

NEW YORK
NON-NATIVE PLANT INVASIVENESS RANKING FORM
FOR NATURAL / MINIMALLY MANAGED AREAS

Scientific name: Arundinaria gigantea (Walter) Muhl. (including ssp. gigantea and ssp. tecta (Walter) McClure [=A. tecta (Walter) Muhl.]) USDA Plants Code: ARUND2

Common names: Bamboo, canebreak, giant cane

Native distribution: Southeastern United States

Date assessed: February 21, 2010; revised Jan. 17, 2013 and Feb. 20, 2013

Assessors: Gerry Moore; revised by Marilyn Jordan and SRC

Reviewers: LIISMA SRC

Date Approved: March 10, 2010; 2013 Form version date: 28 November 2012

New York Invasiveness Rank: Not Assessable

Distribution and Invasiveness Rank (Obtain from PRISM invasiveness ranking form)		
Status of this species in each PRISM:	Current Distribution	PRISM Invasiveness Rank
1 Adirondack Park Invasive Program	Not Assessed	Not Assessed
2 Capital/Mohawk	Not Assessed	Not Assessed
3 Catskill Regional Invasive Species Partnership	Not Assessed	Not Assessed
4 Finger Lakes	Not Assessed	Not Assessed
5 Long Island Invasive Species Management Area	Not Present	Not Assessable
6 Lower Hudson	Not Assessed	Not Assessed
7 Saint Lawrence/Eastern Lake Ontario	Not Assessed	Not Assessed
8 Western New York	Not Assessed	Not Assessed

Invasiveness Ranking Summary (see details under appropriate sub-section)		Total (Total Answered*) Possible	Total
1	Ecological impact	40 (20)	14
2	Biological characteristic and dispersal ability	25 (22)	10
3	Ecological amplitude and distribution	25 (25)	16
4	Difficulty of control	10 (10)	6
	Outcome score	100 (77) ^b	46 ^a
	Relative maximum score † If assessable (escapes cultivation) would rank M		(59.74)
	New York Invasiveness Rank (for natural areas) [§]	Not Assessable	

* For questions answered “unknown” do not include point value in “Total Answered Points Possible.” If “Total Answered Points Possible” is less than 70.00 points, then the overall invasive rank should be listed as “Unknown.”

† Calculated as 100(a/b) to two decimal places.

§ Very High >80.00; High 70.00–80.00; Moderate 50.00–69.99; Low 40.00–49.99; Insignificant <40.00

Not Assessable: not persistent in NY, or not found outside of cultivation.

A. DISTRIBUTION (KNOWN/POTENTIAL): Summarized from individual PRISM forms

A1.1. Has this species been documented to persist without cultivation in NY? (reliable source; voucher not required)		
<input checked="" type="checkbox"/>	Yes – continue to A1.2	
<input type="checkbox"/>	No – continue to A2.1	
A1.2. In which PRISMs is it known (see inset map)?		
<input type="checkbox"/>	Adirondack Park Invasive Program	
<input type="checkbox"/>	Capital/Mohawk	
<input type="checkbox"/>	Catskill Regional Invasive Species Partnership	
<input type="checkbox"/>	Finger Lakes	
<input type="checkbox"/>	Long Island Invasive Species Management Area	
<input type="checkbox"/>	Lower Hudson	
<input type="checkbox"/>	Saint Lawrence/Eastern Lake Ontario	
<input type="checkbox"/>	Western New York	

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Documentation: A note in the NY Flora Atlas (Weldy & Werier 2010) reports *A. gigantea* ssp. *tecta* as "spreading from cultivation in at least two localities." This quote comes from Mitchell and Tucker 2003 according to D. Werier (2013). In the BBG herbarium there are two specimens, from Orange and Kings Co. The specimen from Orange Co. was collected in 1995 by G. Tucker in Bear Mountain State Park. He said it appears to be an escape as it was collected along the Palisades Interstate Parkway. Tucker considers his i.d. of *A. gigantea* tentative so confirmation is needed. A rhizome he planted in his Illinois garden has never flowered even though growing vigorously and needing containment.

D. Werier has seen the Bear Mtn population "... along the very last stretch of the Palisades Parkway just before reaching the traffic circle near the Bear Mt. Bridge" [but only while driving past]. He said "It grows in an open area adjacent to the parkway. From what I can tell there is no indication that it was planted at this site. The population forms a nice small thicket. How it got to this site is an interesting question." Werier also referred to "... a reference (in a grey literature report) to a population in Sterling Forest which may be the second [Orange County] location (Werier 2013). U.S.D.A.(2010) reports *A. gigantea* from Orange Co. but the status of this populations and its relationship to the populations cited by Weldy & Werier are not known.

The second specimen at BBG is from Prospect Park in Brooklyn from 1996. However identification as *Arunaria* is not clear as it is a single leaf. Also it is not clear if the material is an escape or was in cultivation. *A. gigantea* subsp. *tecta* has also been reported from New Jersey in Cape May County. This population is now generally considered to be non-native (Moore 2010).

Given the uncertainty about correct species identification and lack of proof that known occurrences are escapes from cultivation we cannot consider *A. gigantea* as established in NYS.

Sources of information:

Clark & Triplett, 2007; Brooklyn Botanic Garden (Moore) 2010; Weldy & Werier, 2010; U.S.D.A., 2010; D. Werier 2013 (pers. comm).

A2.1. What is the likelihood that this species will occur and persist outside of cultivation, given the climate in the following PRISMs? (obtain from PRISM invasiveness ranking form)

Not Assessed	Adirondack Park Invasive Program
Not Assessed	Capital/Mohawk
Not Assessed	Catskill Regional Invasive Species Partnership
Not Assessed	Finger Lakes
Unlikely	Long Island Invasive Species Management Area
Not Assessed	Lower Hudson
Not Assessed	Saint Lawrence/Eastern Lake Ontario
Not Assessed	Western New York

Documentation: Since the species is unlikely to produce viable seeds and escape cultivation by sexual or vegetative propagules its rank was changed from Moderate to Not Assessable when this assessment was revised in 2013. See Question 2.1 for more information on flowering and seed production. NYS point score is retained to indicate invasive potential should the species escape cultivation in the future.

Sources of information (e.g.: distribution models, literature, expert opinions):

tapleton, 2007; Gagnon and Platt 2008; Brooklyn Botanic Garden (Moore) 2010 (pers. obs.).

If the species does not occur and is not likely to occur in any of the PRISMs, then stop here as there is no need to assess the species. Rank is "Not Assessable."

A2.2. What is the current distribution of the species in each PRISM? (obtain rank from PRISM invasiveness ranking forms)

	Distribution
Adirondack Park Invasive Program	Not Assessed
Capital/Mohawk	Not Assessed
Catskill Regional Invasive Species Partnership	Not Assessed
Finger Lakes	Not Assessed
Long Island Invasive Species Management Area	Not Present

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Lower Hudson	Not Assessed
Saint Lawrence/Eastern Lake Ontario	Not Assessed
Western New York	Not Assessed

Documentation: See above.

Sources of information:
 Brooklyn Botanic Garden, 2010.

A2.3. Describe the potential or known suitable habitats within New York. Natural habitats include all habitats not under active human management. Managed habitats are indicated with an asterisk.

- | Aquatic Habitats | Wetland Habitats | Upland Habitats |
|---|--|---|
| <input type="checkbox"/> Salt/brackish waters | <input type="checkbox"/> Salt/brackish marshes | <input checked="" type="checkbox"/> Cultivated* |
| <input type="checkbox"/> Freshwater tidal | <input checked="" type="checkbox"/> Freshwater marshes | <input checked="" type="checkbox"/> Grasslands/old fields |
| <input type="checkbox"/> Rivers/streams | <input type="checkbox"/> Peatlands | <input type="checkbox"/> Shrublands |
| <input type="checkbox"/> Natural lakes and ponds | <input type="checkbox"/> Shrub swamps | <input checked="" type="checkbox"/> Forests/woodlands |
| <input type="checkbox"/> Vernal pools | <input checked="" type="checkbox"/> Forested wetlands/riparian | <input type="checkbox"/> Alpine |
| <input type="checkbox"/> Reservoirs/impoundments* | <input checked="" type="checkbox"/> Ditches* | <input checked="" type="checkbox"/> Roadsides* |
| | <input type="checkbox"/> Beaches and/or coastal dunes | |

Other potential or known suitable habitats within New York:

Documentation:

Sources of information:
 Clark & Triplett, 2007; Brooklyn Botanic Garden, 2010.

B. INVASIVENESS RANKING

Questions apply to areas similar in climate and habitats to New York unless specified otherwise.

1. ECOLOGICAL IMPACT

1.1. Impact on Natural Ecosystem Processes and System-Wide Parameters (e.g. fire regime, geomorphological changes (erosion, sedimentation rates), hydrologic regime, nutrient and mineral dynamics, light availability, salinity, pH)

- | | | |
|----|---|----|
| A. | No perceivable impact on ecosystem processes based on research studies OR there are no reports of impacts and the species is widespread (>10 occurrences in minimally managed areas), has been well-studied (>10 reports/publications), and has been present in the northeast for >100 years | 0 |
| B. | Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild influence on soil nutrient availability) | 3 |
| C. | Significant alteration of ecosystem processes (e.g., increases sedimentation rates along streams or coastlines, reduces open water that are important to waterfowl) | 7 |
| D. | Major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., the species alters geomorphology and/or hydrology, affects fire frequency, alters soil pH, or fixes substantial levels of nitrogen in the soil making soil unlikely to support certain native plants or more likely to favor non-native species) | 10 |
| U. | Unknown | |

Score U

Documentation:

Identify ecosystem processes impacted (or if applicable, justify choosing answer A in the absence of impact information)

Impacts to natural ecosystem processes and system-wide parameters not known where species has escaped into natural habitats.

Sources of information:

Author's (Moore) pers. comm.

1.2. Impact on Natural Community Structure

- | | | |
|----|---|---|
| A. | No perceived impact; establishes in an existing layer without influencing its structure | 0 |
|----|---|---|

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- B. Influences structure in one layer (e.g., changes the density of one layer) 3
- C. Significant impact in at least one layer (e.g., creation of a new layer or elimination of an existing layer) 7
- D. Major alteration of structure (e.g., covers canopy, eradicating most or all layers below) 10
- U. Unknown

Score 7

Documentation:

Identify type of impact or alteration:

Can form solid dense patches with little to nothing growing below it, but does not always completely eradicate all layers below.

Sources of information:

Author's (Moore) pers. obs.

1.3. Impact on Natural Community Composition

- A. No perceived impact; causes no apparent change in native populations 0
- B. Influences community composition (e.g., reduces the number of individuals in one or more native species in the community) 3
- C. Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the community) 7
- D. Causes major alteration in community composition (e.g., results in the extirpation of one or several native species, reducing biodiversity or change the community composition towards species exotic to the natural community) 10
- U. Unknown

Score 7

Documentation:

Identify type of impact or alteration:

Observed to form a monoculture, significantly reducing the number of native species growing in the community, but not know to result in extirpation.

Sources of information:

Author's (Moore) pers. obs.

1.4. Impact on other species or species groups (cumulative impact of this species on the animals, fungi, microbes, and other organisms in the community it invades. Examples include reduction in nesting/foraging sites; reduction in habitat connectivity; injurious components such as spines, thorns, burrs, toxins; suppresses soil/sediment microflora; interferes with native pollinators and/or pollination of a native species; hybridizes with a native species; hosts a non-native disease which impacts a native species)

- A. Negligible perceived impact 0
- B. Minor impact 3
- C. Moderate impact 7
- D. Severe impact on other species or species groups 10
- U. Unknown

Score U

Documentation:

Identify type of impact or alteration:

Impacts on other species or species groups not known for areas where it species is not native.

Sources of information:

Author's (Moore) pers. comm.

Total Possible 20
 Section One Total 14

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2. BIOLOGICAL CHARACTERISTICS AND DISPERSAL ABILITY

2.1. Mode and rate of reproduction

- A. No reproduction by seeds or vegetative propagules (i.e. plant sterile with no sexual or asexual reproduction). Such a species should be ranked “Not Assessable” as it will occur only in cultivated settings and cannot escape into natural/minimally managed areas. End the assessment here. 0
- B. Limited reproduction (fewer than 10 viable seeds per plant; if seed viability is not known, then maximum seed production is less than 100 seeds per plant) AND no reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species. 1
- C. Moderate reproduction (fewer than 100 viable seeds per plant; if viability is not known, then maximum seed production is less than 1000 seeds per plant) – OR limited reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species. For aquatic species viable plant fragments may be treated as vegetative propagules. 2
- D. Significant reproduction by seeds (more than 100 viable seeds per plant; if viability is not known, then maximum seed production reported to be greater than 1000 seeds per plant) –OR abundant reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species. For aquatic species viable plant fragments may be treated as vegetative propagules. 4
- U. Unknown

Score 0

Documentation:
Describe key reproductive characteristics (including seeds per plant):
Large stands of Arundinaria often have flowering material and sometimes flowers are abundant. Production of viable seed is not known from the non-native stands in NY and NJ. Synchronous mass flowering events in southern states usually produce abundant viable seed with resultant seedling establishment in suitable habitats. Outcrossing with other genets appears necessary for viable seed production. Isolated patches produce few seeds. As climate wams and if Arundinaria becomes more widely planted perhaps viable seeds may be produced resulting in true escapes from cultivation. At the present time there is no conclusive evidence that this is happening. Arundinaria can spread vegetatively well beyond the original plantings but there are no specialized vegetative propagules. Wider dispersal might occasionally occur when pieces of the rhizome or stem are transported to new locations but this probably would be rare. Therefore A. gigantea scores 0 points for this question and must be ranked “Not Assessable.”
Sources of information:
Stapleton, 2007; Gagnon and Platt 2008; Brooklyn Botanic Garden (Moore) 2010 (pers. obs.)

2.2. Innate potential for long-distance dispersal (e.g. bird dispersal, sticks to animal hair, buoyant fruits, pappus for wind-dispersal)

- A. Does not occur (no long-distance dispersal mechanisms) 0
- B. Infrequent or inefficient long-distance dispersal (occurs occasionally despite lack of adaptations) 1
- C. Moderate opportunities for long-distance dispersal (adaptations exist for long-distance dispersal, but studies report that 95% of seeds land within 100 meters of the parent plant) 2
- D. Numerous opportunities for long-distance dispersal (adaptations exist for long-distance dispersal and evidence that many seeds disperse greater than 100 meters from the parent plant) 4
- U. Unknown

Score 1

Documentation:
Identify dispersal mechanisms:
Seed production infrequent and without obvious adaptations for long distance dispersal. Long distance dispersal can rarely occur when pieces of the rhizomes or stems are moved by natural processes.
Sources of information:
Stapleton, 2007.

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2.3. Potential to be spread by human activities (both directly and indirectly – possible mechanisms include: commercial sales, use as forage/revegetation, spread along highways, transport on boats, contaminated compost, land and vegetation management equipment such as mowers and excavators, etc.)

- A. Does not occur 0
- B. Low (human dispersal to new areas occurs almost exclusively by direct means and is infrequent or inefficient) 1
- C. Moderate (human dispersal to new areas occurs by direct and indirect means to a moderate extent) 2
- D. High (opportunities for human dispersal to new areas by direct and indirect means are numerous, frequent, and successful) 3
- U. Unknown

Score 1

Documentation:

Identify dispersal mechanisms:

Arundinarias are not commonly grown. Could be spread by direct means when it is grown or when soils with viable rhizomes or stems present are moved.

Sources of information:

Stapleton, 2007; author's (Moore) pers. comm.

2.4. Characteristics that increase competitive advantage, such as shade tolerance, ability to grow on infertile soils, perennial habit, fast growth, nitrogen fixation, allelopathy, etc.

- A. Possesses no characteristics that increase competitive advantage 0
- B. Possesses one characteristic that increases competitive advantage 3
- C. Possesses two or more characteristics that increase competitive advantage 6
- U. Unknown

Score 6

Documentation:

Evidence of competitive ability:

Perennial, some shade tolerance, ability to grow on nutrient poor soils; fast growth.

Sources of information:

Clark & Triplett, 2007; author's (Moore) pers. obs.

2.5. Growth vigor

- A. Does not form thickets or have a climbing or smothering growth habit 0
- B. Has climbing or smothering growth habit, forms a dense layer above shorter vegetation, forms dense thickets, or forms a dense floating mat in aquatic systems where it smothers other vegetation or organisms 2
- U. Unknown

Score 2

Documentation:

Describe growth form:

Forms a dense layer above shorter vegetation.

Sources of information:

Author's (Moore) pers. obs.

2.6. Germination/Regeneration

- A. Requires open soil or water and disturbance for seed germination, or regeneration from vegetative propagules. 0
- B. Can germinate/regenerate in vegetated areas but in a narrow range or in special conditions 2
- C. Can germinate/regenerate in existing vegetation in a wide range of conditions 3
- U. Unknown (No studies have been completed)

Score U

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Describe germination requirements:
 Seed production infrequent. Regeneration requirements of rhizomes or stems not known for wild material.
 Sources of information:
 Author's (Moore) pers. comm.

2.7. Other species in the genus invasive in New York or elsewhere

- A. No 0
- B. Yes 3
- U. Unknown

Score 0

Documentation:
 The genus is being treated and it is not tracked as invasive. Brooklyn Botanic Garden, 2010; Weldy & Werier, 2010; U.S.D.A. NRCS, 2010.

Total Possible 22
 Section Two Total 10

3. ECOLOGICAL AMPLITUDE AND DISTRIBUTION

3.1. Density of stands in natural areas in the northeastern USA and eastern Canada (use same definition as Gleason & Cronquist: "The part of the United States covered extends from the Atlantic Ocean west to the western boundaries of Minnesota, Iowa, northern Missouri, and southern Illinois, south to the southern boundaries of Virginia, Kentucky, and Illinois, and south to the Missouri River in Missouri. In Canada the area covered includes Nova Scotia, Prince Edward Island, New Brunswick, and parts of Quebec and Ontario south of the 47th parallel of latitude")

- A. No large stands (no areas greater than 1/4 acre or 1000 square meters) 0
- B. Large dense stands present in areas with numerous invasive species already present or disturbed landscapes 2
- C. Large dense stands present in areas with few other invasive species present (i.e. ability to invade relatively pristine natural areas) 4
- U. Unknown

Score 4

Documentation:
 Identify reason for selection, or evidence of weedy history:
 The one stand reported from Orange Co. is stated as "forming a dense patch 10 m. across." The stand in New Jersey is over a quarter an acre with few other invasive species present.
 Sources of information:
 Brooklyn Botanic Garden, 2010; Author's (Moore) pers. obs.

3.2. Number of habitats the species may invade

- A. Not known to invade any natural habitats given at A2.3 0
- B. Known to occur in one natural habitat given at A2.3 1
- C. Known to occur in two natural habitats given at A2.3 2
- D. Known to occur in three natural habitat given at A2.3 4
- E. Known to occur in four or more natural habitats given at A2.3 6
- U. Unknown

Score 6

Documentation:
 Identify type of habitats where it occurs and degree/type of impacts:
 See A2.3.
 Sources of information:
 Clark & Triplett, 2007; Brooklyn Botanic Garden, 2010.

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3.3. Role of disturbance in establishment

- A. Requires anthropogenic disturbances to establish. 0
- B. May occasionally establish in undisturbed areas but can readily establish in areas with natural or anthropogenic disturbances. 2
- C. Can establish independent of any known natural or anthropogenic disturbances. 4
- U. Unknown

Score 2

Documentation:

Identify type of disturbance:

In non-native stands, it generally becomes established in areas with disturbance. Not known to require anthropogenic disturbance.

Sources of information:

Brooklyn Botanic Garden, 2010; author's (Moore) pers. obs.

3.4. Climate in native range

- A. Native range does not include climates similar to New York 0
- B. Native range possibly includes climates similar to at least part of New York. 1
- C. Native range includes climates similar to those in New York 3
- U. Unknown

Score 1

Documentation:

Describe what part of the native range is similar in climate to New York:

Arundinaria gigantea ssp. *gigantea* occurs as far north as southern Illinois, southern Indiana, southern Ohio, and southern West Virginia. *A. gigantea* subsp. *tecta* occurs natively as far north as Maryland, with non-native stands reported in New Jersey and New York.

Sources of information:

Clark & Triplett, 2007; U.S.D.A., 2010

3.5. Current introduced distribution in the northeastern USA and eastern Canada (see question 3.1 for definition of geographic scope)

- A. Not known from the northeastern US and adjacent Canada 0
- B. Present as a non-native in one northeastern USA state and/or eastern Canadian province. 1
- C. Present as a non-native in 2 or 3 northeastern USA states and/or eastern Canadian provinces. 2
- D. Present as a non-native in 4–8 northeastern USA states and/or eastern Canadian provinces, and/or categorized as a problem weed (e.g., “Noxious” or “Invasive”) in 1 northeastern state or eastern Canadian province. 3
- E. Present as a non-native in >8 northeastern USA states and/or eastern Canadian provinces. and/or categorized as a problem weed (e.g., “Noxious” or “Invasive”) in 2 northeastern states or eastern Canadian provinces. 4
- U. Unknown

Score 2

Documentation:

Identify states and provinces invaded:

NJ, NY (native in other states in the Northeast).

Sources of information: See known introduced range in plants.usda.gov, and update with information from states and Canadian provinces.

U.S.D.A. NRCS, 2010.

3.6. Current introduced distribution of the species in natural areas in the eight New York State PRISMs (Partnerships for Regional Invasive Species Management)

- A. Present in none of the PRISMs 0
- B. Present in 1 PRISM 1

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- C. Present in 2 PRISMs 2
- D. Present in 3 PRISMs 3
- E. Present in more than 3 PRISMs or on the Federal noxious weed lists 4
- U. Unknown

Score 1

Documentation:
 Describe distribution:
 See A1.1.
 Sources of information:
 Brooklyn Botanic Garden, 2010; Weldy & Werier, 2010; U.S.D.A., 2010.

Total Possible 25
 Section Three Total 16

4. DIFFICULTY OF CONTROL

4.1. Seed banks

- A. Seeds (or vegetative propagules) remain viable in soil for less than 1 year, or does not make viable seeds or persistent propagules. 0
- B. Seeds (or vegetative propagules) remain viable in soil for at least 1 to 10 years 2
- C. Seeds (or vegetative propagules) remain viable in soil for more than 10 years 3
- U. Unknown

Score 0

Documentation:
 Identify longevity of seed bank:
 Doubtful that rhizomes or stems remain viable for more than a year. Seed production not known for non-native populations and infrequent in native populations; thus, length of viability not relevant.
 Sources of information:
 Author's (Moore) pers. comm.

4.2. Vegetative regeneration

- A. No regrowth following removal of aboveground growth 0
- B. Regrowth from ground-level meristems 1
- C. Regrowth from extensive underground system 2
- D. Any plant part is a viable propagule 3
- U. Unknown

Score 2

Documentation:
 Describe vegetative response:
 Extensive underground root system.
 Sources of information: Clark & Triplett, 2007; author's (Moore) pers. obs.

4.3. Level of effort required

- A. Management is not required: e.g., species does not persist without repeated anthropogenic disturbance. 0
- B. Management is relatively easy and inexpensive: e.g. 10 or fewer person-hours of manual effort (pulling, cutting and/or digging) can eradicate a 1 acre infestation in 1 year (infestation averages 50% cover or 1 plant/100 ft²). 2
- C. Management requires a major short-term investment: e.g. 100 or fewer person-hours/year of manual effort, or up to 10 person-hours/year using mechanical equipment (chain saws, mowers, etc.) for 2-5 years to suppress a 1 acre infestation. Eradication is difficult, but possible (infestation as above). 3
- D. Management requires a major investment: e.g. more than 100 person-hours/year of manual effort, or more than 10 person hours/year using mechanical equipment, or the use of herbicide, grazing animals, fire, etc. for more than 5 years to suppress a 1 acre infestation. Eradication may be 4

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impossible (infestation as above).
 U. Unknown

Score

4

Documentation:
 Identify types of control methods and time-term required:
 Species forms large stands in wetlands, thus requiring a major investment for eradication.
 Sources of information: Author's (Moore) pers. comm.

Total Possible

10

 Section Four Total

6

Total for 4 sections Possible

77

Total for 4 sections

46

C. STATUS OF CULTIVARS AND HYBRIDS:

At the present time (May 2008) there is no protocol or criteria for assessing the invasiveness of cultivars independent of the species to which they belong. Such a protocol is needed, and individuals with the appropriate expertise should address this issue in the future. Such a protocol will likely require data on cultivar fertility and identification in both experimental and natural settings.

Hybrids (crosses between different parent species) should be assessed individually and separately from the parent species wherever taxonomically possible, since their invasiveness may differ from that of the parent species. An exception should be made if the taxonomy of the species and hybrids are uncertain, and species and hybrids can not be clearly distinguished in the field. In such cases it is not feasible to distinguish species and hybrids, and they can only be assessed as a single unit.

Some cultivars of the species known to be available:

References for species assessment:

Brooklyn Botanic Garden. 2010. AILANTHUS database. [Accessed February 21, 2010].

Clark, L. G. and J. K. Triplett. 2007. Arundinaria. Pp. 17-20 in (Barkworth et al. eds.) Flora North America Vol 24. Oxford University Press, New York. 908 pp.

Gagnon, P.R. and W.J. Platt. 2008. Reproductive and seedling ecology of a semelparous native bamboo (*Arundinaria gigantea*, Poaceae). *J. Torrey Bot. Soc.* 35(3):309-316.

Moore, G. 2010. Assessment of *Arundinaria gigantea* in 2010. Brooklyn Botanic Garden.

Stapleton, M.A. 2007. Bambuseae. Pp. 15-16 in (Barkworth et al. eds.) Flora North America Vol 24. Oxford University Press, New York. 908 pp.

United States Department of Agriculture, National Resources Conservation Service. 2010. The PLANTS Database. National Plant Data Center, Baton Rouge, Louisiana. < <http://plants.usda.gov/> > [Accessed].

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Weldy, T. and D. Werier. 2010. New York Flora Atlas. [S.M. Landry, K.N. Campbell, and L.D. Mabe (original application development), Florida Center for Community Design and Research. University of South Florida]. New York Flora Association, Albany, New York. <www.newyork.plantatlas.usf.edu> [Accessed February 21, 2010.].

Werier, David. 2013. Personal communication to Marilyn Jordan. Botanical and Ecological Consultant 245 Eastman Hill Rd. Willseyville, NY 13864. (607) 273-1765. Nakita@lightlink.com

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