ( <i>Phragmites</i> ; also native phragmites)	W	L	H
4. Invasive & Other Problematic Species & Genes	Problematic Native Species ( <i>Chrysosporium</i> species)	P	L	V
5. Transportation & Service Corridors	Roads & Railroads (road mortality)	P	L	V

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**Common Name:** Eastern musk turtle  
**Scientific Name:** *Sternotherus odoratus*  
**Taxon:** Reptiles

**SGCN – High Priority**

**Federal Status:** Not Listed  
**New York Status:** Not Listed

**Natural Heritage Program Rank:**  
 Global: G5  
 New York: S5  
 Tracked: No

**Synopsis:**

Also known as the stinkpot, the eastern musk turtle emits a distinctive musky odor when threatened. It is highly aquatic, leaving the water infrequently, and moving awkwardly on land when it must. Occupied habitats include lakes, ponds, and rivers that have a muddy bottom substrate and little or no current. The musk turtle has a large distribution that extends across most of the eastern United States and into southern Canada, with a noticeable gap around higher elevation areas. New York is near the northern edge of the range. Musk turtles are common and apparently secure across the range with the exception of populations on the northern edge in Ontario and Quebec. Threats include shoreline development and the removal of submerged aquatic vegetation for recreational activities.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Unknown	Unknown
6% to 10%	X	Common	X		
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare			

**Habitat Discussion:**

Musk turtles use a variety of water bodies that have a soft, muddy substrate, submerged vegetation, and little or no current. They may be found in canals, ponds, large streams, marshes, and weedy coves of natural lakes and rivers (Hulse et al. 2001, Connor et al. 2005, Gibbs et al. 2007). Isolated water bodies are generally not occupied since musk turtles do not wander distances across land. Brackish water is avoided although Gibbs et al. (2007) note the presence of musk turtles in Onondaga Lake (Onondaga County), which is slightly salty. Nesting sites are variable, but must be close to water and have exposure to direct sunlight.

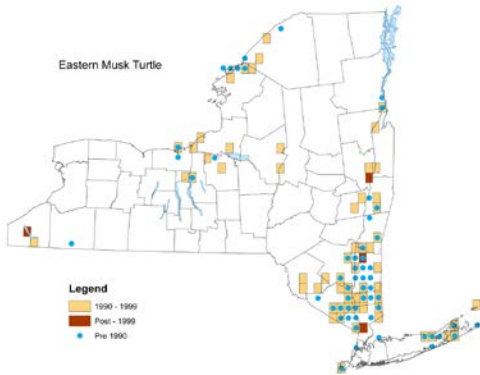
Primary Habitat Type
Freshwater Marsh
Lake; Pond; Eutrophic
Lake; Small Lake; Eutrophic
Large/Great River

**Distribution:**

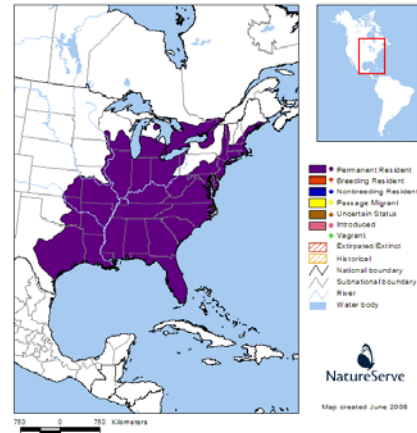
Musk turtles are found in the Great Lakes drainages, the Hudson River and many tributaries, and on Long Island (Gibbs et al. 2007). The NY Amphibian and Reptile Atlas (1990–99) documented musk turtles in



53 survey quads. Four additional survey quads within the known distribution were documented to have musk turtles since 2000.



NYSDEC (2013)



NatureServe (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation of habitat from shoreline residential development)	N	L	H
2. Biological Resource Use	Fishing & Harvesting Aquatic Resources (fishery bycatch)	P	L	L
3. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (mortality from control of non-native aquatic plants)	N	L	M
4. Transportation & Service Corridors	Roads & Railroads (road mortality)	W	L	H

**References Cited:**

Connor, C., B. A. Douthitt, and T. J. Ryan. 2005. Descriptive ecology of a turtle assemblage in an urban landscape. *The American Midland Naturalist* 153(2):428-435.

Gibbs, J. P., A. R. Breisch, P. K. Ducey, G. Johnson, J. L. Behler, and R. C. Bothner. 2007. *The amphibians and reptiles of New York State*. Oxford University Press, New York. xv + 422 pp.

Hulse, A. C., C. J. McCoy, and E. Censky. 2001. *Amphibians and Reptiles of Pennsylvania and the Northeast*. Cornell University.

NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: March 11, 2013).

**Common Name:** Eastern spiny softshell *SGCN – High Priority*  
**Scientific Name:** *Apalone spinifera spinifera*  
**Taxon:** Reptiles

**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Special Concern Global: G5  
New York: S2S3  
Tracked: Yes

**Synopsis:**

The spiny softshell is an aquatic turtle that occurs in lakes and large rivers and their associated wetlands. It is found in the central portion of the United States, reaching the eastern extent of its range in New York; there is a disjunct population in the Vermont waters of Lake Champlain. The eastern spiny softshell turtle was previously known as *Trionyx spiniferus spiniferus*, and is the only species in this family found in New York. Several other subspecies are known from North America. Spiny softshell turtles in Lake Champlain may be genetically unique (Weisrock and Janzen 2000); none have been found on the New York side of the lake. Shoreline development is the most significant threat to spiny softshell turtles.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Unknown	Unknown
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

**Habitat Discussion:**

Spiny softshell turtles are found in large lakes, rivers, reservoirs and the protected bays and river mouths of the Great Lakes (Gibbs et al. 2007). Areas with a soft mud or sand bottom are preferred and rocky areas are avoided. This species is highly aquatic, basking on the surface of the water or on aerial perches provided by logs, rocks, or other structures that provide good solar exposure and little disturbance. Wetlands associated with large water bodies are used in the spring for basking. Areas of an inhabited lake or river with water depths greater than 20 feet deep are not used.

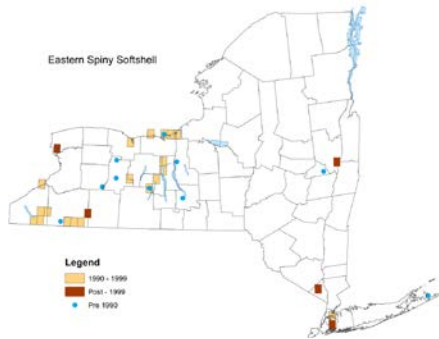
Nesting occurs in well-drained sandy or gravelly soil with little vegetation and with good solar exposure for long periods of the day. Hibernation occurs in areas with highly oxygenated water. Hibernation areas must also be free of ice scour and disturbance (VT Fish & Wildlife Department 2009).

Primary Habitat Type
Great Lakes Freshwater Estuary Marsh
Lake
Lake and River Beach
Lake; Reservoir
Large/Great River
Riparian

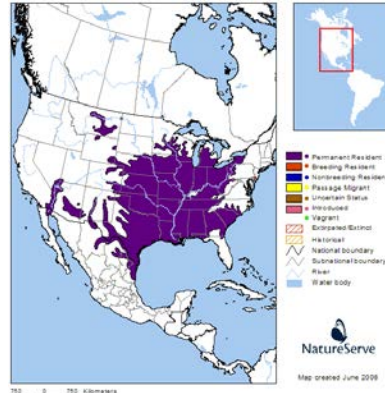
**Distribution:**

The NY Amphibian and Reptile Atlas (1990–99) documented spiny softshell in 19 survey blocks (2%). Populations are known in Sodus Bay, Lake Ontario, the Allegheny and Genesee rivers, and the Great Lakes drainage (particularly the Finger Lakes). Only one survey quad in eastern NY had a record during the Atlas: Flushing in Queens County.

Since 2000, records were added to the NY Herpetology database in 5 additional survey quads, 3 of which are in eastern New York. One is in southern Washington County, another is in Orange County, and the third is in Queens County adjacent to the Flushing quad.



NYSDEC (2013)



NatureServe (2013)

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation of shoreline habitat)	R	L	H
2. Human Intrusion & Disturbance	Recreational Activities (sensitive to disturbance from shoreline fishing)	W	L	M
3. Human Intrusion & Disturbance	Recreational Activities (propeller strikes) Sodus Bay study	N	L	H
4. Natural Systems Modification	Dams & Water Management/Use (dams can restrict movement)	N	L	H
5. Invasive & Other Problematic Species	Invasive and Non-Native/Alien Species (bycatch in aquatic weed harvesters)	N	L	M
6. Biological Resource Use	Fishing & Harvesting Aquatic Resources (sometimes hooked by anglers)	N	L	L
7. Pollution	Household Sewage & Urban Waste Water (reduced water quality)	N	L	H
8. Invasive & Other Problematic Species & Genes	Problematic Native Species (nest predation from subsidized predators including raccoons)	W	L	H
9. Biological Resource Use	Fishing & Harvesting Aquatic Resources (collection for food)	R	L	M
10. Natural System Modifications	Other Ecosystem Modifications (shoreline bulkheads)	R	L	M

**References Cited:**

Gibbs, J. P., A. R. Breisch, P. K. Ducey, G. Johnson, J. L. Behler, and R. C. Bothner. 2007. The amphibians and reptiles of New York State. Oxford University Press, New York. xv + 422 pp.

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Vermont Fish & Wildlife Department. 2009. Vermont eastern spiny softshell recovery plan. Vermont Fish & Wildlife Department, Waterbury, VT.

Weisrock, D.W. and F. J. Janzen. 2000. Comparative molecular phylogeography of North American softshell turtles (*Apalone*): implication for regional and wide-scale historical evolutionary forces. *Molecular Phylogenetics and evolution* 14:152-164.

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**Common Name:** Queensnake *SGCN – High Priority*  
**Scientific Name:** *Regina septemvittata*  
**Taxon:** Reptiles

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**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Endangered Global: G5  
New York: S1  
Tracked: Yes

**Synopsis:**

Queensnakes were previously included in the large family Colubridae, but were recently reclassified to Natricidae (Collins and Taggart 2009). This species occurs from southwestern Ontario, western New York, and western Pennsylvania southward to Alabama. Queensnakes are strongly associated with water, inhabiting rivers, lakes, and streams, usually within 3 meters of the water’s edge and only where crayfish are abundant. Queensnakes have experienced population declines in the northern portion of the range, due to habitat loss and degradation, pollution, and the invasion of non-native species including zebra mussel, rusty crayfish, and common reed (COSEWIC 2010, Gillingwater 2011). The queensnake’s specialized diet of crayfish makes it vulnerable to declines in crayfish populations (COSEWIC 2010). Southern populations appear to be stable (NatureServe 2013).

In New York, queensnakes are known from only a five sites in Cattaraugus, Erie, and Genesee counties. It is among the rarest of reptiles in the state, with only a few specimens observed in recent years (Gibbs et al. 2007). It is listed as endangered due to its low numbers and limited distribution in the state.

Queensnakes appear to have limited adaptability, given their specialized habitat needs and dependence on an abundant crayfish population (COSEWIC 2010).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Moderate Decline	Moderate Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

**Habitat Discussion:**

Queensnakes are strongly associated with water and rarely venture far overland. Individuals are found along rivers and streams with a rocky or gravel substrate (frequently limestone), and where crayfish are abundant. Overhanging woody vegetation is typical, and individuals can also be found among or under rocks at the water’s edge (Gibbs et al. 2007). Wood (1949) noted three habitat requirements for queensnakes: (1) a permanent still or flowing body of water with temperatures at or above 18 degrees Celcius for most of the active season, (2) an abundance of cover material such as flat rocks along the bank, and (3) a large population of crayfish. Less commonly occupied habitats include ponds, marshes, lakes, and quarries. Calm waters appear to be necessary to facilitate foraging, cover and possible thermoregulation (Gillingwater 2011).

A hibernation site on the Thames River in Ontario was described as a seepage on a south-facing clay slope at the river’s high water mark. The access points were through a small mammal burrow and

openings beneath exposed tree roots (Gillingwater 2011). Gibbs et al. (2007) report that in New York, hibernation occurs in muskrat lodges, crayfish burrows and in earth and stone dams.

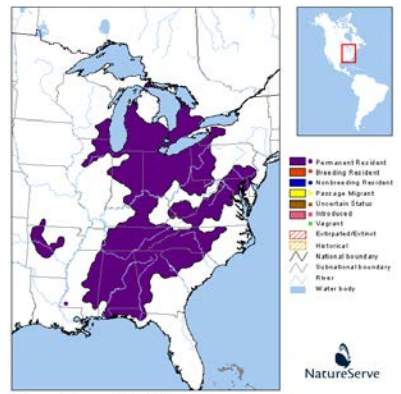
**[Table of associated habitats]**

**Distribution:**

The NY Amphibian and Reptile Atlas (1990–99) documented queensnakes in four survey quads in Cattaraugus, Erie, and Genesee (Bergen Swamp) counties. A record from one additional survey quad in Monroe County was added in 2003. Surveys of three known Erie County sites and the one known Wyoming County site during 2006-2008 encountered queensnakes at only one extant Erie County site (NYSDEC unpublished reports).



NYSDEC (2013)



NatureServe (2013)



<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Transportation & Service Corridors	Roads & Railroads (fragmentation by roads)	W	L	H
2. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	W	L	H
3. Biological Resource Use	Hunting & Collecting Terrestrial Animals (persecution by anglers)	N	L	H
4. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (rusty crayfish)	W	H	V
5. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (common reed, Japanese knotweed, rock snot)	N	L	M
6. Pollution	Agricultural & Forestry Effluents (nutrient runoff)	R	L	H
7. Climate Change & Severe Weather	Storms & Flooding	W	H	H
8. Human Intrusions & Disturbance	Recreational Activities (disturbance along shoreline)	P	L	M
9. Residential & Commercial Development	Housing & Urban Areas (habitat loss from development)	W	M	H

**References Cited:**

Collins, J. T. and T. W. Taggart. 2009. Standard common and current scientific names for North American amphibians, turtles, reptiles, and crocodylians. Sixth edition. Publication of The Center for North American Herpetology, Lawrence. iv + 44 pp.

COSEWIC. 2010. COSEWIC assessment and status report on the queensnake *Regina septemvittata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Vii + 34 pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm))

Gibbs, J. P., A. R. Breisch, P. K. Ducey, G. Johnson, J. L. Behler, and R. C. Bothner. 2007. The amphibians and reptiles of New York State. Oxford University Press, NY.

Gillingwater, S. D. 2011. Recovery Strategy for the Queensnake (*Regina septemvittata*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 34 pp.

Wood, J.T. 1949. Observations on *Natrix septemvittata* (say) in southwestern Ohio. The American Midland Naturalist 42(3): 744-750.

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**Common Name:** Southeastern mud turtle *SGCN – High Priority*  
**Scientific Name:** *Kinosternon subrubrum subrubrum*  
**Taxon:** Reptiles

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**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Endangered Global: G5  
New York: S1  
Tracked: Yes

**Synopsis:**

The southeastern mud turtle has the distinct characteristic of a double-hinged plastron, which allows it to protect its head and limbs from potential predators by closing its shell completely; still, its small size makes it susceptible to a number of predators including canids and bald eagles (Gibbs et al. 2007). As a semi-aquatic turtle, it inhabits a variety of wetland habitats including ponds and freshwater and brackish marshes, as well as slow-moving streams with a muddy bottom and emergent aquatic vegetation. Adjacent upland habitats with loamy or sandy soils are important for foraging and wintering (Buhlmann and Gibbons 2001, Ruhe and LaDuke 2011).

Mud turtles occur along the coastal plain of the eastern and southern United States, from New York and Indiana southward to south-central Texas (Ernst and Barbour 1972). New York is at the extreme northernmost edge of the distribution and populations occur only on Long Island, Staten Island, and adjacent small islands. Seven known populations are small, isolated, and—with one exception—declining (NYNHP 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Severe Decline	Severe Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon			
> 50%		Rare	X		

**Habitat Discussion:**

The southeastern mud turtle is a coastal plain species that relies on both aquatic and terrestrial habitats (Harden et al. 2009). Occupied wetland habitats include swamps, freshwater and brackish marshes, and ponds as well as slow-moving rivers with muddy bottoms. Recent research on a newly discovered population in southwestern Pennsylvania documented the extensive use of adjacent uplands (Ruhe and LaDuke 2011). Upland habitats used by mud turtles included meadows, shrublands, thickets, and open forests that had loose loamy or sandy soils that facilitated burrowing and digging. Individuals use upland habitats during late summer and winter, occurring up to 135m from the wetland edge (Buhlmann and Gibbons 2001). In New York, the farthest distance that a mud turtle was found from an occupied wetland is 0.5 mile (Soule 1997). Gibbs et al. (2007) report that use of uplands in New York can be year-round, with mud turtles leaving the wetland in late spring and returning the following year during early spring.

New York’s mud turtle populations are found in brackish marshes and ponds that are dominated by giant reed grass (*Phragmites australis*). Hibernation occurs in a dry hillside with sandy soils, in leaf litter at wetland edges, or underwater in soft mud (Gibbs et al. 2007).

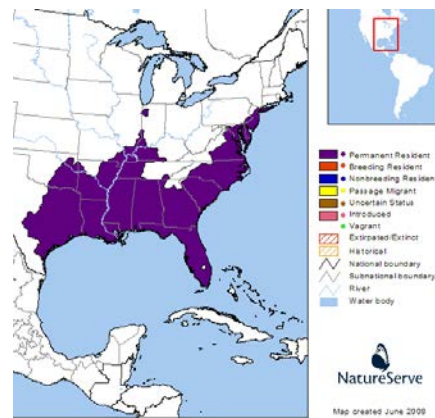
Primary Habitat Type
Coastal Coniferous Barrens
Coastal Plain Pond
Estuarine; Brackish Intertidal; Tidal Wetland
Freshwater Marsh
Pine Barrens

**Distribution:**

Currently, mud turtle populations are known only from Long Island, Staten Island, and two coastal islands. Since 1990, mud turtles have been known from only seven wetlands in these areas (NY Natural Heritage Program 2010).



NYSDEC (2013)



NatureServe (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Transportation & Service Corridors	Roads & Railroads (road mortality)	N	L	M
2. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (invasive plants including Phragmites)	W	L	H
3. Invasive & Other Problematic Species & Genes	Problematic Native Species (increased raccoon populations from urbanization)	W	H	H
4. Climate Change & Severe Weather	Habitat Shifting & Alteration (sea level rise)	P	L	V
5. Climate Change & Severe Weather	Severe Storms	W	M	V

**References Cited:**

Buhlmann, K. A., and J. W. Gibbons. 2001. Terrestrial habitat use by aquatic turtles from a seasonally fluctuating wetland: implications for wetland conservation boundaries. *Chelonian Conservation and Biology* 4:115-127.

Ernst, C. H., and R. W. Barbour. 1972. *Turtles of the United States*. Univ. Press of Kentucky, Lexington. x + 347 pp.

Gibbs, J. P., A. R. Breisch, P. K. Ducey, G. Johnson, J. L. Behler, and R. C. Bothner. 2007. *The amphibians and reptiles of New York State*. Oxford University Press, NY.

Harden, L. A., S. J. Price, and M. E. Dorcas. 2009. Terrestrial Activity and Habitat Selection of Eastern Mud Turtles (*Kinosternon subrubrum*) in a Fragmented Landscape: Implications for Habitat Management of Golf Courses and Other Suburban Environments. *Copeia* 2009(1):78-84.

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New York Natural Heritage Program. 2013. Online Conservation Guide for *Kinosternon subrubrum*. Available from: <http://www.acris.nynhp.org/guide.php?id=7514>. Accessed April 15th, 2013.

Ruhe, B. M. and T. C. LaDuke. 2011. Status assessment and range determination of the eastern mud turtle (*Kinosternon subrubrum*) in Pennsylvania. PA State Wildlife Grants Project T-02-04.

Soule, N. 1997. Report on eastern mud turtles and other reptiles and amphibians for 1995. The Nature Conservancy, Mashomack Preserve, Shelter Island, New York.

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**Common Name:** Spotted turtle *SGCN – High Priority*  
**Scientific Name:** *Clemmys guttata*  
**Taxon:** Reptiles

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**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Special Concern Global: G5  
New York: S3  
Tracked: No

**Synopsis:**

This small turtle with bright yellow or orange spots occurs in freshwater wetlands and associated upland areas in two separate populations: along the coastal plain of the United States from New England to northern Florida, and in Upper Midwest and Ontario (Ernst and Lovich 2009). In New York, spotted turtle populations occur on Long Island, in the southeastern counties north to Saratoga County, and across the Great Lakes Plain. This semi-aquatic turtle uses a mosaic of wetland and upland habitats during the course of a year.

In the last 75 years, spotted turtle populations have declined across the range, but especially in the Great Lakes region and more recently in the eastern United States (Ernst and Lovich 2009, van Dijk 2011). Declines are due to habitat destruction, invasive species introductions, overexploitation, and vehicular mortality.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Moderate Decline
6% to 10%		Common			
11% to 25%	X	Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

Spotted turtles use large areas that provide a mosaic of habitats including ponds, emergent marshes, shrub swamps, forested wetlands, fens, wet meadows, seasonal pools, streams, rivers, forests and other upland habitats. Wetlands may be open or forested but soft bottom substrate is required, as is shallow clear water, and aquatic vegetation. Milam and Melvin (2001) found that the dominant ground cover in the habitat of spotted turtles in their Massachusetts study was Sphagnum.

Spotted turtles occur at elevations up to 1,350 feet in the Hudson Highlands in Dutchess County, and at 1,200 feet in Orange County (J. Jaycox, personal communication).

Nesting occurs in open areas that are non-forested including meadows, fields, pastures, sand and gravel pits, and roadsides, as well as hummocks in emergent wetlands, and red maple swamps (Fowle 2001, Joyal et al. 2001). Hibernation occurs in areas that provide structural protection and remain at about 0 degrees C (Rasmussen and Litzgus 2010). Such areas include abandoned muskrat and beaver lodges and burrows, beaver dams, and submerged roots of flooded trees, and in the crevices of stone walls that cross wetlands (Gibbs et al. 2007). Litzgus et al. (1999) note that turtles locate and use the pockets of air beneath these submerged structures.

Milam and Melvin (2001) documented that spotted turtles in Massachusetts spend about two-thirds of the active season in seasonal pools. In a two-year study in Massachusetts, Joyal et al. (2001) found that 74% of time between May and September was spent in uplands. Individuals may aestivate under leaves and forest duff.

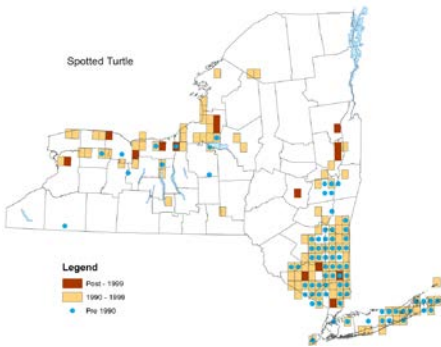
In a radio-tracking study in Massachusetts, Fowle (2001) reported an average movement to nest sites of 249m and a maximum of 750m. The maximum distance traveled between wetlands was 1,150m.

Primary Habitat Type
Coastal Plain Pond
Forest and Woodland; Northeast Wetland Forest
Freshwater Marsh
Mixed Northern Hardwoods
Open Acidic Peatlands
Vernal Pool
Wet Meadow/Shrub Marsh

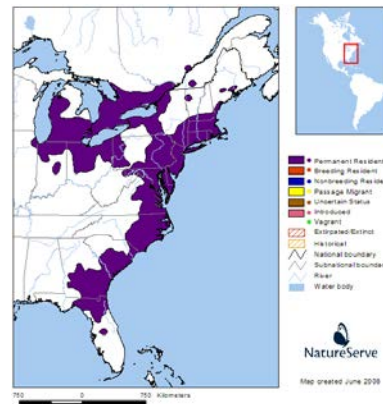
**Distribution:**

The New York Amphibian and Reptile Atlas (1990–1999) documented spotted turtles in 109 survey quads on eastern Long Island, in the lower Hudson Valley, the upper Hudson Valley, the Great Lakes Plain, and the Appalachian Plain. Since 2000, records have been added to the NY Herpetology database in 15 additional survey quads, including one survey quads in Warren County that extended the northern edge of the distribution in the eastern part of the state. Another new record is from Schoharie County.

Gibbs et al. (2007) report that spotted turtles are abundant in some areas east of Lake Ontario in Oswego, Lewis, and Jefferson counties. The absence of spotted turtles from high elevation areas is noted, including the Appalachian Plateau, Catskill Mountains, and Adirondack Mountains.



NY Herpetology Database NYSDEC (2013)



NatureServe (2013)

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation of habitat due to suburban development)	W	M	V
2. Agriculture & Aquaculture	Annual & Perennial Non-Timber Crops (loss/degradation of habitat due to agriculture)	R	L	M
3. Invasive & Other Problematic Species & Genes	Problematic Native Species (increased predation by subsidized predators including raccoons, crows, coyotes)	W	M	H
4. Transportation & Service Corridors	Roads & Railroads (road mortality)	W	M	H
5. Transportation & Service Corridors	Roads & Railroads (railroads and curbs restricting upland movements)	N	L	M
6. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	P	M	H
7. Pollution	Agricultural & Forestry Effluents (degradation of wetlands from runoff of pesticides, fertilizer)	R	L	M
8. Invasive & Other Problematic Species & Genes	Invasive plants (loosestrife, buckthorn, phragmites)	W	L	H
9. Natural System Modifications	Other Ecosystem Modifications (natural succession)	W	L	M
10. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (disease: bacterial, mycoplasma)	N	L	M
11. Transportation & Service Corridors	Utility & Service Lines (effects of new utility corridors: natural gas, power lines, etc...)	N	L	M

**References Cited:**

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Litzgus, J.D., J.P. Costanzo, R.J. Brooks, and R.E. Lee, Jr. 1999. Phenology and ecology of hibernation in Spotted Turtles (*Clemmys guttata*) near their northern range limit. *Canadian Journal of Zoology* 77:1348-1357.

Milam, J. C., and S. M. Melvin. 2001. Density, habitat use, movements, and conservation of spotted turtles (*Clemmys guttata*) in Massachusetts. *Journal of Herpetology* 35(3): 418-427.

NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: May 2, 2013).

Rasmussen, M. L. and J. D. Litzgus. 2010. Habitat Selection and Movement Patterns of Spotted Turtles (*Clemmys guttata*): Effects of Spatial and Temporal Scales of Analyses. *Copeia* 2010(1):86-96.

van Dijk, P.P. 2011. *Clemmys guttata*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 03 May 2013.

**Common Name:** Timber rattlesnake  
**Scientific Name:** *Crotalus horridus*  
**Taxon:** Reptiles

**SGCN – High Priority**

**Federal Status:** Not Listed  
**New York Status:** Threatened

**Natural Heritage Program Rank:**  
 Global: G4  
 New York: S3  
 Tracked: Yes

**Synopsis:**

The timber rattlesnake occurs widely across the eastern United States from central New England southward to northern Florida and westward to eastern parts of Nebraska, Kansas, Oklahoma, and Texas. New York is at the northern edge of the range. In the Northeast, timber rattlesnakes are found in mountainous or hilly woodlands with rocky outcroppings, steep ledges, and talus slides. Populations of timber rattlesnake have undergone drastic declines rangewide since European settlement due to loss of habitat to development, removal by collectors, and mortality resulting from persecution and roadkill. It is thought that populations in New York have been reduced by 60% (Stechert 1982) to as much as 90% (W. H. Martin pers. comm. in Racette and Shea 2013) from their historical numbers.

Timber rattlesnakes have been studied extensively in New York. Populations currently occur in three general areas of the state: southeastern Adirondack Mountains, southeastern New York, and the Southern Tier. Northern populations have stabilized following the end of the bounty system, as have some dens in the Shawangunk Mountains and parts of the lower Hudson Highlands, but populations elsewhere are considered to be of poor status. Currently, there are an estimated 26 to 32 sub-populations in New York, occurring in association with as many as 218 active dens. In the Lake Champlain/Lake George region, the population has stabilized in response to the cessation of bounty hunting, while populations in other areas remain vulnerable to the effects of habitat loss and illegal take (Racette and Shea 2013). Element occurrence rankings in the New York Natural Heritage Program database indicate that only 35 (17%) of the 204 active dens have a status of “good” or better, and 125 (61%) have a status of “fair.”

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Moderate Decline	Moderate Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

The annual life cycle of timber rattlesnakes centers around the hibernaculum, which is typically situated on a mountain slope with southern exposure where a partial canopy cover provides both sun and shade, and there is access to deep underground retreats (Gibbs et al. 2007). Populations that occurred historically on Long Island used tree root cavities as hibernacula (Racette and Shea 2013).

Summer habitat consists primarily of deciduous forest in mountainous areas, but rattlesnakes also use coniferous forest, mixed forest, old fields, or wetlands (Brown 1993). In Pennsylvania, timber rattlesnakes

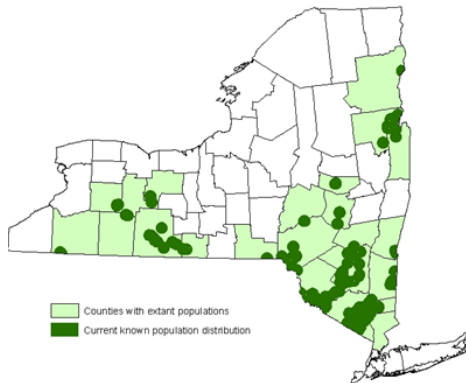
are found in higher abundance in oak-dominated forests because of a higher abundance of rodent prey (Brittingham et al. 2005). Timber rattlesnakes will swim across large water bodies and may therefore also be found on islands (W. Brown personal communication, Furman 2007). Migratory habitat exists between the den site and the summer foraging habitat, and is susceptible to fragmentation by development and roads.

Gravid females have specific habitat requirements for gestating and birthing. Knolls, outcrops, and shelter boulders near the dens are used as communal gestating sites and birthing rookeries that provide full sun exposure for at least part of the day, protection from predators, and shelter from inclement weather. Such areas consist of a rock or group of rocks, averaging 164m from the den (Martin 1992 in Racette and Shea 2013). Due to their microhabitat requirements and limited mobility during gestation, gravid females are especially prone to illegal collection at the gestating knolls.

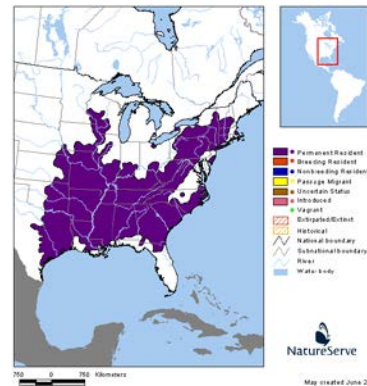
Primary Habitat Type
Cliff and Talus
Oak Forest
Oak-Pine Forest
Powerline
Residential Rural

**Distribution:**

Timber rattlesnakes occur in isolated populations in southeastern New York, the Southern Tier, and in the peripheral eastern Adirondack Mountains. There are currently 26-32 sub-populations of timber rattlesnake with an additional 28 isolated den locations (Racette and Shea 2013). The NY Natural Heritage Program database included 204 known active den sites in 2012; there are some additional, recently verified sites not yet available in the NYNHP database.



Distribution of timber rattlesnake in New York (Racette and Shea 2013)



NatureServe (2013)

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation from suburban development)	W	M	H
2. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	P	M	M
3. Biological Resource Use	Hunting & Collecting Terrestrial Animals (fear-based persecution)	P	L	H
4. Human Intrusions & Disturbance	Recreational Activities (frequent visits to den site, gestating site, hiking)	W	L	H
5. Invasive & Other Problematic Species & Genes	Problematic Native Species (emerging disease including snake fungal disease)	P	M	H
6. Transportation & Service Corridors	Roads & Railroads (road mortality)	P	L	V
7. Energy Production & Mining	Mining & Quarrying (disturbance/destruction at den sites and basking sites by mining activities including fracking)	R	L	H
8. Transportation & Service Corridors	Utility & Service Lines (utility corridors)	N	L	M

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Furman, J. 2007. Timber rattlesnakes in Vermont and New York: Biology, History, and Fate of an Endangered Species. University Press of New England, Hanover, N.H.

Racette, J. A., and J. D. Shea. 2013. DRAFT Recovery Plan for New York State Populations of Timber Rattlesnake (*Crotalus horridus*). New York State Department of Environmental Conservation, Albany, New York. XXpp.

Stechert, R. 1982. Historical depletion of Timber rattlesnake colonies in New York State. Bull. New York Herpetological Society 17:23-24.

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**Common Name:** Wood turtle *SGCN – High Priority*  
**Scientific Name:** *Glyptemys insculpta*  
**Taxon:** Reptiles

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**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Special Concern Global: G3  
New York: S3  
Tracked: No

**Synopsis:**

Formerly classified in the genus *Clemmys*, the wood turtle was recently placed in the newly created genus, *Glyptemys* (Parham and Feldman 2000). This relatively large turtle is both aquatic and terrestrial, using riparian corridors along clean, flowing streams and rivers, and adjacent woodlands and meadows (Gibbs et al. 2007). The range extends from Nova Scotia southward to Virginia and westward to Minnesota (Ernst and Lovich 2009). In New York, wood turtles occur statewide, with concentrations in the southeastern part of the state.

Although wood turtles remain common, widespread declines have resulted in a high level of concern for the species. Wood turtles are threatened by mortality from agricultural practices and vehicles, habitat loss and fragmentation, and pollution, and are also severely affected by collection for the pet trade. Their life history characteristics of delayed sexual maturity and low juvenile recruitment increase their vulnerability to these threats.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Unknown
6% to 10%		Common			
11% to 25%	X	Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

Wood turtles are found in a variety of aquatic habitats including rivers, streams, swamps, bogs, seasonal pools, and wet meadows. However, they are most strongly associated with flowing water and adjacent early-successional uplands (Fowle 2001). Slow-moving streams with sandy bottom substrate and stream banks that are heavily vegetated seem to support the highest densities of this turtle. Wood turtles require clean water, and populations are commonly found in streams with native brook trout. Kiviat and Barbour (1996) report that wood turtles occasionally use tidal fresh water areas in the Hudson River.

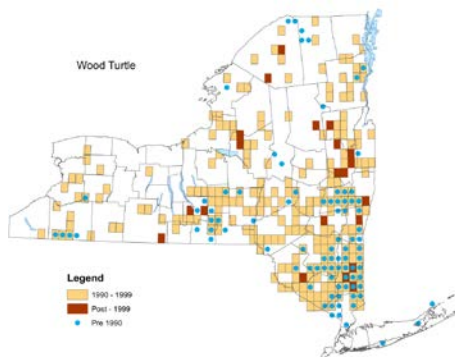
Terrestrial habitats are used extensively. Quinn and Tate (1991) found that only 14% of observations were in aquatic habitats, and Kaufmann (1992) notes terrestrial use for as many as 33 consecutive days. Fields and meadows—frequently containing alder, willow, or meadowsweet thickets or multiflora rose—adjacent to streams and rivers are used for basking and feeding. Early to mid-successional forests composed of oak, black birch, and red maple are also used, as are hemlock forests and agricultural land (Kaufman 1992). Nesting occurs on railroad grades, sand/gravel pits, eroding river banks, sand bars, and dirt roads (Bowen and Gillingham 2004).

Hibernation occurs in water, and large numbers of individuals may hibernate together. A variety of places are used as hibernacula including muskrat burrows, tree roots along stream banks, beaver ponds, and stream bottoms (Bowen and Gillingham 2004). Smaller creeks offer a more diverse assortment of refugia, and turtles are encountered in smaller numbers over a longer stretch of creekbed (W. Hoffman pers. comm.).

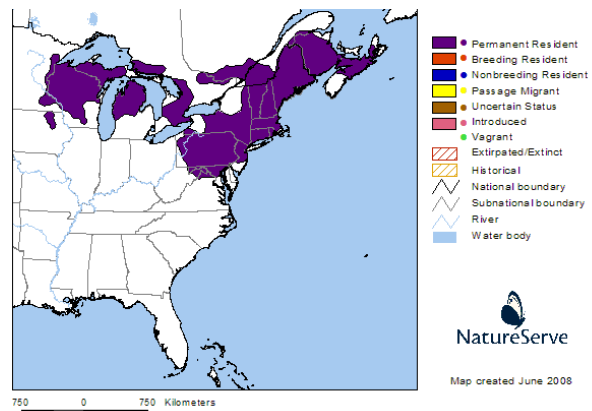
Primary Habitat Type
Cultivated Crops
Floodplain Forest
Headwater/Creek
Lake and River Beach
Non-native Shrublands
Oak Forest
Pasture/Hay
Riparian
Small River
Vernal Pool
Wet Meadow/Shrub Marsh

**Distribution:**

The NY Amphibian and Reptile Atlas (1990–99) documented wood turtles in 198 survey quads statewide (out of 979); most records are in the Hudson River Valley. Records were added after 1999 in additional 22 survey quads.



NYSDEC (2013)



NatureServe (2013)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation of habitat to development)	N	L	H
2. Agriculture & Aquaculture	Annual & Perennial Non-Timber Crops (loss/degradation of habitat to agriculture, mortality from mowing)	N	L	M
3. Transportation & Service Corridors	Roads & Railroads (road mortality, railroad mortality)	P	M	H
4. Natural System Modification	Dams & Water Management/Use (modification such as rip rap near bridges, removal of woody debris)	N	L	M
5. Climate Change & Severe Weather	Storms & Flooding	N	L	H
6. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade)	W	L	H
7. Pollution	Agricultural & Forestry Effluents (sedimentation)	W	L	H
8. Invasive & Other Problematic Species & Genes	Problematic Native Species (subsidized predators)	W	L	H

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Bowen, K. D. and J. C. Gillingham. 2004. R9 Species conservation assessment for wood turtle – *Glyptemys insculpta* (LeConte, 1830). U. S. Forest Service, Eastern Region, Milwaukee, WI.

Ernst, C. H. and J. E. Lovich. 2009. Turtles of the United States and Canada. Second edition. Johns Hopkins University Press; Baltimore.

Fowle, S. 2001. Guidelines for Protecting Wood Turtles and their Habitats in Massachusetts. Natural Heritage and Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, Westborough, Massachusetts.

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Hoffman, William. Personal communication. NYSDEC. Albany, NY.

Kaufmann, J.H. 1992. Habitat use by wood turtles in central Pennsylvania. Journal of Herpetology 26(3):315-321.



Kiviat, E. and J. G. Barbour. 1996. Wood turtles, *Clemmys insculpta*, in the fresh-tidal Hudson River. Canadian Field-Naturalist Ottawa 110(2):341-343.

Parham, J. F. and C. R. Feldman. 2000. Generic revisions of Emydine turtles. Turtle and Tortoise Newsletter 6:28-30.

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**Common Name:** Woodland box turtle *SGCN – High Priority*  
**Scientific Name:** *Terrapene carolina carolina*  
**Taxon:** Reptiles

**Federal Status:** Not Listed **Natural Heritage Program Rank:**  
**New York Status:** Special Concern Global: G5  
New York: S3  
Tracked: No

**Synopsis:**

The box turtle is widely distributed from southern Ontario southward to Florida and westward to the Rocky Mountains and the Yucatan Peninsula. One of six subspecies, the woodland box turtle occurs from southern Ontario and Maine through central Michigan, Illinois, and Georgia. New York is at the northern edge of the main distribution. Box turtles are generally terrestrial, using a variety of dry and moist woodlands, but also may use marshy areas; sandy soil is typical of occupied habitats. Populations are thought to be declining, although long-term trends in abundance are not widely available. In addition to facing threats of habitat loss, road mortality, and collection for the pet trade, this species is challenged by delayed sexual maturity and high mortality of eggs and young (Erb 2011).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Moderate Decline
6% to 10%		Common			
11% to 25%	X	Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

**Habitat Discussion:**

Woodland box turtles are found in dry and moist woodlands. In the Northeast, this species is also associated with pastures and meadows as well as old fields and powerline cuts. There is a preference for sandy, well-drained soil, and occupied habitat is typically near ponds or streams (Gibbs et al. 2007). Nesting occurs in a variety of open habitats including road sides, gardens, lawns, and woodlands.

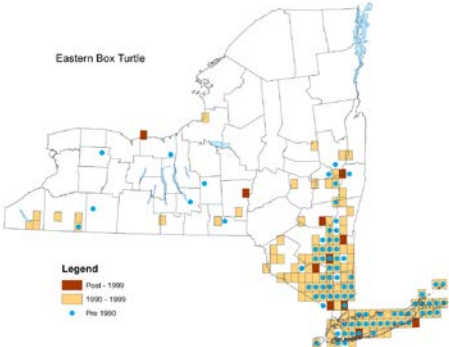
In Harriman State Park (Rockland and Orange counties) box turtles are limited to patches of early successional habitat, especially where it is bordered by sandy-bottomed, low gradient streams (McGowan et al. 2012). Japanese barberry, a non-native plant, is used extensively in the Harriman State Park study area and was noted to provide important cover and shade in areas where most native shrub growth is heavily browsed by deer (McGowan et al. 2012).

Primary Habitat Type
Coastal Coniferous Barrens
Coastal Hardwoods
Native Barrens and Savanna
Non-native Shrublands
Oak-Pine Forest
Old Field/Managed Grasslands

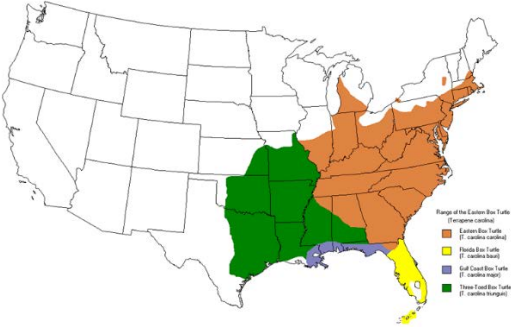
Pine Barrens
Powerline
Riparian
Urban and Recreational Grasses

**Distribution:**

The NYS Herp Atlas (1990–1999) documented woodland box turtle in 125 survey quads, primarily on Long Island, Staten Island, and the lower Hudson Valley. Since 2000, records were added in 11 additional survey quads. The distribution follows the historical records with the exception of the 2006 record of a female with eggs near the shore of Lake Ontario in Wayne County.



NYSDEC (2013)



Distribution of box turtle in North America. Used by permission. Credit: John D. Willson [www.herpsfNC.org](http://www.herpsfNC.org) (2013)

<b>Threats to NY Populations</b>				
<b>Threat Category</b>	<b>Threat</b>	<b>Scope</b>	<b>Severity</b>	<b>Irreversibility</b>
1. Residential & Commercial Development	Housing & Urban Areas (loss/degradation of habitat)	W	L	H
2. Agriculture & Aquaculture	Annual & Perennial Non-Timber Crops (mortality from mowing of agricultural fields)	N	L	M
3. Transportation & Service Corridors	Roads & Railroads (road mortality)	W	L	H
4. Biological Resource Use	Hunting & Collecting Terrestrial Animals (collection for pet trade/pets)	P	L	M
5. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (newly emerging disease such as ranavirus, herpes virus, etc)	W	L	H
6. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (invasive plants, such as)	W	L	M
7. Invasive & Other Problematic Species & Genes	Problematic Native Species (increased raccoon/fox, coyote predation from urbanization)	W	M	H
8. Human Intrusions & Disturbance	Recreational Activities (ATV use)	N	L	M
9. Natural System Modifications	Other Ecosystem Modification (residential, roadside, recreational, right-of-way)	W	M	M
10. Invasive & Other Problematic Species & Genes	Invasive Non-Native/Alien Species (rats; Jamaica Bay see Bob Cook study)	N	L	H

**References Cited:**

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McGowan, E., M. Shook, D. Steinmetz, and M. Miller-Keas. 2012. Managing multiple turtle species of greatest conservation need within wetland complexes on conservation lands. State Wildlife Grant Program Final Report and Annual Report for 2010 Field Season. NYSDEC Files T-10 Job 2, Albany, NY. 41 pp.