According to the ONLM, if these sites become degraded or destroyed, we may lose some of the unique components of our natural heritage.

Within Holland Township, there are three Natural Heritage Priority Sites (see Figure 7g). Table 7.8 provides descriptions of the sites. One is ranked B3 (high significance and two are ranked **B4** (moderate significance<sup>5</sup>).

These Natural Heritage Priority Sites are considered some of the best and most viable occurrences of endangered and threatened species and natural communities, but they do not cover all known habitats for endangered and threatened species in Holland Township. Information on whether or not endangered or threatened species have been documented on a specific piece of land can be obtained by requesting a search of the Natural Heritage Database from the Office of Natural Lands Management. In addition, some areas have never been surveyed, but may also contain endangered or threatened species.

Table 7.8: Natural Heritage Priority Sites Descriptions

Site Name: Javes Road Site Site Code: S.USNJHP1 \* 295

Location: Holland Township, Hunterdon County Description: Wet meadow along small stream.

Boundary Justification: Includes wetlands habitat for state listed endangered plant.

Biodiversity Rank: Biodiversity Significance B4 (moderate significance) Comments: An excellent occurrence of a state listed endangered plant.

Site Name: Milford Bluffs Site Code: S.USNJHP1 \* 368

Location: Holland Township, Hunterdon County

Description: Steep shale cliffs along the edge of the Delaware River with deciduous woodlands and low level residential housing.

Boundary Justification: Primary boundary follows edge of shale cliff community. Secondary boundary

includes large plateau on tip of bluffs to protect hydrologic integrity of site.

Biodiversity Rank: Biodiversity Significance B3 (high significance)

Comments: This is the best natural red shale cliff community in NJ. Many state rare and endangered plant

species can be found on the dry cliff face and adjacent rich ravines.

Site Name: Vinces Ravine Site Code: S.USNJHP1 \* 565

Location: Holland Twp, Bethlehem Twp, Bloomsbury Boro & Pohatcong Twp.; Hunterdon & Warren Counties

**Description:** A hemlock and mixed deciduous woodland on the steep slope of a ravine.

Boundary Justification: Bounds drawn to include the extent of known habitat for rare plant species.

**Biodiversity Rank:** Biodiversity Significance B4 (moderate significance) Comments: The site contains a State-listed endangered plant species.

Source: NJDEP ONLM, October 18, 2005

The ONLM has also developed the Natural Heritage Grid Map (see Figure 7g), which provides a general representation of the locations of rare plant species and natural communities as of February 2004, including both historically and recently documented habitat. The purpose of the Grid Map is to document rare plant species and natural community habitats to inform decision-makers who need to address the conservation of natural resources. The species or

<sup>&</sup>lt;sup>3</sup>Biodiversity Significance Ranks are as follows: **B1** – Outstanding significance; **B2** – Very high significance; **B3** – High significance; **B4** – Moderate significance; **B5** – Of general biodiversity interest or open space.

<sup>&</sup>lt;sup>4</sup> "High significance, such as any other viable occurrence of an element that is globally imperiled, a good occurrence of a globally rare element, an excellent occurrence of any natural community, or a concentration (4+) of good or excellent occurrences of elements that are critically imperiled in the State." (NJDEP ONLM, November 2002) <sup>5</sup> "Moderate significance, such as a viable occurrence of a globally rare element, a good occurrence of any natural community, a good or excellent occurrence or only viable state occurrence of an element that is critically imperiled in the State, an excellent occurrence of an element that is imperiled in the State, or a concentration (4+) of good occurrences of elements that are imperiled in the State or excellent occurrences of elements that are rare in the State." (NJDEP ONLM, November 2002)

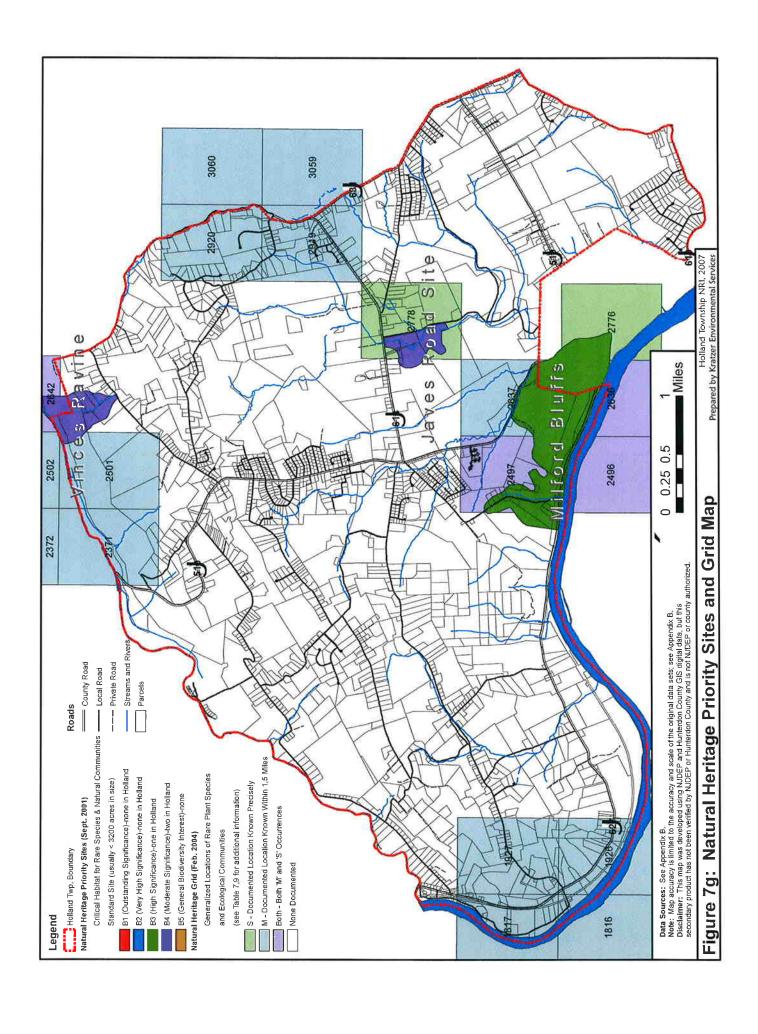
Table 7.9: Natural Heritage – Species Found in Each Grid (grids are shown in Figure 7g)

Area	Grid Id.#	Precision	Class	Species Name	Species Common Name	SRANK **	Habitat
unnamed area – Western	1816	М	Vascular plant	ERAGROSTIS FRANKII	FRANK'S LOVE GRASS	S2	PALUSTRINE
	1817	М	Vascular plant	ERAGROSTIS FRANKII	FRANK'S LOVE GRASS	S2	PALUSTRINE
	1926	М	Vascular plant	ERAGROSTIS FRANKII	FRANK'S LOVE GRASS	S2	PALUSTRINE
	1927	М	Vascular plant	ERAGROSTIS FRANKII	FRANK'S LOVE GRASS	S2	PALUSTRINE
	2371	M	Vascular plant	DOELLINGERIA INFIRMA	CORNEL-LEAF ASTER	S2	TERRESTRIAL
Vinces Ravine Area	2372	М	Vascular plant	DOELLINGERIA INFIRMA	CORNEL-LEAF ASTER	S2	TERRESTRIAL
	2501	М	Vascular plant	DOELLINGERIA INFIRMA	CORNEL-LEAF ASTER	S2	TERRESTRIAL
	2502	M	Vascular plant	DOELLINGERIA INFIRMA	CORNEL-LEAF ASTER	S2	TERRESTRIAL
		M	Vascular plant	CALYSTEGIA SPITHAMAEA	ERECT BINDWEED	S1	TERRESTRIAL
	2642	Both	Vascular plant	CALYSTEGIA SPITHAMAEA	ERECT BINDWEED	S1	TERRESTRIAL
	2642	Both	Vascular plant	VIOLA CANADENSIS	CANADIAN VIOLET	S1	TERRESTRIAL
Javes Road Area	2778	S	Vascular plant	CAREX BUSHII	BUSH'S SEDGE	S1	PALUSTRINE; TERRESTRIAL
	2778	S	Vascular plant	CAREX PALLESCENS	PALE SEDGE	S2	PALUSTRINE; TERRESTRIAL
E.	2919	М	Vascular plant	AGASTACHE NEPETOIDES	YELLOW GIANT-HYSSOP	S2	TERRESTRIAL
unnamed area - Eastern	2920	М	Vascular plant	AGASTACHE NEPETOIDES	YELLOW GIANT-HYSSOP	S2	TERRESTRIAL
unna :a - I	3059	M	Vascular plant	AGASTACHE NEPETOIDES	YELLOW GIANT-HYSSOP	S2	TERRESTRIAL
are	3060	M	Vascular plant	AGASTACHE NEPETOIDES	YELLOW GIANT-HYSSOP	S2	TERRESTRIAL
	2496	Both	Ecological Community	SHALE CLIFF/ROCK OUTCROP COMMUNITY		S2?	NO DATA AVAILABLE
		Both	Vascular plant	KUHNIA EUPATORIOIDES	FALSE BONESET	S1	TERRESTRIAL
		Both	Vascular plant	PYCNANTHEMUM CLINOPODIOIDES	BASIL MOUNTAIN-MINT	S1	TERRESTRIAL
		Both	Vascular plant	AGRIMONIA MICROCARPA	SMALL-FRUIT GROOVEBURR	S2	TERRESTRIAL
		Both	Vascular plant	HYBANTHUS CONCOLOR	GREEN VIOLET	S1	TERRESTRIAL
		Both	Vascular plant	CHEILANTHES LANOSA	HAIRY LIPFERN	S2	TERRESTRIAL
Milford Bluffs area	2497	Both	Ecological Community	SHALE CLIFF/ROCK OUTCROP COMMUNITY		S2?	NO DATA AVAILABLE
		Both	Vascular plant	KUHNIA EUPATORIOIDES	FALSE BONESET	S1	TERRESTRIAL
		Both	Vascular plant	PYCNANTHEMUM CLINOPODIOIDES	BASIL MOUNTAIN-MINT	S1	TERRESTRIAL
		Both	Vascular plant	HYBANTHUS CONCOLOR	GREEN VIOLET	S1	TERRESTRIAL
		Both Both	Vascular plant Ecological	CHEILANTHES LANOSA SHALE CLIFF/ROCK OUTCRO	HAIRY LIPFERN	S2 S2?	TERRESTRIAL NO DATA
			Community				AVAILABLE
		Both		KUHNIA EUPATORIOIDES PYCNANTHEMUM	FALSE BONESET	S1	TERRESTRIAL
		Both	Vascular plant	CLINOPODIOIDES	BASIL MOUNTAIN-MINT	S1	TERRESTRIAL
		Both	Vascular plant	AGRIMONIA MICROCARPA	SMALL-FRUIT GROOVEBURR	S2	TERRESTRIAL
		Both	Vascular plant	HYBANTHUS CONCOLOR	GREEN VIOLET	S1	TERRESTRIAL
		Both	Vascular plant	CHEILANTHES LANOSA	HAIRY LIPFERN	S2	TERRESTRIAL
	2637	M	Vascular plant	KUHNIA EUPATORIOIDES	FALSE BONESET	S1	TERRESTRIAL
		М	Vascular plant	PYCNANTHEMUM CLINOPODIOIDES	BASIL MOUNTAIN-MINT	S1	TERRESTRIAL
	2776	S	Ecological Community	SHALE CLIFF/ROCK OUTCRO	S2?	NO DATA AVAILABLE	

<sup>\*</sup> Precision: S=documented location known precisely; M=documented location known within 1.5 miles; Both=both "M" and "S" Occurrences.

Source: NJDEP GIS data.

<sup>\*\*</sup> SRank = State Rank. For definitions, refer to Table 7.5.



communities of concern are listed in **Table 7.9**. The map identifies potentially sensitive areas, and indicates where custom database searches are needed for land use decision-making. The Grid Map does not include habitat for animal species, and not all areas have been surveyed.

# F. Exotic Species

Exotic species (also called alien or introduced species) are a threat to natural areas. Exotic species are those that have been introduced by people to an area intentionally (e.g. as sources of food, for landscaping purposes or the release of unwanted pets) or unintentionally (e.g. in the ballast of a ship or in a load of lumber); thus, they are not part of the original natural community.

Some exotic species cannot compete against native species, and never cause problems. However, some species adapt well to their new environment and proliferate. They compete with native species for space, nutrients and light, which can result in the local elimination of native species. The new environment may harbor no natural population controls, such as insects to eat

**Table 7.10: Invasive Exotic Plants** 

Scientific Name	Common Name	Problems Caused		
Acer platanoides	Norway maple	Dispersed seeds easily sprout in shade, crowding out native plants. Canopy produces deep shade and roots produce a toxic substance preventing growth of wildflowers and other trees under its canopy.		
Ailanthus altissima	Tree of Heaven	Aggressive in disturbed areas, crowding out native plants.		
Alliaria petiolata	Garlic Mustard	Aggressive in shady habitats, crowding out native plants.		
Celastrus orbiculatus	Oriental bittersweet	The vine twines around surrounding plants, impeding sap flow. Also makes host plants too heavy, increasing wind damage.		
Cirsium arvense	Canada Thistle	Competes with crops and degrades pastures (inedible to livestock).		
Elaeagnus umbellate	Autumn Olive	Sprouts vigorously in disturbed areas, produces shade, preventing sprouting of native trees.		
Euonymus alatus	Burning Bush	Grows well in many sites, especially upland forests and pastures, crowding out native plants.		
Hedera helix	English Ivy	Grows vigorously in deep shade, inhibiting growth of native woodland plants. Vines up tree trunks, adding to weight, and increasing likelihood of wind damage.		
Ligustrum vulgare	Common privet	Crowds out more desirable native plants.		
Lonicera japonica Thunberg	Japanese honeysuckle	Spreads aggressively in disturbed habitats, crowding out native plants.		
Lythrum salicaria	Purple loosestrife	Spreads aggressively in wetlands, eliminating open water habitats and crowding out native plants. Contributes to the loss of wildlife which depend on native wetland plants.		
Microstegium vimenium	Japanese stilt grass	Spreads aggressively in disturbed, moist, shady areas, crowding out native plants.		
Miscanthus sinensis	Chinese silver grass	Spreads along roadsides and clearings, crowding out native plants.		
Polygonum cuspidatum	Japanese Knotweed	Spreads aggressively in disturbed, sunny areas, especially river banks and wetlands, crowding out native plants.		
Rosa multiflora	Multiflora rose	Spreads everywhere, except standing water, crowding out native plants and degrading pastures.		
Vinca minor	Periwinkle	Spreads in shady forests, crowding out native plants.		
Source: Courtney, 1997	(fact sheets)			

the invading plant and thereby control its population. Some of the most problematic invasive exotic species in Holland Township include multiflora rose and autumn olive (see **Table 7.10**). According to Robichaud and Anderson, "...as many as 25 percent of the plant species now present in New Jersey are exotic plants."

Native plants can be susceptible to exotic diseases, which they have not evolved resistance to. The chestnut blight fungus was an accidental introduction which destroyed all mature chestnut trees, once one of the dominant trees in the New Jersey landscape. Another introduced fungus, Dutch elm disease, destroyed the American elm.

In addition, native plants may have little resistance to certain introduced insects, and/or these insects may have no natural enemies in their new surroundings, allowing them to rapidly reach pest proportions. Several introduced insects, which are impacting the woodlands of Holland Township, include the hemlock wooly adelgid, asian longhorned beetle, gypsy moth, and pine looper. They weaken their host trees, which often succumb to successive years of infestation, to diseases carried by the insect pests, or other environmental stresses.

## References: Biological Resources

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### Wildlife

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NJDEP Division of Fish and Wildlife. 2004. 2003 Fish IBI Maps, Results and Data Sheets for sites 60 and 61. <a href="http://www.state.nj.us/dep/wmm/bfbm/download/ibi2003Vol2-60-61.pdf">http://www.state.nj.us/dep/wmm/bfbm/download/ibi2003Vol2-60-61.pdf</a>

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## **Endangered, Threatened and Special Concern Species**

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#### **Protecting Habitats**

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## Internet Resources: Biological Resources

### Today's Landscape

Forest Health (NJDEP Division of Parks and Forestry):

http://www.state.nj.us/dep/parksandforests/forest/njfs forest health.html

Native Plants: Bowman's Hill Wildflower Preserve: http://www.bhwp.org

Natural Heritage Program (NJDEP Division of Parks and Forestry) http://www.state.nj.us/dep/parksandforests/natural/heritage/index.html

#### Wildlife

Endangered and Nongame Species Program (NJDEP, Division of Fish and Wildlife)

Home Page: http://www.state.nj.us/dep/fgw/ensphome.htm

Checklists for birds, mammals, reptiles and amphibians of New Jersey, with status (e.g. common or rare): http://www.state.nj.us/dep/fgw/chklists.htm

Vernal Pools: http://www.njfishandwildlife.com/ensp/vernalpool.htm

Fish Index of Biotic Integrity (Bureau of Freshwater Fisheries): http://www.state.nj.us/dep/wmm/bfbm/fishlist2001.html

Fish and Wildlife (NJDEP, Division of Fish and Wildlife)

Home Page: <a href="http://www.njfishandwildlife.com/">http://www.njfishandwildlife.com/</a>

Bear Information: <a href="http://www.njfishandwildlife.com/bearinfo.htm">http://www.njfishandwildlife.com/bearinfo.htm</a>

Deer Information: <a href="http://www.njfishandwildlife.com/deer.htm">http://www.njfishandwildlife.com/deer.htm</a>

Fishing in NJ: http://www.state.nj.us/dep/fgw/fishing.htm

Fish Fact Sheets: http://www.state.nj.us/dep/fgw/fishfact.htm

Integrated Biological Aquatics Assessment http://www.state.nj.us/dep/fgw/ensp/ibaa03.htm

List of Fishes Collected During 2001 IBI Sampling: <a href="http://www.state.nj.us/dep/wmm/bfbm/fishlist2001.html">http://www.state.nj.us/dep/wmm/bfbm/fishlist2001.html</a>

Regulations (hunting, fishing, nongame): http://www.njfishandwildlife.com/njregs.htm

Shad Hotline: http://www.geocities.com/shadhotline/index.html or 610-954-0577 or 610-954-0578

### Impacts of White-tailed Deer

Deer resistant/tolerant Native Plants (Bowmans Hill Wildflower Preserve) <a href="http://www.bhwp.org/native/native">http://www.bhwp.org/native/native</a> plant info sheets/Deer Tolerant Resistant Native Plants.pdf

Impacts of deer on native plants (Bowmans Hill Wildflower Preserve) www.bhwp.org/native/impact of deer.htm

The Ecological Impact of White-tailed Deer (PA Audubon) http://pa.audubon.org/deer\_report.html

Impact of Deer on Biodiversity (Native Plant Society of New Jersey) http://www.npsnj.org/deer\_biodiversity.htm

Identification, Delineation and Faunal Surveys of Vernal Pools in New Jersey <a href="http://www.dbcrssa.rutgers.edu/ims/vernal/">http://www.dbcrssa.rutgers.edu/ims/vernal/</a>

### Endangered, Threatened and Special Concern Species

Endangered and Nongame Species Program (NJDEP, Division of Fish and Wildlife)

Home Page: http://www.state.nj.us/dep/fgw/ensphome.htm

Endangered & Threatened Wildlife of New Jersey List, and links to Natural History Profiles: <a href="http://www.state.nj.us/dep/fgw/tandespp.htm">http://www.state.nj.us/dep/fgw/tandespp.htm</a>

Special Concern - Species Status Listing: <a href="http://www.njfishandwildlife.com/spclspp.htm">http://www.njfishandwildlife.com/spclspp.htm</a>

Checklists for birds, mammals, reptiles and amphibians of New Jersey, with status (e.g. common or rare): <a href="http://www.state.nj.us/dep/fgw/chklists.htm">http://www.state.nj.us/dep/fgw/chklists.htm</a>

Species Reporting Form: <a href="http://www.njfishandwildlife.com/ensp/rprtform.htm">http://www.njfishandwildlife.com/ensp/rprtform.htm</a> also link to pdf form

Landscape Project Home Page (wildlife habitat mapping for community land-use planning and endangered species conservation): <a href="http://www.njfishandwildlife.com/ensp/landscape/">http://www.njfishandwildlife.com/ensp/landscape/</a>

Conserve Wildlife Newsletter: http://www.njfishandwildlife.com/ensp/cwnewslt.htm or 609-2929400.

Vernal Pools: <a href="http://www.njfishandwildlife.com/ensp/vernalpool.htm">http://www.njfishandwildlife.com/ensp/vernalpool.htm</a>
Fish Index of Biotic Integrity (Bureau of Freshwater Fisheries):
<a href="http://www.state.nj.us/dep/wmm/bfbm/fishlist2001.html">http://www.state.nj.us/dep/wmm/bfbm/fishlist2001.html</a>

Natural Heritage Program (NJDEP Division of Parks and Forestry)

Home Page: http://www.state.nj.us/dep/parksandforests/natural/heritage/index.html

Rare Species Lists, Reports & Forms:

http://www.nj.gov/dep/parksandforests/natural/heritage/rarelist.html

Species Reporting Forms:

http://www.nj.gov/dep/parksandforests/natural/heritage/repform.html

Mailing Address: DEP - Division of Parks and Forestry,

Office of Natural Lands Management, Natural Heritage Program, PO Box 404, Trenton,

NJ 08625-0404

## **Protecting Habitats**

Landscape Project (NJDEP, Division of Fish Wildlife): <a href="http://www.njfishandwildlife.com/ensp/landscape/">http://www.njfishandwildlife.com/ensp/landscape/</a>

NJDEP Office of Natural Lands Management (ONLM): http://www.state.nj.us/dep/parksandforests/natural/index.html

Natural Heritage Program (NJDEP Division of Parks and Forestry): http://www.state.nj.us/dep/parksandforests/natural/heritage/index.html

Backyard Habitats & Conservation

National Audubon Society: http://www.audubon.org/bird/at home/

New Jersey Audubon Society: http://www.njaudubon.org/Education/BackyardHabitat/

NJDEP Division of Fish and Wildlife (grants): http://www.njfishandwildlife.com/artwhip06.htm

NJDEP Division of Fish and Wildlife Landowner Incentive Program (LIP) Grants: <a href="http://www.njfishandwildlife.com/ensp/lip">http://www.njfishandwildlife.com/ensp/lip</a> prog.htm

NJDEP Outdoor Classroom links: http://www.state.nj.us/dep/seeds/syhart/outclass.htm

USDA Natural Resources Conservation Service: http://www.nrcs.usda.gov/feature/backyard/

## **Exotic Species**

Federal efforts concerning invasive species Home Page: http://www.invasivespecies.gov

Invasive Species - New Jersey: <a href="http://www.invasivespecies.gov/geog/state/nj.shtml">http://www.invasivespecies.gov/geog/state/nj.shtml</a>

Native Plant Society of New Jersey - Invasive Species: http://www.npsnj.org/invasive species 0103.htm

NJ Forest Service - Forest Health: http://www.state.nj.us/dep/parksandforests/forest/njfs forest health.html