

Biodiversity and Energy Online Mapping

About the layers

Layer: Modeled Rare Species Distributions

Date of this document: 31 December, 2012

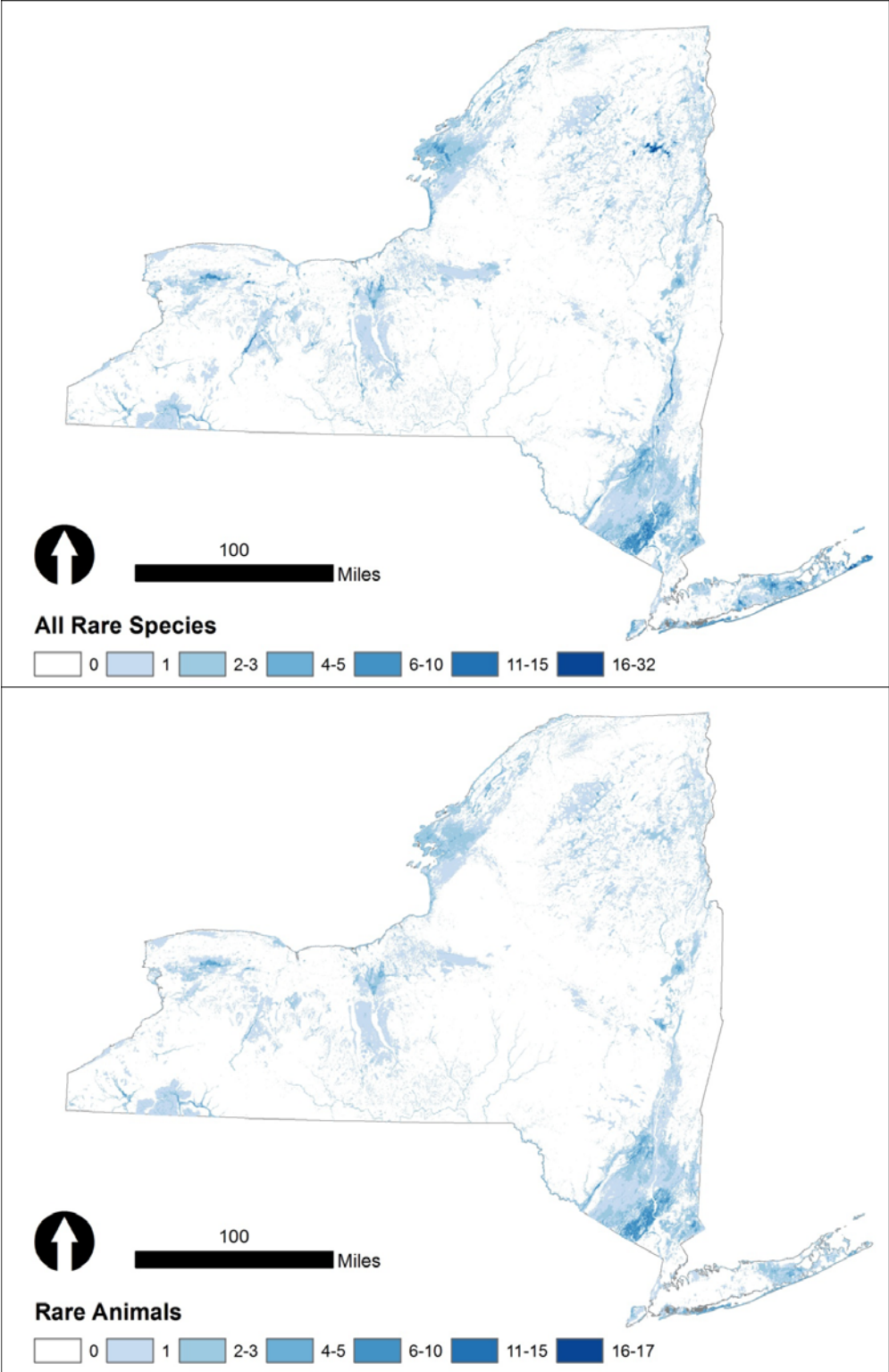
Layer developed by: The New York Natural Heritage Program

Short Description: These nine layers depict the predicted richness (number) of up to 379 rare species in various categories. The probability of the existence of suitable habitat for each species was modeled and converted to a presence or absence of suitable habitat; we then summed across all species in each category (i.e., created model “stacks”) to yield the number of species for which suitable habitat was predicted to be present in each cell.

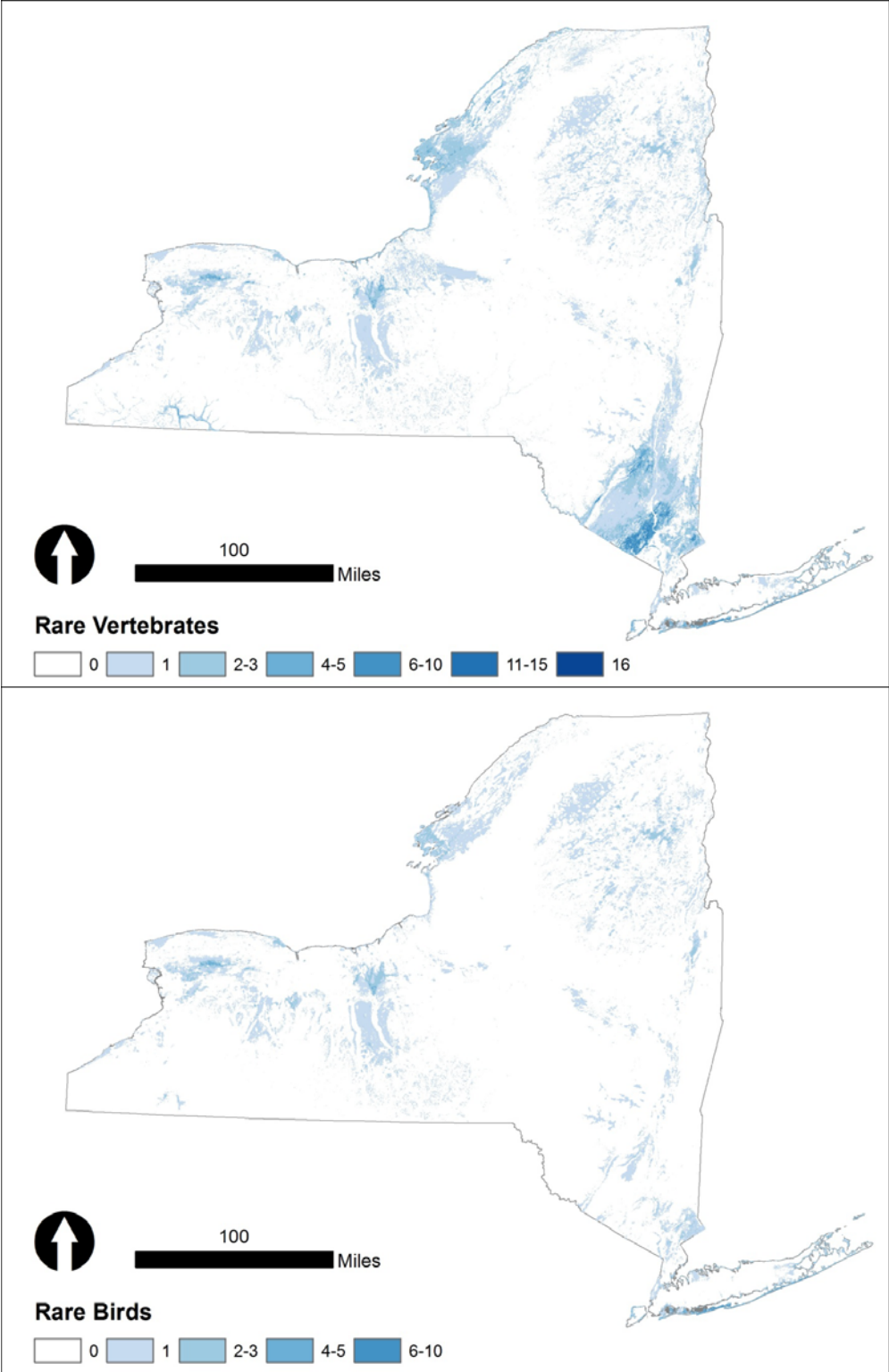
Source: Location data come primarily from NY Natural Heritage element occurrence databases. Other sources of known locations, and sources of environmental variables, are noted in Howard and Schlesinger (2012).

Processing Overview:

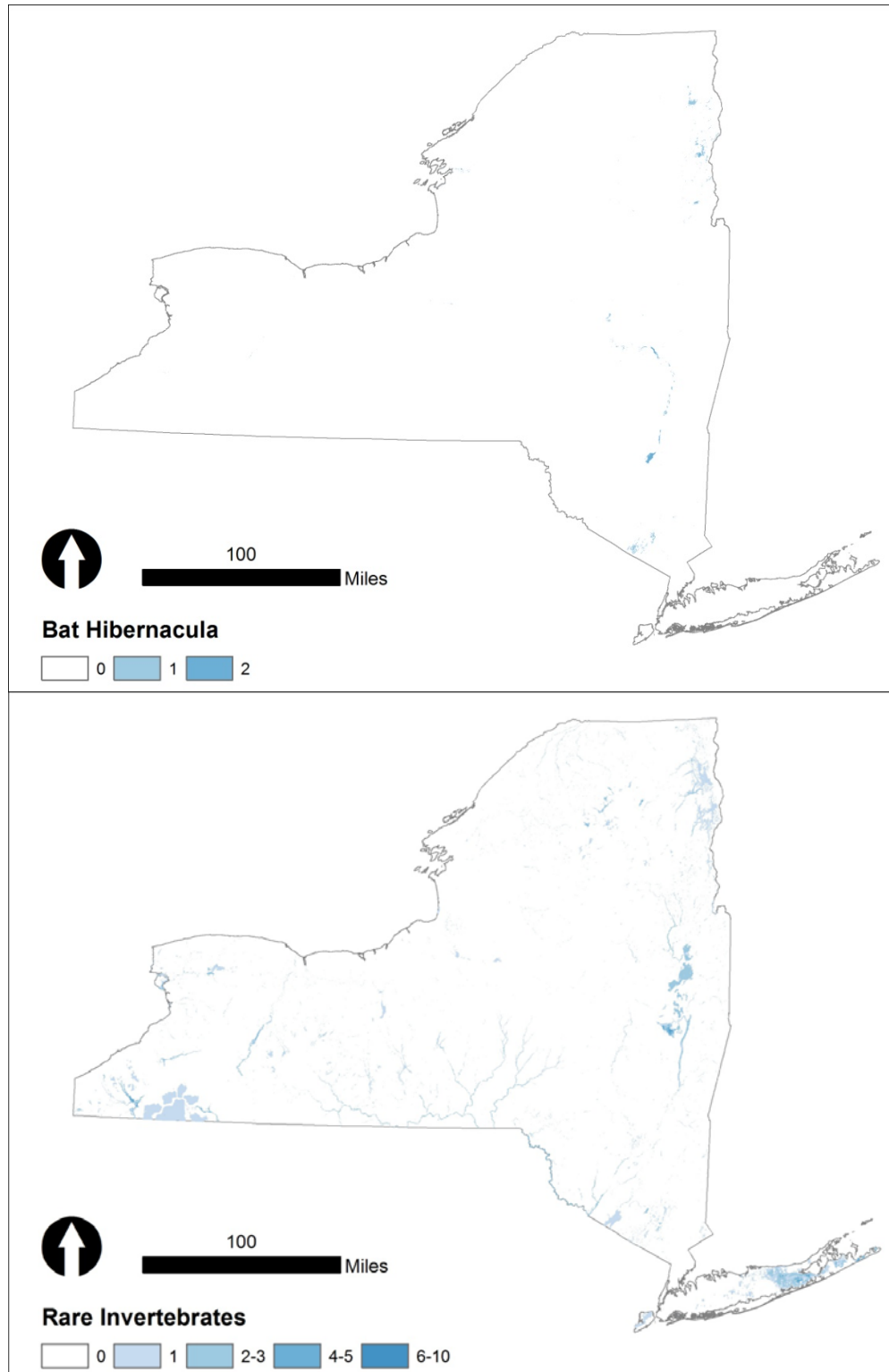
1. Species were selected to represent a range of habitat preferences, niche breadth, and spatial distribution within New York State. Species known to predominantly occupy habitats within streams or lakes were generally excluded from this study in recognition of the additional (catchment and basin-level) landscape metrics needed to adequately model distributions. We selected 243 plant and 136 animal species to be modeled. The number of known locations for each species varied from 2 to 200 (mean = 11) among species. Twenty-six of the animals were modeled for a separate project (Howard and Schlesinger 2012) and included here. The two rare bats were modeled using a modified approach (see 8).
2. We attributed each 30-m cell with 44 environmental variables (see Howard and Schlesinger [2012]).
3. We compared the environmental characteristics of cells with known presence and 10,000 randomly distributed background points using Random Forest analysis.
4. We used the results of this model to predict the probability of suitable habitat for each species.
5. We computed validation statistics for each model and retained models with TSS (Allouche et al. 2006) greater than or equal to 0.5.
6. To convert each model value to a predicted presence (1) or absence (0) of suitable habitat, we used the F-measure (Van Rijsbergen 1979, Sing et al. 2005) with $\alpha = 0.01$ to find a balance of precision and recall weighted conservatively towards higher recall (more land area represented as suitable).
7. For each of the 10 categories, we summed the 0/1 values for each species to arrive at the number of species predicted to have suitable habitat in each cell.
8. Bat data came from statewide 2009 and 2010 acoustic surveys from 49 fifteen-mile road transects and mist-net surveys (318 points) from various targeted projects 2003-2010. For hibernacula models, we used locations from the NY Natural Heritage database. We modeled summer distribution of two rare species for inclusion in model stacks.



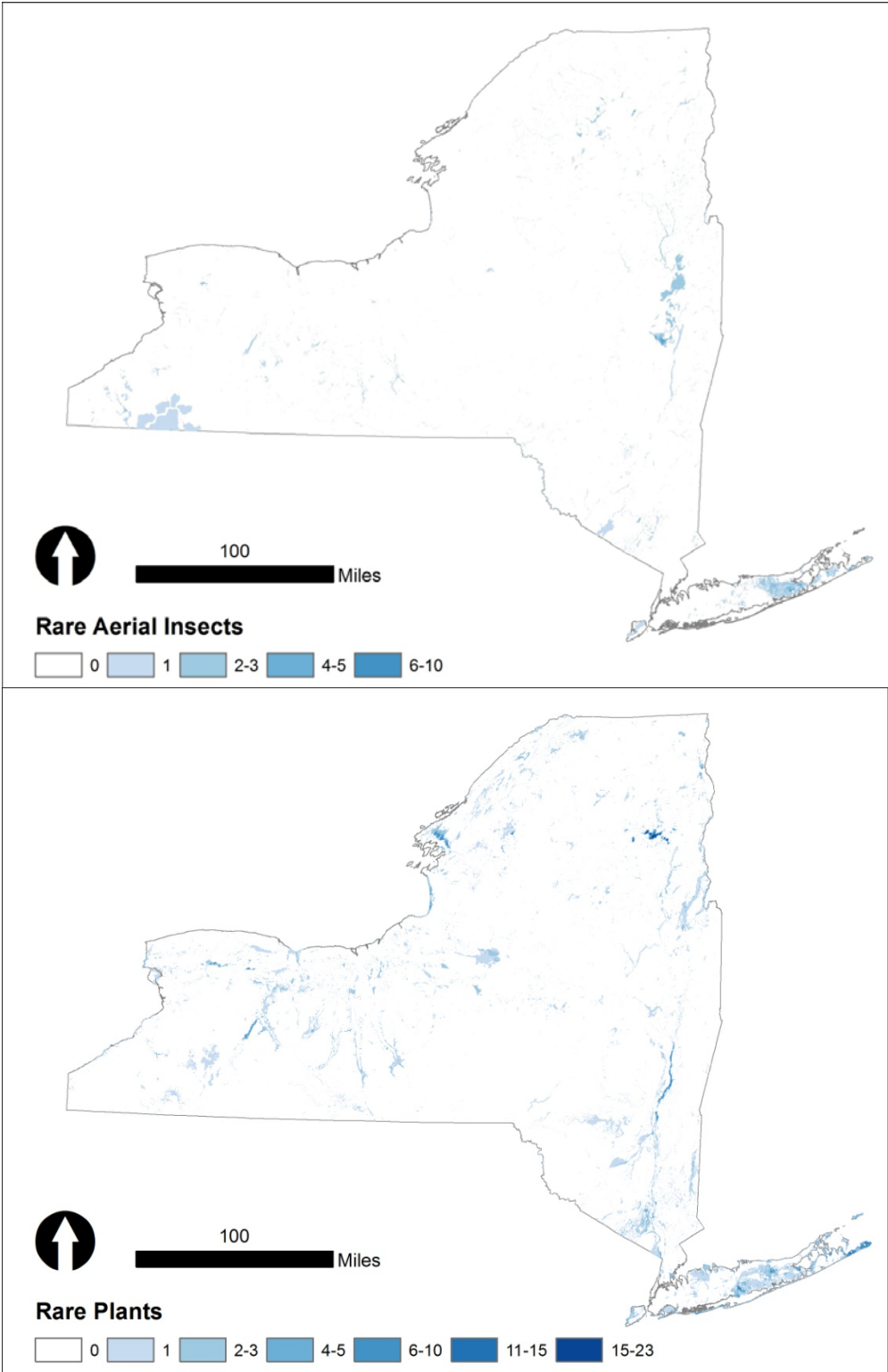
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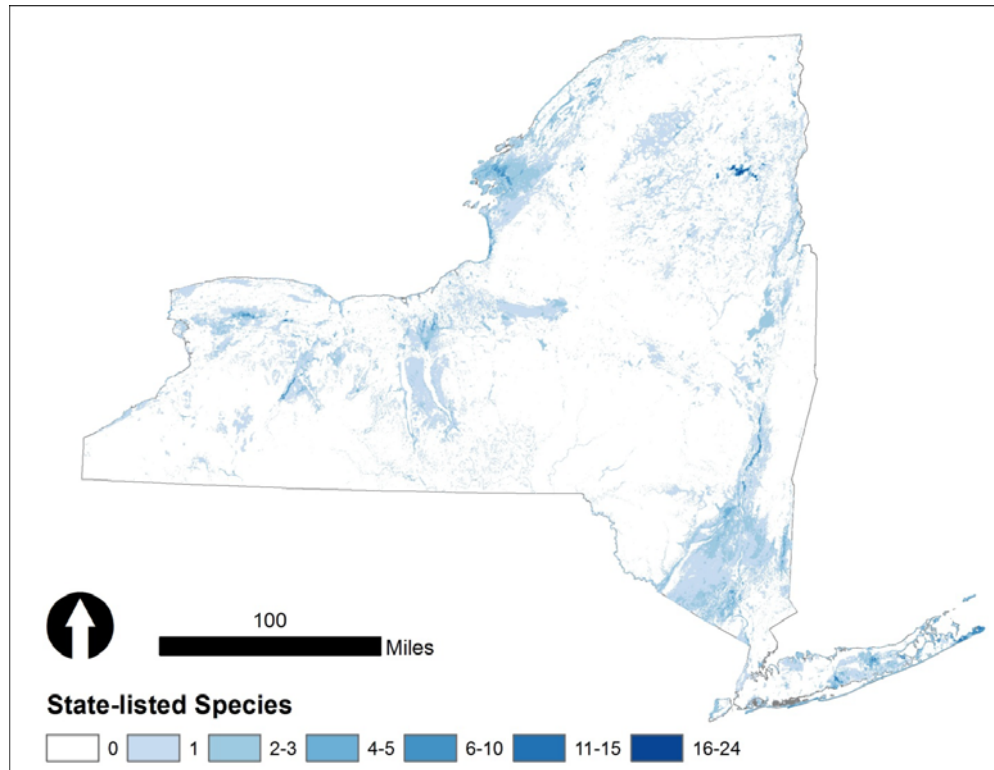
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Scientific name	Common name	TSS	Animals	Verts	Model stacks including this species					Plants	State listed
					Bat hib.	Birds	Inverts	Aerial insects			
<u>Amphibians</u>											
Acris crepitans	Northern Cricket Frog	0.928	X	X							X
Ambystoma jeffersonianum x laterale	Jefferson Salamander Complex	0.537	X	X							
Ambystoma opacum	Marbled Salamander	0.509	X	X							
Cryptobranchus alleganiensis	Hellbender	0.966	X	X							
Eurycea longicauda	Longtail Salamander	0.813	X	X							
Hemidactylium scutatum	Four-toed Salamander	0.591	X	X							
Rana sphenoccephala	Southern Leopard Frog	0.854	X	X							
Scaphiopus holbrookii	Eastern Spadefoot	0.890	X	X							
<u>Beetles</u>											
Cicindela ancocisconensis	Appalachian Tiger Beetle	0.772	X					X			
Cicindela marginipennis	Cobblestone Tiger Beetle	0.917	X					X			
<u>Birds</u>											
Ammodramus henslowii	Henslow's Sparrow	0.546	X	X			X				X
Ammodramus maritimus	Seaside Sparrow	0.992	X	X			X				
Asio flammeus	Short-eared Owl	0.608	X	X			X				X
Caprimulgus carolinensis	Chuck-will's-widow	0.665	X	X			X				
Catharus bicknelli	Bicknell's Thrush	0.963	X	X			X				
Charadrius melodus	Piping Plover	0.948	X	X			X				X
Chlidonias niger	Black Tern	0.841	X	X			X				X
Dendroica cerulea	Cerulean Warbler	0.515	X	X			X				
Euphagus carolinus	Rusty Blackbird	0.654	X	X			X				
Falciennis canadensis	Spruce Grouse	0.936	X	X			X				X
Falco peregrinus	Peregrine Falcon	0.803	X	X			X				X
Helmitheros vermivorum	Worm-eating Warbler	0.574	X	X			X				
Leucophaeus atricilla	Laughing Gull	0.918	X	X			X				
Nyctanassa violacea	Yellow-crowned Night-heron	0.866	X	X			X				
Oporornis formosus	Kentucky Warbler	0.620	X	X			X				

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					Bat hib.	Birds	Inverts	Aerial insects			
Picoides dorsalis	Three-toed Woodpecker	0.698	X	X		X					
Plegadis falcinellus	Glossy Ibis	0.938	X	X		X					
Protonotaria citrea	Prothonotary Warbler	0.851	X	X		X					
Rallus elegans	King Rail	0.883	X	X		X					X
Rynchops niger	Black Skimmer	0.986	X	X		X					
Sterna forsteri	Forster's Tern	0.562	X	X		X					
Sternula antillarum	Least Tern	0.934	X	X		X					X
Tyto alba	Barn Owl	0.664	X	X		X					
<u>Butterflies and moths</u>											
Abagrotis nefascia benjamini	Coastal Heathland Cutworm	0.625	X				X	X			
Callophrys hesseli	Hessel's Hairstreak	0.837	X				X	X			X
Callophrys irus	Frosted Elfin	0.910	X				X	X			X
Catocala herodias gerhardi	Herodias or Pine Barrens Underwing	0.950	X				X	X			
Catocala jair ssp. 2	Jersey Jair Underwing	0.715	X				X	X			
Chaetagnathia cerata	Waxed Sallow	0.819	X				X	X			
Chytonix sensilis	A Noctuid Moth	0.862	X				X	X			
Erastria coloraria	Broad-lined Catopyrrha	0.654	X				X	X			
Eucoptocnemis fimbriaris	A Noctuid Moth	0.625	X				X	X			
Fagitana littera	A Noctuid Moth	0.500	X				X	X			
Hemileuca maia maia	Inland Barrens Buckmoth	0.911	X				X	X			
Hemileuca maia ssp. 5	Coastal Barrens Buckmoth	0.958	X				X	X			
Hemileuca sp. 1	Bogbean Buckmoth	0.992	X				X	X			X
Itame sp. 1 nr. inextricata	Barrens Itame	0.823	X				X	X			
Oeneis jutta	Jutta Arctic	0.961	X				X	X			
Pieris virginienensis	West Virginia White	0.864	X				X	X			
Plebejus melissa samuelis	Karner Blue	0.904	X				X	X			X
Psectraglaea carnosus	Pink Sallow	0.803	X				X	X			
Xylota thoracica	Acadian Swordgrass Moth	0.568	X				X	X			

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					Bat hib.	Birds	Inverts	Aerial insects			
Zanclognatha martha	Pine Barrens Zanclognatha	0.921	X				X	X			
<u>Fish</u>											
Acipenser fulvescens	Lake Sturgeon	0.906	X	X						X	
Ammocrypta pellucida	Eastern Sand Darter	0.940	X	X						X	
Enneacanthus obesus	Banded Sunfish	0.904	X	X						X	
Erimystax x-punctatus	Gravel Chub	0.600	X	X						X	
Exoglossum laurae	Tonguetied Minnow	0.660	X	X							
Hiodon tergisus	Mooneye	0.807	X	X						X	
Ichthyomyzon bdellium	Ohio Lamprey	0.858	X	X							
Ichthyomyzon fossor	Northern Brook Lamprey	0.722	X	X							
Ichthyomyzon greeleyi	Mountain Brook Lamprey	0.531	X	X							
Menidia beryllina	Inland Silverside	0.765	X	X							
Menidia menidia	Atlantic Silverside	0.895	X	X							
Moxostoma valenciennesi	Greater Redhorse	0.789	X	X							
Notropis heterodon	Blackchin Shiner	0.808	X	X							
Percina copelandi	Channel Darter	0.816	X	X							
Percina macrocephala	Longhead Darter	0.878	X	X						X	
Prosopium cylindraceum	Round Whitefish	0.920	X	X						X	
<u>Mammals</u>											
Myotis leibii	Eastern Small-footed Myotis	0.834				X					
	hibernacula										
Myotis sodalis	Indiana Bat hibernacula	0.556				X				X	
Myotis sodalis	Indiana Bat summer	0.765	X	X						X	
Sylvilagus transitionalis	New England Cottontail	0.912	X	X							
<u>Crustaceans and mollusks</u>											
Cambarus diogenes	Devil Crawfish	0.811	X				X				
Actinonaias ligamentina	Mucket	0.968	X				X				
Alasmidonta heterodon	Dwarf Wedgemussel	0.846	X				X			X	
Alasmidonta varicosa	Brook Floater	0.928	X				X			X	

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					Bat hib.	Birds	Inverts	Aerial insects			
Amblema plicata	Threeridge	0.876	X				X				
Anodonta implicata	Alewife Floater	0.732	X				X				
Fusconaia flava	Wabash Pigtoe	0.660	X				X				
Lampsilis cariosa	Yellow Lampmussel	0.936	X				X				
Lampsilis fasciola	Wavyrayed Lampmussel	0.927	X				X				X
Lasmigona subviridis	Green Floater	0.862	X				X				X
Ligumia nasuta	Eastern Pondmussel	0.785	X				X				
Margaritifera margaritifera	Eastern Pearlshell	0.791	X				X				
Pleurobema sintoxia	Round Pigtoe	0.926	X				X				
Ptychobranhus fasciolaris	Kidneyshell	0.793	X				X				
Villosa fabalis	Rayed Bean	0.983	X				X				X
<u>Dragonflies and damselflies</u>											
Anax longipes	Comet Darner	0.624	X				X		X		
Argia tibialis	Blue-tipped Dancer	0.859	X				X		X		
Cordulegaster erronea	Tiger Spiketail	0.531	X				X		X		
Cordulegaster obliqua	Arrowhead Spiketail	0.739	X				X		X		
Enallagma laterale	New England Bluet	0.911	X				X		X		
Enallagma minusculum	Little Bluet	0.500	X				X		X		X
Enallagma pictum	Scarlet Bluet	0.894	X				X		X		X
Enallagma recurvatum	Pine Barrens Bluet	0.807	X				X		X		X
Epitheca semiaquea	Mantled Baskettail	0.797	X				X		X		
Gomphus fraternus	Midland Clubtail	0.697	X				X		X		
Gomphus quadricolor	Rapids Clubtail	0.801	X				X		X		
Ischnura ramburii	Rambur's Forktail	0.863	X				X		X		
Libellula auripennis	Golden-winged Skimmer	0.974	X				X		X		
Ophiogomphus anomalus	Extra-striped Snaketail	0.949	X				X		X		
Ophiogomphus aspersus	Brook Snaketail	0.692	X				X		X		
Ophiogomphus howei	Pygmy Snaketail	0.619	X				X		X		

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Scientific name	Common name	TSS	Animals	Verts	Model stacks including this species					Plants	State listed
					Bat hib.	Birds	Inverts	Aerial insects			
Rhionaeschna mutata	Spatterdock Darner	0.687	X				X	X			
Somatochlora cingulata	Lake Emerald	0.880	X				X	X			
Somatochlora forcipata	Forcipate Emerald	0.838	X				X	X			
Somatochlora incurvata	Incurvate Emerald	0.996	X				X	X			
Stylurus plagiatus	Russet-tipped Clubtail	0.948	X				X	X			
Tachopteryx thoreyi	Gray Petaltail	0.741	X				X	X			
Williamsonia fletcheri	Ebony Boghaunter	0.994	X				X	X			
<u>Reptiles</u>											
Agkistrodon contortrix	Copperhead	0.673	X	X							
Apalone spinifera	Spiny Softshell	0.931	X	X							
Carphophis amoenus	Worm Snake	0.790	X	X							
Clemmys guttata	Spotted Turtle	0.652	X	X							
Coluber c. constrictor	Racer	0.623	X	X							
Crotalus horridus	Timber Rattlesnake	0.898	X	X						X	
Elaphe obsoleta	Eastern Ratsnake	0.575	X	X							
Emydoidea blandingii	Blanding's Turtle	0.811	X	X						X	
Eumeces anthracinus	Coal Skink	0.526	X	X							
Eumeces fasciatus	Five-lined Skink	0.760	X	X							
Glyptemys insculpta	Wood Turtle	0.586	X	X							
Glyptemys muhlenbergii	Bog Turtle	0.815	X	X						X	
Kinosternon subrubrum	Eastern Mud Turtle	0.807	X	X						X	
Regina septemvittata	Queen Snake	0.613	X	X						X	
Sceloporus undulatus	Fence Lizard	0.990	X	X						X	
Terrapene c. carolina	Eastern Box Turtle	0.597	X	X							
Thamnophis sauritus	Eastern Ribbonsnake	0.514	X	X							
<u>Nonvascular plants</u>											
Conardia compacta	Coast Creeping Moss	0.667								X	
Didymodon fallax var. reflexus	Rusty Beard-moss	0.500								X	

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Model stacks including this species											
Scientific name	Common name	TSS	Animals	Verts	Bat hib.	Birds	Inverts	Aerial insects	Plants	State listed	
Sphagnum angermanicum	Angerman's Peat Moss	0.583							X		
Taxiphyllum taxirameum	Yew-leaf Moss	0.850							X		
Vascular plants											
Aconitum noveboracense	Northern Monkshood	0.856							X	X	
Agalinis acuta	Sandplain Gerardia	0.857							X	X	
Agalinis maritima var. maritima	Seaside Gerardia	0.980							X		
Agrimonia rostellata	Woodland Agrimony	0.870							X	X	
Agrostis mertensii	Northern Bentgrass	0.777							X	X	
Aletris farinosa	Stargrass	0.912							X	X	
Allium cernuum var. cernuum	Nodding Wild Onion	0.995							X	X	
Amaranthus pumilus	Seabeach Amaranth	0.915							X	X	
Amelanchier nantucketensis	Nantucket Juneberry	0.884							X	X	
Ammophila breviligulata ssp. champlainensis	Champlain Beachgrass	0.900							X	X	
Angelica lucida	Seacoast Angelica	0.889							X	X	
Anthoxanthum monticola ssp. monticola	Alpine Sweetgrass	0.796							X	X	
Anticlea elegans ssp. glaucus	Mountain Death Camas	0.882							X	X	
Arethusa bulbosa	Dragon's Mouth Orchid	0.793							X	X	
Argentina egedii ssp. groenlandica	Coastal Silverweed	0.565							X	X	
Asclepias viridiflora	Green Milkweed	0.962							X	X	
Asimina triloba	Pawpaw	0.931							X	X	
Asplenium scolopendrium var. americanum	Hart's-tongue Fern	0.858							X	X	
Bartonia paniculata ssp. paniculata	Screw-stem	0.500							X	X	
Betula minor	Dwarf White Birch	0.891							X	X	
Betula pumila	Swamp Birch	0.846							X	X	
Bidens bidentoides	Delmarva Beggar-ticks	0.802							X		

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					Bat hib.	Birds	Inverts	Aerial insects			
Bidens laevis	Smooth Bur-marigold	0.856								X	X
Boechera grahamii	Purple Rock-cress	0.867								X	
Boechera missouriensis	Green Rock-cress	0.860								X	X
Boechera stricta	Drummond's Rock-cress	0.798								X	X
Bolboschoenus maritimus ssp. paludosus	Seaside Bulrush	0.824								X	X
Bolboschoenus novae-angliae	Saltmarsh Bulrush	0.731								X	X
Bouteloua curtipendula var. curtipendula	Side-oats Grama	0.657								X	X
Cardamine longii	Long's Bittercress	0.840								X	X
Cardamine rotundifolia	Mountain Watercress	0.887								X	X
Carex abscondita	Thicket Sedge	0.661								X	X
Carex backii	Back's Sedge	0.791								X	X
Carex bigelowii	Bigelow's Sedge	0.804								X	X
Carex bullata	Button Sedge	0.711								X	X
Carex chordorrhiza	Creeping Sedge	0.852								X	X
Carex collinsii	Collins' Sedge	0.609								X	X
Carex crawei	Crawe's Sedge	0.522								X	X
Carex davisii	Davis' Sedge	0.790								X	X
Carex debilis var. debilis	White-edge Sedge	0.688								X	
Carex formosa	Handsome Sedge	0.698								X	X
Carex haydenii	Cloud Sedge	0.846								X	X
Carex jamesii	James' Sedge	0.821								X	X
Carex livida	Livid Sedge	0.628								X	X
Carex mesochorea	Midland Sedge	0.545								X	X
Carex mitchelliana	Mitchell's Sedge	0.852								X	X
Carex nigromarginata	Black-edge Sedge	0.592								X	X
Carex sartwellii	Sartwell's Sedge	0.943								X	X
Carex scirpoidea ssp. scirpoidea	Canadian Single-spike Sedge	0.858								X	X

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			Model stacks including this species							
Scientific name	Common name	TSS	Animals	Verts	Bat hib.	Birds	Inverts	Aerial insects	Plants	State listed
Carex straminea	Straw Sedge	0.636							X	X
Carex tenuiflora	Sparse-flowered Sedge	0.729							X	X
Carex typhina	Cat-tail Sedge	0.635							X	X
Carya laciniosa	Big Shellbark Hickory	0.921							X	X
Castilleja coccinea	Scarlet Indian-paintbrush	0.769							X	X
Ceanothus herbaceus	Prairie Redroot	0.700							X	X
Cenchrus tribuloides	Dune Sandspur	0.722							X	X
Chamaecyparis thyoides	Atlantic White Cedar	0.911							X	
Chamaelirium luteum	Fairy Wand	0.826							X	X
Chenopodium berlandieri var. macrocalycium	Large Calyx Goosefoot	0.774							X	X
Chenopodium rubrum	Red Pigweed	0.992							X	X
Corydalis aurea	Golden Corydalis	0.864							X	X
Crocianthemum dumosum	Bushy Rockrose	0.757							X	X
Cuscuta obtusiflora var. glandulosa	Southern Dodder	0.600							X	X
Cyperus flavescens	Yellow Flatsedge	0.712							X	X
Cyperus polystachyos var. texensis	Coast Flatsedge	0.686							X	X
Cypripedium arietinum	Ram's-head Ladyslipper	0.780							X	X
Diapensia lapponica var. lapponica	Diapensia	0.923							X	X
Digitaria filiformis	Slender Crabgrass	0.801							X	X
Diospyros virginiana	Persimmon	0.792							X	X
Diphasiastrum complanatum	Northern Running-pine	0.559							X	X
Draba arabisans	Rock-cress	0.803							X	X
Draba reptans	Carolina Whitlow-grass	0.709							X	X
Dryopteris fragrans	Fragrant Cliff Fern	0.826							X	X
Eleocharis equisetoides	Knotted Spikerush	0.760							X	X
Eleocharis tenuis var.	Slender Spikerush	0.959							X	X

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					Bat hib.	Birds	Inverts	Aerial insects				
pseudoptera												
Eleocharis tricosata	Three-ribbed Spikerush	0.833									X	X
Eleocharis tuberculosa	Long-tubercled Spikerush	0.602									X	X
Eleocharis uniglumis var. halophila	Salt-marsh Spikerush	0.792									X	X
Empetrum atropurpureum	Purple Crowberry	0.919									X	X
Empetrum nigrum	Black Crowberry	0.888									X	
Endodeca serpentaria	Virginia Snakeroot	0.913									X	X
Equisetum palustre	Marsh Horsetail	0.701									X	X
Equisetum pratense	Meadow Horsetail	0.809									X	X
Eupatorium torreyanum	Fringed Boneset	0.951									X	X
Eurybia spectabilis	Showy Aster	0.861									X	X
Fimbristylis castanea	Marsh Fimbry	0.856									X	X
Frasera caroliniensis	Green Gentian	0.968									X	X
Gaylussacia bigeloviana	Northern Dwarf Huckleberry	0.889									X	X
Gentianopsis virgata	Lesser Fringed Gentian	0.839									X	X
Geocaulon lividum	False Toadflax	0.990									X	X
Geum triflorum var. triflorum	Prairie-smoke	0.967									X	X
Halenia deflexa	Spurred Gentian	0.720									X	X
Hasteola suaveolens	Sweet-scented Indian-plantain	0.870									X	X
Helianthus angustifolius	Swamp Sunflower	0.889									X	X
Hottonia inflata	Featherfoil	0.833									X	X
Hydrangea arborescens	Wild Hydrangea	0.742									X	X
Hydrastis canadensis	Golden-seal	0.643									X	X
Hypericum adpressum	Creeping St. John's-wort	0.750									X	X
Hypericum hypericoides ssp. multicaule	St. Andrew's Cross	0.908									X	X
Hypericum prolificum	Shrubby St. John's-wort	0.796									X	X
Iris prismatica	Slender Blue Flag	0.863									X	X

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Scientific name	Common name	TSS	Model stacks including this species							Plants	State listed
			Animals	Verts	Bat hib.	Birds	Inverts	Aerial insects			
Jeffersonia diphylla	Twin-leaf	0.802								X	X
Juncus debilis	Weak Rush	0.846								X	X
Juncus scirpoides	Scirpus-like Rush	0.625								X	X
Juncus trifidus	Arctic Rush	0.890								X	X
Lechea tenuifolia	Slender Pinweed	0.706								X	X
Leptochloa fusca ssp. fascicularis	Salt-meadow Grass	0.994								X	X
Lespedeza angustifolia	Narrow-leaved Bush-clover	0.574								X	
Lespedeza stuevei	Velvety Bush-clover	0.930								X	X
Liatris scariosa var. novae- angliae	Northern Blazing-star	0.841								X	X
Ligusticum scothicum ssp. scothicum	Scotch Lovage	0.606								X	X
Lilaeopsis chinensis	Eastern Grasswort	0.778								X	X
Lilium michiganense	Michigan Lily	0.500								X	X
Linum intercursum	Sandplain Wild Flax	0.750								X	X
Linum sulcatum	Yellow Wild Flax	0.889								X	X
Liparis liliifolia	Large Twayblade	0.575								X	X
Lipocarpha micrantha	Dwarf Bulrush	0.633								X	X
Listera australis	Southern Twayblade	0.718								X	X
Ludwigia sphaerocarpa	Globe-fruited Ludwigia	0.853								X	X
Lycopus rubellus	Gypsy-wort	0.875								X	X
Lysimachia hybrida	Lance-leaved Loosestrife	0.942								X	X
Magnolia virginiana	Sweetbay Magnolia	0.649								X	X
Myriophyllum alterniflorum	Water Milfoil	0.846								X	X
Myriophyllum farwellii	Farwell's Water-milfoil	0.748								X	X
Myriophyllum pinnatum	Green Parrot's-feather	0.500								X	X
Oldenlandia uniflora	Clustered Bluets	0.667								X	X
Oligoneuron ohioense	Ohio Goldenrod	0.711								X	X

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					Bat hib.	Birds	Inverts	Aerial insects			
Oligoneuron rigidum var. rigidum	Stiff-leaf Goldenrod	0.735								X	X
Orontium aquaticum	Golden Club	0.758								X	X
Paspalum laeve	Field Beadgrass	0.791								X	X
Pedicularis lanceolata	Swamp Lousewort	0.824								X	X
Pellaea glabella ssp. glabella	Smooth Cliff Brake	0.922								X	X
Persicaria careyi	Carey's Smartweed	0.533								X	X
Persicaria setacea	Swamp Smartweed	0.610								X	X
Pinguicula vulgaris	Butterwort	0.886								X	X
Pinus virginiana	Virginia Pine	0.519								X	X
Piptatherum canadense	Canada Ricegrass	0.914								X	X
Plantago maritima var. juncoides	Seaside Plantain	0.843								X	X
Platanthera cristata	Crested Fringed Orchis	0.722								X	X
Poa paludigena	Slender Marsh Bluegrass	0.793								X	X
Podostemum ceratophyllum	Riverweed	0.732								X	X
Polygonum aviculare ssp. buxiforme	Small's Knotweed	0.615								X	X
Polygonum douglasii	Douglas' Knotweed	0.692								X	X
Polygonum glaucum	Seabeach Knotweed	0.973								X	
Populus heterophylla	Swamp Cottonwood	0.872								X	X
Potamogeton alpinus	Northern Pondweed	0.987								X	X
Potamogeton hillii	Hill's Pondweed	0.689								X	X
Potamogeton pulcher	Spotted Pondweed	0.631								X	X
Potamogeton strictifolius	Straight-leaf Pondweed	0.909								X	X
Prenanthes boottii	Boott's Rattlesnake-root	0.811								X	X
Primula mistassinica	Bird's-eye Primrose	0.916								X	X
Proserpinaca pectinata	Comb-leaved Mermaid-weed	0.806								X	X
Prunus pumila var. depressa	Dwarf Sand-cherry	0.919								X	X

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					Bat hib.	Birds	Inverts	Aerial insects			
Prunus pumila var. pumila	Low Sand-cherry	0.758								X	X
Ptelea trifoliata ssp. trifoliata	Wafer-ash	0.711								X	X
Pterospora andromedea	Giant Pine-drops	0.868								X	X
Pycnanthemum verticillatum var. verticillatum	Whorled Mountain-mint	0.556								X	X
Pyrola asarifolia ssp. asarifolia	Pink Wintergreen	0.812								X	X
Quercus phellos	Willow Oak	0.667								X	X
Rhododendron canadense	Rhodora	0.733								X	X
Rhododendron lapponicum	Lapland Rosebay	0.880								X	X
Rhynchospora inundata	Drowned Beakrush	0.625								X	X
Rhynchospora nitens	Short-beaked Beakrush	0.729								X	X
Rorippa aquatica	Lake-cress	0.740								X	X
Rotala ramosior	Tooth-cup	0.760								X	X
Rumex fueginus	Golden Dock	0.714								X	X
Sabatia angularis	Rose-pink	0.667								X	X
Sabatia stellaris	Sea-pink	0.900								X	X
Sagittaria montevidensis var. spongiosa	Spongy Arrowhead	0.968								X	X
Salicornia bigelovii	Dwarf Glasswort	0.969								X	X
Salix cordata	Sand Dune Willow	0.921								X	X
Salix uva-ursi	Bearberry Willow	0.810								X	X
Saxifraga aizoides	Yellow Mountain-saxifrage	0.810								X	X
Schoenoplectus heterochaetus	Slender Bulrush	0.931								X	X
Scirpus georgianus	Georgia Bulrush	0.556								X	X
Scleria triglomerata	Whip Nutrush	0.594								X	X
Scutellaria integrifolia	Hyssop-skullcap	0.897								X	X
Sericocarpus linifolius	Flax-leaf Whitetop	0.894								X	X
Sisyrinchium mucronatum	Michaux's Blue-eyed-grass	0.749								X	X
Solidago latissimifolia	Coastal Goldenrod	0.933								X	X

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					Bat hib.	Birds	Inverts	Aerial insects			
Solidago leiocarpa	Alpine Goldenrod	0.835								X	X
Solidago simplex var. monticola	Rand's Mountain Goldenrod	0.724								X	X
Sporobolus heterolepis	Northern Dropseed	0.862								X	X
Stellaria longipes	Longstalk Starwort	0.896								X	X
Suaeda linearis	Narrow-leaf Sea-blite	0.920								X	X
Suaeda rolandii	Roland's Sea-blite	0.733								X	X
Symphyotrichum boreale	Northern Bog Aster	0.848								X	X
Symphyotrichum subulatum var. subulatum	Saltmarsh Aster	0.887								X	X
Thalictrum venulosum var. confine	Veiny Meadow-rue	0.800								X	X
Trichophorum cespitosum ssp. cespitosum	Deer's Hair Sedge	0.743								X	X
Triglochin palustre	Marsh Arrow-grass	0.780								X	X
Triphora trianthophora	Nodding Pogonia	0.521								X	X
Tripsacum dactyloides	Northern Gamma Grass	0.884								X	X
Utricularia juncea	Rush Bladderwort	0.801								X	X
Utricularia radiata	Small Floating Bladderwort	0.548								X	X
Utricularia striata	Fibrous Bladderwort	0.771								X	X
Vaccinium boreale	High-mountain Blueberry	0.872								X	X
Valeriana uliginosa	Marsh Valerian	0.950								X	X
Viburnum dentatum var. venosum	Southern Arrowwood	0.846								X	X
Viburnum edule	Squashberry	0.688								X	X
Viburnum nudum var. nudum	Possum-haw	0.750								X	X
Viola nephrophylla	Northern Bog Violet	0.500								X	X
Viola primulifolia	Primrose-leaf Violet	0.737								X	X
Woodsia alpina	Alpine Cliff Fern	0.500								X	X
Xyris smalliana	Large Yellow-eyed-grass	0.944								X	

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Species not passing validation

Scientific name	Common name	TSS
<u>Animals</u>		
<i>Myotis leibii</i>	Eastern Small-footed Myotis summer	0.244
<i>Dendroica caerulescens</i>	Black-throated Blue Warbler	0.418
<i>Hylocichla mustelina</i>	Wood Thrush	0.279
<i>Oxyura jamaicensis</i>	Ruddy Duck	0.486
<i>Piranga olivacea</i>	Scarlet Tanager	0.493
<i>Vermivora peregrina</i>	Tennessee Warbler	0.021
<i>Chytonix ruperi</i>	A Noctuid Moth	0.333
<i>Euchlaena madusaria</i>	A Geometrid Moth	0.469
<i>Notropis buccatus</i>	Silverjaw Minnow	0.389
<i>Progomphus obscurus</i>	Common Sanddragon	0.377
<u>Nonvascular plants</u>		
<i>Cyrto-hypnum pygmaeum</i>	Pygmy Cedar Moss	0.222
<i>Meesia triquetra</i>	Three-leaved Thread Moss	0.267
<i>Myurella julacea</i>	Small Mousetail Moss	-0.167
<i>Platydictya jungermannioides</i>	False Willow Moss	0.333
<i>Sematophyllum demissum</i>	Hanging Long Beak Moss	0.056
<i>Sphagnum andersonianum</i>	Anderson's Peat Moss	0.333
<u>Vascular plants</u>		
<i>Ageratina aromatica</i> var. <i>aromatica</i>	Small White Snakeroot	0.446
<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	Northern Reedgrass	0.294
<i>Carex buxbaumii</i>	Brown Bog Sedge	0.432
<i>Carex frankii</i>	Frank's Sedge	0.381
<i>Carex houghtoniana</i>	Houghton's Sedge	0.386
<i>Carex lupuliformis</i>	False Hop Sedge	0.475
<i>Cuscuta cephalanthi</i>	Button-bush Dodder	0.250
<i>Desmodium obtusum</i>	Stiff Tick-trefoil	0.068
<i>Eleocharis ovata</i>	Blunt Spikerush	0.375
<i>Eleocharis quadrangulata</i>	Angled Spikerush	0.300
<i>Epilobium hornemannii</i> ssp. <i>hornemannii</i>	Alpine Willow-herb	0.333
<i>Eupatorium pubescens</i>	Serrate Round-leaf Boneset	0.476
<i>Geum virginianum</i>	Rough Avens	0.072
<i>Gymnocladus dioicus</i>	Kentucky Coffee Tree	0.026
<i>Juncus subcaudatus</i>	Woodland Rush	0.487
<i>Lactuca hirsuta</i>	Downy Lettuce	0.000
<i>Linum medium</i> var. <i>texanum</i>	Southern Yellow Flax	0.256

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<i>Lygodium palmatum</i>	Climbing Fern	0.070
<i>Monarda clinopodia</i>	Basil-balm	0.444
<i>Oenothera oakesiana</i>	Oakes' Evening-primrose	0.489
<i>Phlox maculata</i> ssp. <i>maculata</i>	Wild Sweet-william	0.464
<i>Platanthera hookeri</i>	Hooker's Orchid	0.456
<i>Potamogeton diversifolius</i>	Water-thread Pondweed	0.361
<i>Potentilla paradoxa</i>	Bushy Cinquefoil	0.400
<i>Scleria pauciflora</i> var. <i>caroliniana</i>	Few-flowered Nutrush	0.333
<i>Silene caroliniana</i> ssp. <i>pennsylvanica</i>	Wild Pink	0.448
<i>Sparganium natans</i>	Small Bur-reed	0.333
<i>Stachys hyssopifolia</i>	Rough Hedge-nettle	0.478

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