

PRISM
 (New York Partnerships for Regional Invasive Species Management)
NON-NATIVE PLANT INVASIVENESS RANKING FORM

PRISM: Long Island Invasive Species Management Area

Scientific name:	Pueraria montana	USDA Plants Code: PUMO
Common names:	Kudzu	
Native Distribution	East Asia	
Date Assessed:	November 20, 2008	
PRISM Assessors:	Steve Glenn, Gerry Moore	
PRISM Reviewers:	LIISMA SRC	
Date Approved:	December 8, 2008	Form version date: 25 August 2008

New York Relative Maximum score: 84.44 Date NY assessment approved: December 8, 2008

New York State Invasive Rank: Very High

SUMMARY OF PRISM RANKING RESULTS:

Distribution: Widespread

Estimated number of infested sites: 20+

PRISM Invasiveness Rank: Very High



A. DISTRIBUTION AND ABUNDANCE (KNOWN/POTENTIAL):

1. What is the species distribution and abundance in the PRISM?

- | | |
|--|-------------|
| A. Not present | Not Present |
| B. Occurs in three or fewer natural areas (locations that are at least ¼ mile apart) with no infested area* >1 acre or containing >100 individuals | Restricted |
| C. Present in 4–10 natural areas, or with one occupied location >1 acre or containing >100 individuals | Common |
| D. Present in >10 minimally managed areas | Widespread |
| U. Unknown | Unknown |

Answer: Widespread

Describe distribution:
 Known from over 20 sites on Long Island and Staten Island since 1980.
 Sources of information:
 Brooklyn Botanic Garden, 2008.

*Definition of “infested area” is the “...actual or percentage of land occupied by [canopy cover of] weed plants” NAWMA (North American Weed Management Association) 2002. North American Invasive Plant Mapping Standards (see <http://www.nawma.org/>).

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2. What is the likelihood the species will occur (if not yet present) or expand its distribution and abundance (if already present) in the PRISM?

Answer:

Documentation (e.g.: history of establishment in PRISM, suitability of habitats and climate, distribution models, literature, expert opinions):

There has been uncertainty in the past regarding the northernmost suitable range for kudzu in the Northeast. Previously, the main theoretical limiting factor was winter temperatures- inhibition of flowering and the concomitant absence of viable seed, coupled with above-ground vegetative dieback (Frankel, 1989; Mitich, 2000).

Evidence now indicates that Pueraria is currently flowering and producing viable seed in the New York metropolitan area and Long Island. Herbarium vouchers at BKL demonstrate Pueraria flowering as far north as Rockland County (McGowan, s.n., 2006) and Fishers Island, NY (Tucker, 5773, 1990). Recent (2007-2008) germination tests of Pueraria seed collected on Long Island by Nature Conservancy staff found germination rates approaching 95% in some cases (Jordan, pers. comm.).

Two other factors could accelerate the spread of Pueraria in the Long Island PRISM- increased global warming and increased atmospheric CO₂. The years 1995-2006 rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850). The linear warming trend over the 50 years from 1956 to 2005 is nearly twice that for the 100 years from 1906 to 2005. CO₂ annual emissions have grown between 1970 and 2004 by about 80% (IPCC, 2007).

One study found enhancement of photosynthesis in kudzu by CO₂ enrichment which led to enhanced growth and biomass accumulation (Sasek & Strain, 1988).

Sources of information:

Sasek & Strain, 1988; Frankel, 1989; Mitich, 2000; IPCC, 2007; Brooklyn Botanic Garden, 2008.

B. INVASIVENESS RANK IN THE PRISM:

Is the species distribution Widespread or Common?

Yes: Go to column A in table below.

No: What is the likelihood of species occurrence or expansion? Answer:

- Very Likely: Use column A below
- Moderately likely: Use column B below
- Unlikely: Use column C below
- Zero likelihood Invasive potential Insignificant
- Unknown Invasive potential Unknown
- Not assessed Invasive potential not assessed

Assign a PRISM invasiveness rank to the species based on its New York Relative Maximum Score, using the designated column in the table below.

New York Relative Maximum Score	New York Invasiveness Rank	A	B	C
> 80.00	Very High	VH	H	M
70.00-80.00	High	H	M	L
50.00-69.99	Moderate	M	L	Ins
40.00-49.99	Low	L	Ins	Ins
<40.00	Insignificant	Ins	Ins	Ins

Column used: A (Insert PRISM Invasiveness Rank on page 1)

References for species assessment:

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Brooklyn Botanic Garden. 2008. AILANTHUS database. [Accessed on November 20, 2008].

Frankel, E. 1989. Distribution of *Pueraria lobata* in and around New York City. *Bulletin of the Torrey Botanical Club*. 116(4):390-394.

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate change 2007: Synthesis report*. <http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf>. [Accessed on November 20, 2008].

Mitich, L. W. 2000. Kudzu [*Pueraria lobata* (Willd.) Ohwi]. *Weed Technology*. 14(1):231-235.

Sasek, T. W. & B. R. Strain. 1988. Effects of carbon dioxide enrichment on the growth and morphology of kudzu (*Pueraria lobata*). *Weed Science*. 36(1):28-36 .

Citation: This ranking form for regions within NYS may be cited as: Jordan, M.J., G. Moore and T.W. Weldy. 2008. Invasiveness ranking system for non-native plants of New York. Unpublished. The Nature Conservancy, Cold Spring Harbor, NY; Brooklyn Botanic Garden, Brooklyn, NY; The Nature Conservancy, Albany, NY. Note that the order of authorship is alphabetical; all three authors contributed substantially to the development of this protocol.

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