

## Bulavinetz, Richard

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**From:** Bulavinetz, Richard  
**Sent:** Thursday, August 19, 2010 8:36 AM  
**To:** Eccleston, Charles  
**Subject:** FW: Cumulative Template - Cooper  
**Attachments:** Table 2-9 T&E spp -terr&FW.docx

FYI:

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**From:** Dillard, Steve [<mailto:STEVE.DILLARD@aecom.com>]  
**Sent:** Wednesday, August 18, 2010 8:06 PM  
**To:** Bulavinetz, Richard  
**Subject:** RE: Cumulative Template - Cooper

Thanks Rich. I've attached the revised T&E table. Still working on the text sections. I was out of the office traveling Mon and Tues, so I'm not as far along as I wanted to be.

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**From:** Bulavinetz, Richard [<mailto:Richard.Bulavinetz@nrc.gov>]  
**Sent:** Wednesday, August 18, 2010 2:06 PM  
**To:** Dillard, Steve  
**Subject:** Cumulative Template - Cooper

- Sorry I could not get this to you sooner.  
Since each plant will have specific issues unique to the plant/region, take a look at the slightly bigger picture for cumulative at Salem (don't forget to look at t-line corridors):

Not too far from metro areas  
Previous marsh impacts in region – harvesting for bedding; filled/drained for agri(?)  
Major development/industry in vicinity of Delaware Memorial Bridge  
→Water impacts – possibly less impact to terrestrial down by Salem  
Marsh restoration projects – improvements, to name a few.

How are updates going?\

Thanks,

Rich

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Table 2-9. Threatened and Endangered Terrestrial and Freshwater Aquatic Species Recorded in Salem County and Counties Crossed by Transmission Lines

Scientific Name <sup>(a)</sup>	Common Name	Status		County <sup>(d)</sup>	Habitat <sup>(e)</sup>
		Federal <sup>(b)</sup>	State <sup>(b),(c)</sup>		
<b>Birds</b>					
<i>Accipiter cooperii</i>	Cooper's hawk	-	T/T	Gloucester, Salem	Deciduous, coniferous, and mixed riparian or wetland forests; specifically remote red maple or black gum swamps. <sup>(1)</sup>
<i>Ammodramus henslowii</i>	Henslow's sparrow	-	E	Gloucester	Open fallow fields with high, thick herbaceous vegetation (not woody) with a few scattered shrubs; and grassy fields between salt marsh and uplands along the Delaware Bay coast. <sup>(1)</sup>
<i>A. savannarum</i>	grasshopper sparrow	-	T/S	Salem	Grasslands, pastures, agricultural lands, and other habitats with short- to medium-height grasses scattered with patches of bare ground. <sup>(1)</sup>
<i>Bartramia longicauda</i>	upland sandpiper	-	E	Gloucester, Salem	Open meadows and fallow fields often associated with pastures, airports or farms with a mixture of tall and short grasses. <sup>(1)</sup>
<i>Buteo lineatus</i>	red-shouldered hawk	-	E/T	Gloucester	Deciduous, riparian, or mixed woodlands in remote, old growth forests; and hardwood swamps with standing water, or vast contiguous, freshwater wetlands. <sup>(1)</sup>
<i>Circus cyaneus</i>	northern harrier	-	E/U	Salem	Freshwater, brackish, and saline tidal marshes; emergent wetlands; fallow fields; grasslands; meadows; airports; and agricultural areas. <sup>(1)</sup>

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<i>Cistothorus platensis</i>	sedge wren	-	E	Salem	Wet meadows, freshwater marshes, bogs, and drier portions of salt or brackish coastal marshes. <sup>(1)</sup>
<i>Dolichonyx oryzivorus</i>	bobolink	-	T/T	Salem	Hayfields, pastures, grassy meadows, and other low-intensity agricultural areas; may occur in coastal and freshwater marshes during migration. <sup>(1)</sup>
<i>Falco peregrinus</i>	peregrine falcon	-	E	Camden, Gloucester, Salem	Nest on buildings, bridges, man-made structures and forage in open area near water. <sup>(1)</sup>
<i>Haliaeetus leucocephalus</i>	bald eagle	-	E	Gloucester, Salem	Large, perch trees in forested areas associated with water and tidal areas. <sup>(1)</sup>
<i>Melanerpes erythrocephalus</i>	red-headed woodpecker	-	T/T	Camden, Gloucester, Salem	Upland and wetland open woods that contain dead or dying trees, and sparse undergrowth. <sup>(1)</sup>
<i>Pandion haliaetus</i>	osprey	-	T/T	Gloucester, Salem	Dead trees or platforms near coastal/inland rivers, marshes, bays, inlets, and other areas associated with bodies of water that support adequate fish populations. <sup>(1)</sup>
<i>Passerculus sandwichensis</i>	savannah sparrow	-	T/T	Salem	Open habitats such as alfalfa fields, grasslands, meadows, fallow fields, airports, along the coast, and within salt marsh edges as well. <sup>(1)</sup>
<i>Podilymbus podiceps</i>	pied-billed grebe	-	E/S	Salem	Freshwater marshes associated

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					with bogs, lakes, or slow-moving rivers. <sup>(1)</sup>
<i>Pooecetes gramineus</i>	vesper sparrow	-	E	Gloucester, Salem	Pastures, grasslands, cultivated fields containing crops, and other open areas. <sup>(1)</sup>
<i>Strix varia</i>	barred owl	-	T/T	Gloucester, Salem	Remote, contiguous, old growth wetland forests, including deciduous wetland forests; and Atlantic white cedar swamps associated with stream corridors. <sup>(1)</sup>
<b>Reptiles and Amphibians</b>					
<i>Ambystoma tigrinum</i>	eastern tiger salamander	-	E	Gloucester, Salem	Uplands and wetlands containing breeding ponds, forests, and burrowing-appropriate soil types such as old fields, and deciduous or mixed woods. <sup>(1)</sup>
<i>Clemmys muhlenbergii</i>	bog turtle	T	E DE: E	Camden, Gloucester, Salem New Castle	Open, wet, grassy pastures or bogs with soft, muddy bottoms. <sup>(1)</sup>
<i>Crotalus horridus horridus</i>	timber rattlesnake	-	E	Camden	Deciduous upland forests or pinelands habitats, often near cedar swamps and along streambanks. <sup>(1)</sup>
<i>Hyla andersoni</i>	pine barrens treefrog	-	E	Camden, Gloucester, Salem	Specialized acidic habitats such as Atlantic white cedar swamps and pitch pine lowlands with open canopies, dense shrub layers, and heavy ground cover. <sup>(1)</sup>
<i>Pituophis melanoleucus</i>	northern pine snake	-	T	Camden, Gloucester,	Dry pine-oak forest types growing

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				Salem	on infertile sandy soils. <sup>(1)</sup>
<b>Invertebrates</b>					
<i>Callophrys irus</i>	frosted elfin	-	T	Camden	Dry clearings and open areas, savannas, power-line ROWs, roadsides. <sup>(1)</sup>
<i>Lampsilis cariosa</i>	yellow lampmussel	-	T	Gloucester	Medium to large rivers, lakes and ponds; substrate types - sand, silt, cobble, and gravel; larval hosts - white perch and yellow perch. <sup>(22)</sup>
<i>Leptodea ochracea</i>	tidewater mucket	-	T	Camden, Gloucester	Freshwater water with tidal influence on the lower coastal plain, pristine rivers. <sup>(32)</sup>
<i>Ligumia nasuta</i>	eastern pond mussel	-	T	Camden, Gloucester	Lakes, ponds, streams and rivers of variable depths with muddy, sandy, or gravelly substrates. <sup>(32)</sup>
<i>Lycaena hyllus</i>	bronze copper		E	Salem	Brackish and freshwater marshes, bogs, fens, seepages, wet sedge meadows, riparian zones, wet grasslands, and drainage ditches. <sup>(1)</sup>
<i>Pontia protodice</i>	checkered white	-	T	Camden	Open areas, savannas, old fields, vacant lots, power-line ROWs, forest edges. <sup>(1)</sup>
<b>Plants</b>					
<i>Aeschynomene virginica</i>	sensitive joint vetch	T	E	Camden, Gloucester, Salem	Fresh to slightly salty (brackish) tidal marshes. <sup>(2)</sup>
<i>Aplectrum hyemale</i>	putty root	-	E	Gloucester	Moist, deciduous upland to swampy forests. <sup>(3)</sup>
<i>Aristida lanosa</i>	wooly three-awn grass	-	E	Camden, Salem	Dry fields, uplands, pink-oak woods, primarily in sandy soil. <sup>(4)</sup>

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<i>Asimina triloba</i>	pawpaw	-	E	Gloucester	Shady, open-woods areas in wet, fertile bottomlands, or upland areas on rich soils. <sup>(5)</sup>
<i>Aster radula</i>	low rough aster	-	E	Camden, Gloucester, Salem	Wet meadows, open boggy woods, and along the edges; or openings in wet spruce or tamarack forests. <sup>(6)</sup>
<i>Bouteloua curtipendula</i>	side oats grama grass	-	E	Gloucester	Rocky, open slopes, woodlands, and forest openings up to an elevation of approximately 7000 ft. <sup>(5)</sup>
<i>Cacalia atriplicifolia</i>	pale Indian plantain	-	E	Camden, Gloucester	Dry, open woods, thickets, and rocky openings. <sup>(6)</sup>
<i>Calystegia spithamea</i>	erect bindweed	-	E	Camden, Salem	Dry, open, sandy to rocky sites such as pitch pine/scrub oak barrens, sandy roadsides, riverbanks, and ROWs. <sup>(7)</sup>
<i>Carex aquatilis</i>	water sedge	-	E	Camden	Swamps, bogs, marshes, very wet soil, ponds, lakes, marshy meadows, and other wetland-type sites. <sup>(9)</sup>
<i>C. bushii</i>	Bush's sedge	-	E	Camden	Dry to mesic grasslands, and forest margins. <sup>(3)</sup>
<i>C. limosa</i>	mud sedge	-	E	Gloucester	Fens, sphagnum bogs, wet meadows, and shorelines. <sup>(3)</sup>
<i>C. polymorpha</i>	variable sedge	-	E	Gloucester	Dry, sandy, open areas of scrub, forests, swampy woods, and along banks and marsh edge. <sup>(8)</sup>
<i>Castanea pumila</i>	chinquapin	-	E	Gloucester, Salem	High ridges and slopes within

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					mixed hardwood forests, dry pinelands, and ROWs. <sup>(5)</sup>
<i>Cercis canadensis</i>	redbud	-	E	Camden	Rich, moist wooded areas in the forest understory, streambanks, and abandoned farmlands. <sup>(5)</sup>
<i>Chenopodium rubrum</i>	red goosefoot	-	E	Camden	Moist, often salty soils along the Atlantic coast. <sup>(10)</sup>
<i>Cyperus lancastricensis</i>	Lancaster flat sedge	-	E	Camden, Gloucester	Riverbanks, floodplains, and other disturbed, sunny or partly sunny places in mesic, or dry-mesic soils. <sup>(3)</sup>
<i>C. polystachyos</i>	coast flat sedge	-	E	Salem	Along shores, in ditches, and swales between dunes. <sup>(3)</sup>
<i>C. pseudovegetus</i>	marsh flat sedge	-	E	Salem	Open mesic forests, stream edges, swamps, moist sandy areas, and bottomland prairies. <sup>(11)</sup>
<i>Diodia virginiana</i>	larger buttonweed	-	E	Camden	Wet meadows in wet soils, and pond margins. <sup>(11)</sup>
<i>Eleocharis melanocarpa</i>	black-fruit spike-rush	-	E	Salem	Fresh, oligotrophic, often drying, sandy shores, ponds, and ditches. <sup>(3)</sup>
<i>E. equisetoides</i>	knotted spike-rush	-	E	Gloucester	Fresh lakes, ponds, marshes, streams, and cypress swamps. <sup>(3)</sup>
<i>E. tortilis</i>	twisted spike-rush	-	E	Gloucester	Bogs, ditches, seeps, and other freshwater, acidic places. <sup>(3)</sup>
<i>Eriophorum tenellum</i>	rough cotton-grass	-	E	Camden, Gloucester	Bogs and other wet, peaty substrates. <sup>(3)</sup>
<i>Eupatorium capillifolium</i>	dog fennel	-	E	Camden	Coastal meadows, fallow fields,

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	thoroughwort				flatwoods, marshes, and disturbed sites. <sup>(15)</sup>
<i>E. resinsum</i>	pine barren boneset	-	E	Camden, Gloucester	Tidal marshes, wetlands, open swamps, wet ditches, sandy acidic soils of grass-sedge bogs, pocosin-savannah ecotones, beaver ponds, and shrub swamps. <sup>(17)</sup>
<i>Euphorbia purpurea</i>	Darlington's glade spurge	-	E	Salem	Rich, cool woods along seeps, streams, or swamps. <sup>(17)</sup>
<i>Glyceria grandis</i>	American manna grass	-	E	Camden	Grassy areas. <sup>(6)</sup>
<i>Hemicarpha micrantha</i>	small-flower halfchaff sedge	-	E	Camden	Emergent shorelines, but rarely freshwater tidal shores. <sup>(3)</sup>
<i>Hottonia inflata</i>	featherfoil	-	E	Salem	Quiet, shallow water of pools, streams, ditches, and occasionally in wet soil. <sup>(20)</sup>
<i>Hydrastis canadensis</i>	golden seal	-	E	Camden	Mesic, deciduous forests, often on clayey soil. <sup>(3)</sup>
<i>Hydrocotyle ranunculooides</i>	floating marsh-pennywort	-	E	Salem	Ponds, marshes, and wet ground. <sup>(19)</sup>
<i>Hypericum adpressum</i>	Barton's St. John's-wort	-	E	Salem	Pond shore. <sup>(7)</sup>
<i>Isotria meleoloides</i>	small-whorled pogonia	T	-	-	Mixed deciduous forests in second- or third-growth successional stages, coniferous forests; typically light to moderate leaf litter, open herb layer, moderate to light shrub layer, and relatively open canopy; flats or slope bases near canopy breaks. <sup>(3)</sup>

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<i>Juncus caesariensis</i>	New Jersey rush	-	E	Camden	Borders of wet woods, wet springy bogs, and swamps. <sup>(3)</sup>
<i>J. torreyi</i>	Torrey's rush	-	E	Camden	Edge of sloughs, wet sandy shores; along slightly alkaline watercourses; swamps; sometimes on clay soils, alkaline soils, and calcareous wet meadows. <sup>(3)</sup>
<i>Kuhnia eupatorioides</i>	false boneset	-	E	Camden	Limestone edges of bluffs, rocky wooded slopes, and rocky limestone talus. <sup>(11)</sup>
<i>Lemna perpusilla</i>	minute duckweed	-	E	Camden, Salem	Mesotrophic to eutrophic, quiet waters with relatively mild winters. <sup>(3)</sup>
<i>Limosella subulata</i>	awl-leaf mudwort	-	E	Camden	Freshwater marshes. <sup>(18)</sup>
<i>Linum intercursum</i>	sandplain flax	-	E	Camden, Salem	Open, dry, sandplain grasslands or moors; sand barrens; mown fields; and swaths under powerlines, usually in small colonies. <sup>(23)</sup>
<i>Luzula acuminata</i>	hairy wood-rush	-	E	Gloucester, Salem	Grassy areas. <sup>(6)</sup>
<i>Melanthium virginicum</i>	Virginia bunchflower	-	E	Camden, Gloucester, Salem	Fens, bottomland prairies; mesic upland forests; mesic upland prairies; along streams, roadsides, and railroads. <sup>(11)</sup>
<i>Muhlenbergia capillaries</i>	long-awn smoke grass	-	E	Gloucester	Sandy, pine openings; dry praires; and exposed ledges. <sup>(6)</sup>
<i>Myriophyllum tenellum</i>	slender water-milfoil	-	E	Camden	Sandy soil, water to 5 ft deep. <sup>(13)</sup>
<i>M. pinnatum</i>	cut-leaf water-milfoil	-	E	Salem	Floodplain marsh; associated with <i>Asclepias perrenis</i> , <i>Salix caroliniana</i> , and <i>Ludwigia repens</i> . <sup>(16)</sup>
<i>Nelumbo lutea</i>	American lotus	-	E	Camden, Salem	Mostly floodplains of major rivers in ponds, lakes, pools in swamps

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					and marshes, and backwaters of reservoirs. <sup>(3)</sup>
<i>Onosmodium virginianum</i>	Virginia false-gromwell	-	E	Camden, Gloucester, Salem	Sandy soil, and dry open woods. <sup>(10)</sup>
<i>Ophioglossum vulgatum pycnostichum</i>	southern adder's tongue	-	E	Salem	Rich wooded slopes, shaded secondary woods, forested bottomlands, and floodplain woods, south of Wisconsin glaciations. <sup>(3)</sup>
<i>Penstemon laevigatus</i>	smooth beardtongue	-	E	Gloucester	Rich woods and fields. <sup>(6)</sup>
<i>Platanthera flava flava</i>	southern rein orchid	-	E	Camden	Floodplain forests; white cedar, hardwood, and cypress swamps; riparian thickets; and wet meadows. <sup>(3)</sup>
<i>Polemonium reptans</i>	Greek-valerian	-	E	Salem	Moist, stream banks; and deciduous woods. <sup>(6)</sup>
<i>Prunus angustifolia</i>	chickasaw plum	-	E	Camden, Gloucester, Salem	Woodland edges, forest openings, open woodlands, savannahs, prairies, plains, meadows, pastures, roadsides, and fence rows. <sup>(6)</sup>
<i>Pycnanthemum clinopodioides</i>	basil mountain mint	-	E	Camden	Dry south or west facing slopes on rocky soils; open oak-hickory forests, woodlands, or savannas with exposed bedrock. <sup>(11)</sup>
<i>P. torrei</i>	Torrey's mountain mint	-	E	Gloucester	Open, dry, including red cedar barrens, rocky summits, roadsides and trails, and dry upland woods. <sup>(8)</sup>
<i>Quercus imbricaria</i>	shingle oak	-	E	Gloucester	Rich bottomlands, and dry to moist uplands. <sup>(6)</sup>
<i>Q. lyrata</i>	overcup oak	-	E	Salem	Lowlands, bottoms, wet forests, streamside forests, and periodically inundated areas. <sup>(3)</sup>

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<i>Rhododendron atlanticum</i>	dwarf azalea	-	E	Salem	Moist, flat, pine woods, and savannas. <sup>(6)</sup>
<i>Rhynchospora globularis</i>	coarse grass-like beaked-rush	-	E	Camden, Gloucester, Salem	Sandy and rocky stream banks, sink-hole ponds, upland prairies, open rocky, and sandy areas. <sup>(11)</sup>
<i>R. knieskernii</i>	Knieskern's beaked-rush	T	E	Camden	Moist to wet pine barrens, borrow pits, and sand pits. <sup>(3)</sup>
<i>Sagittaria teres</i>	slender arrowhead	-	E	Camden	Swamps of acid waters and sandy pool shores, and mostly along Atlantic Coastal Plain. <sup>(3)</sup>
<i>Schwalbea americana</i>	chaffseed	E	E	Camden	Acidic, sandy or peaty soils in open flatwoods, streamhead pocosins, pitch pine lowland forests, longleaf pine/oak sandhills, seepage bogs, palustrine pine savannas, ecotonal areas between peaty wetlands, and xeric sandy soils. <sup>(17)</sup>
<i>Scirpus longii</i>	Long's woolgrass	-	E	Camden	Marshes. <sup>(3)</sup>
<i>Scutellaria leonardii</i>	small skullcap	-	E	Salem	Fields, meadows, and prairies. <sup>(6)</sup>
<i>Spiranthes laciniata</i>	lace-lip ladies' tresses	-	E	Gloucester	Primarily on coastal plain marshes, swamps, dry to damp roadsides, meadows, ditches, fields, cemeteries, lawns; and occasionally in standing water. <sup>(3)</sup>
<i>Triadenum walteri</i>	Walter's St. John's wort	-	E	Camden	Buttonbush swamps, swamp woods, thickets, and streambanks. <sup>(21)</sup>
<i>Utricularia biflora</i>	two-flower bladderwort	-	E	Gloucester, Salem	Shores and shallows. <sup>(13)</sup>
<i>Valerianella radiata</i>	beaked cornsalad	-	E	Gloucester	Pastures, prairies, valleys, creek beds, wet meadows, roadsides, glades, and railroads. <sup>(11)</sup>

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<i>Verbena simplex</i>	narrow-leaf vervain	-	E	Camden, Gloucester	Fields, meadows, and prairies. <sup>(6)</sup>
<i>Vernonia glauca</i>	broad-leaf ironweed	-	E	Gloucester, Salem	Dry fields, clearings, and upland forests. <sup>(21)</sup>
<i>Vulpia ellioatea</i>	squirrel-tail six-weeks grass	-	E	Camden, Gloucester, Salem	Grass-like, or grassy habitats. <sup>(6)</sup>
<i>Wolffiella floridana</i>	sword bogmat	-	E	Salem	Quiet waters in warm-temperature regions with relatively mild winters, and mesotrophic. <sup>(3)</sup>
<i>Xyris fimbriata</i>	fringed yellow-eyed grass	-	E	Camden	Low pine savanna, bogs, seeps, peats and mucks of pond shallows, and sluggish shallow streams. <sup>(3)</sup>

<sup>(a)</sup> Species with a State listing status of E, T, or SC are not included in this table if they have a State Element Rank of S3 (rare), S4 (apparently secure), or SH (occurred historically, but no extant occurrences known).

<sup>(b)</sup> E = Endangered; T = Threatened; C = Candidate; - = Not Listed. Source of listing status: FWS 2009c, NJDEP 2008c, and DNREC 2009.

<sup>(c)</sup> State status shown is for the counties shown. All are for New Jersey except where a Delaware status (DE:) is shown for New Castle County.

New Jersey: State status for birds separated by a slash (/) indicates a dual status. First status refers to the breeding population in the state, and the second status refers to the migratory or winter population in the state. S = Stable species (a species whose population is not undergoing any long-term increase/decrease within its natural cycle); U = Undetermined (a species about which there is not enough information available to determine the status). SC = Species Concern (a species showing evidence of decline, may become threatened) (NJDEP 2008c).

Delaware: Delaware does not maintain T&E species lists by county. Upon request, Delaware provided PSEG the locations of species of greatest conservation need that occur within 0.5 mi (0.8 km) of the transmission corridor in New Castle County (DNREC 2009). State Rank S1- extremely rare in the state (typically 5 or fewer occurrences); S2- very rare within the state (6 to 20 occurrences); S3-rare to uncommon in Delaware; B - Breeding; N - Nonbreeding (DNREC 2009).

<sup>(d)</sup> Camden, Gloucester, and Salem Counties are in New Jersey; New Castle County is in Delaware. Source of county occurrence data: FWS 2009c, NJDEP 2008b, and DNREC 2009.

<sup>(e)</sup> Habitat Information Sources:

<sup>1</sup> NJDEP 2004b

<sup>2</sup> FWS 2008a.

<sup>3</sup> eFloras.org. 2003.

<sup>4</sup> Utah State University 2010.

<sup>5</sup> USDA 2006.

<sup>6</sup> University of Texas at Austin 2010.

<sup>7</sup> New England Wild Flower Society 2003.

<sup>8</sup> NYNHP 2010.

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<sup>9</sup> USDA 2010.					
<sup>10</sup> neartica.com 2010.					
<sup>11</sup> Missouriplants.com 2010.					
<sup>12</sup> Michigan Natural Features Inventory 2010.					
<sup>13</sup> University of Wisconsin 2010.					
<sup>14</sup> Missouri Botanical Gardens 2010.					
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<sup>20</sup> Pennsylvania Natural Heritage Program 2007.					
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<sup>22</sup> Georgia Department of Natural Resources 2008.					
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<sup>25</sup> South Carolina Department of Natural Resources 2010.					
<sup>26</sup> Hilty 2010.					
<sup>27</sup> Wemert 1998.					