WEED RISK ASSESSMENT FORM

Botanical and common name:	*Polygonum sachalinense* F. Schmidt ex Maxim. (*Fallopia sachalinensis* (F. Schmidt ex Maxim.) Dcne., giant knotweed *Polygonum* ×*bohemicum* (J. Chrtek & Chrtkovß) Zika & Jacobson [cuspidatum x sachalinense]) *Fallopia* X *bohemica* (Chrtek & Chrtková) J. P. Bailey, Bohemian knotweed *Polygonum cuspidatum* Sieb. & Zucc. (*Fallopia japonica* (Houtt.) Dcne. Japanese knotweed, Japanese bamboo
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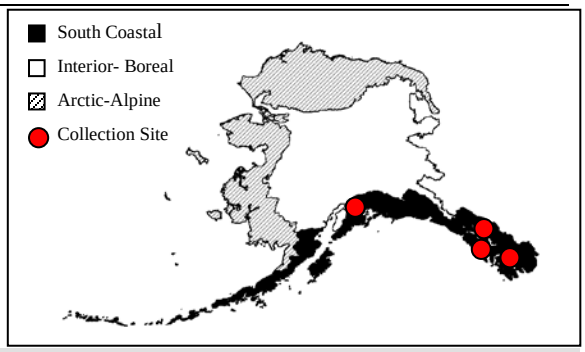
Outcome score:

A.	**Climatic Comparison**		
	This species is present or may potentially establish in the following eco-geographic regions:		
1	South Coastal	Yes	
2	Interior-Boreal	Yes	
3	Arctic-Alpine		No
	This species is unlikely to establish in any region in Alaska		

B.	**Invasiveness Ranking**	Total (Total Answered*) Possible	Total
1	Ecological impact	40 (40)	33
2	Biological characteristic and dispersal ability	25 (25)	21
3	Ecological amplitude and distribution	25 (25)	23
4	Feasibility of control	10 (7)	7
	Outcome score	100 (97)[b]	84 [a]
	Relative maximum score†		0.87

* For questions answered "unknown" do not include point value for the question in parentheses for "Total Answered Points Possible".
† Calculated as [a]/[b].

A. CLIMATIC COMPARISON:



1.1 Has this species ever been collected or documented in Alaska?

Yes — Yes – continue to 1.2

No – continue to 2.1

1.2. Which eco-geographic region has it been collected or documented (see inset map)?

Proceed to Section B. Invasiveness Ranking.

Yes — South Coastal

Yes — Interior-Boreal

No — Arctic-Alpine

Documentation: Japanese knotweed has been collected from Sitka, Anchorage, Juneau, Port Alexander (Densmore et al. 2001, UAM 2003).

Sources of information:

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

University of Alaska Museum. University of Alaska Fairbanks. 2003. http://hispida.museum.uaf.edu:8080/home.cfm

2.1. Is there a 40% or higher similarity (based on CLIMEX climate matching) between climates any where the species currently occurs and

a. Juneau (South Coastal Region)?

Yes – *record locations and similarity; proceed to Section B. Invasiveness Ranking*

No

b. Fairbanks (Interior-Boreal)?

Yes – *record locations and similarity; proceed to Section B. Invasiveness Ranking*

No

c. Nome (Arctic-Alpine)?

Yes – *record locations and similarity; proceed to Section B. Invasiveness Ranking*

No — No – *If "No" is answered for all regions, reject species from consideration*

Documentation: Using CLIMEX matching program, climatic similarity between Nome and areas where the species is documented is modest. It does occur in gardens within Anchorage (UAM 2003), which has 61% climatic match with Nome. However, this species ranges only as far north as Nova Scotia and Newfoundland in Canada and is restricted to regions of high precipitation in the UK (Seiger 1991). In northern Europe it is restricted to areas with greater than 120 frost-free days (Beerling et al. 1994). Nome has 80 frost-free days. This information suggests that establishment in the Arctic-Alpine eco-region of Alaska is unlikely and establishment in the Interior-Boreal region may only be possible under garden conditions.

Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

CLIMEX for Windows, Version 1.1a. 1999. CISRO Publishing, Australia.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

University of Alaska Museum. University of Alaska Fairbanks. 2003. http://hispida.museum.uaf.edu:8080/home.cfm

B. INVASIVENESS RANKING

1. ECOLOGICAL IMPACT

1.1. Impact on Natural Ecosystem Processes

A. No perceivable impact on ecosystem processes — 0

B. Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild — 3

influence on soil nutrient availability)

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; hydrology; or affects fire frequency, altering community composition; species 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 7

Documentation:

Identify ecosystem processes impacted:

Japanese knotweed increases risk of soil erosion following removal of stands. The dead stems and leaf litter decompose very slowly and form a deep organic layer which prevents native seeds from germinating, altering the natural succession of native plant species (Japanese Knotweed Alliance 2004, Seiger 1991). During dormancy, dried stalks can create a fire hazard (Ahrens 1975).

Rational:

Sources of information:

Ahrens, J.F. 1975. Preliminary results with gyphosate for control of *Polygonum cuspidatum*. Proceedings of the Northeastern Weed Society 29:326.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Japanese Knotweed Alliance. 2004. On Line Document. http://www.cabi-bioscience.org/html/japanese_knotweed_alliance.htm.

1.2. Impact on Natural Community Structure

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

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 10

Documentation:

Identify type of impact or alteration:

Japanese knotweed forms single-species stands, reduces of biodiversity by outshading native vegetation (Seiger 1991, Beerling et al. 1994, Maine Natural Areas Program 2004).

Rational:

Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Maine Natural Areas Program. 2004. Japanese Knotweed fact sheet. On line document. http://www.state.me.us/doc/nrimc/mnap/factsheets/invasivesfact.html

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 9

Documentation:

Identify type of impact or alteration:

Japanese knotweed prevents native seeds from germinating, and hinders the natural succession of native herbs, shrubs, and trees (Seiger 1991, Beerling et al. 1994).

Rational:

Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

1.4. Impact on higher trophic levels (cumulative impact of this species on the animals, fungi, microbes, and other organisms in the community it invades)

A. Negligible perceived impact 0

B. Minor alteration 3

C. Moderate alteration (minor reduction in nesting/foraging sites, reduction in habitat connectivity, interference with native pollinators, injurious components such as spines, toxins) 7

D. Severe alteration of higher trophic populations (extirpation or endangerment of an existing native species/population, or significant reduction in nesting or foraging sites) 10

U. Unknown

Score 7

Documentation:

Identify type of impact or alteration:

Japanese knotweed clogs waterways and lowers the quality of habitat for wildlife and fish. It reduces the food supply for juvenile salmon in the spring (Seiger 1991). It reduces the diversity of phytophagous insects (Beerling & Dawah 1993). Hybridizes with the introduced *Polygonum sachalinense*.

Rational:

Sources of information:

Beerling, D.J., and H. A. Dawah. 1993. Abundance and diversity of invertebrates associated with *Fallopia japonica* (Houtt. Ronse Decraene) and *Impatiens glandulifera* (Royle): two alien plant species in the British Isles. The Entomologist 112:127-139.

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Total Possible 40

Total 33

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2. BIOLOGICAL CHARACTERISTICS AND DISPERSAL ABILITY

2.1. Mode of reproduction

A. Not aggressive reproduction (few [0-10] seeds per plant and no vegetative reproduction) 0

B. Somewhat aggressive (reproduces only by seeds (11-1,000/m^2) 1

C. Moderately aggressive (reproduces vegetatively and/or by a moderate amount of seed, <1,000/m²) 2

D. Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m²) 3

U. Unknown

Score 3

Documentation:

Describe key reproductive characteristics (including seeds per plant):

Reproduction is primarily vegetative (rhizomes and stem tissue – Japanese Knotweed Alliance 2004). Plants can produce abundant seed. But a large proportion is non-viable when fertile male plants are rare or absent (Conolly 1977). Densmore et al. (2001) observed, however, that the *P. cuspidatum* in Sitka National Historical Park appears to have established from seed.

Rational:

Sources of information:

Conolly, A.P. 1977. The distribution and history in the British Isles of some alien species of *Polygonum* and *Reynoutria*. Watsonia 11:291-311.

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Japanese Knotweed Alliance. 2004. On Line Document. http://www.cabi-bioscience.org/html/japanese_knotweed_alliance.htm.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

2.2. Innate potential for long-distance dispersal (bird dispersal, sticks to animal hair, buoyant fruits, 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) 2

C. Numerous opportunities for long-distance dispersal (species has adaptations such as pappus, hooked fruit-coats, etc.) 3

U. Unknown

Score 2

Documentation:

Identify dispersal mechanisms:

The fragments of plants are easily washed downstream where they can resprout. There are also documented occurrences of spread across sea-water (Beerling et al. 1994). Fruits maintain a winged perianth and have an abscission zone on the pedicle suggesting adaptation for wind dispersal (Beerling et al. 1994).

Rational:

Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

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, contamination, etc.)

A. Does not occur 0

B. Low (human dispersal is infrequent or inefficient) 1
C. Moderate (human dispersal occurs) 2
D. High (there are numerous opportunities for dispersal to new areas) 3
U. Unknown

Score 3

Documentation:
Identify dispersal mechanisms:
Japanese knotweed has been planted as an ornamental in Southeast Alaska and in Anchorage and escapees from gardens. Transportation of soil containing rhizome fragments is possible (Seiger 1991, Densmore et al. 2001).
Rational:

Sources of information:
Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units.
Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

2.4. Allelopathic

A. No 0
B. Yes 2
U. Unknown

Score 0

Documentation:
Describe effect on adjacent plants:
Unknown
Rational:
No records of allelopathy. Biochemical studies indicate it possesses antibacterial and antifungal properties, but no mention of allelopathic effects (Beerling et al. 1994)
Sources of information:
Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

2.5. Competitive ability

A. Poor competitor for limiting factors 0
B. Moderately competitive for limiting factors 1
C. Highly competitive for limiting factors and/or nitrogen fixing ability 3
U. Unknown

Score 3

Documentation:
Evidence of competitive ability:
Japanese knotweed effectively competes for light by emerging early in the spring and using its extensive rhizomatous reserves to quickly attain a height of 2-3 meters (Densmore et al. 2001, Seiger 1991).
Rational:

Sources of information:
Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.
Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

2.6. Forms dense thickets, climbing or smothering growth habit, or otherwise taller than the surrounding vegetation

A. No 0
B. Forms dense thickets 1
C. Has climbing or smothering growth habit, or otherwise taller than the surrounding vegetation 2
U. Unknown

Score 2

Documentation:
Describe grow form: Forms very dense thickets that are generally taller (4 to 9 feet) than the surrounding herbaceous and shrubby vegetation (Densmore et al. 2001, Seiger 1991, Whitson et al. 2000).
Rational:

Sources of information:
Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.
Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.
Whitson, T.D., L.C. Burrill, S.A. Dewey, D.W. Cudney, B.E. Nelson, R.D. Lee, R. Parker. 2000. Weeds of the West. The Western Society of Weed Science in cooperation with the Western United States Land Grant Universities, Cooperative Extension Services. University of Wyoming. Laramie, Wyoming. 630 pp.

2.7. Germination requirements

A. Requires open soil and disturbance to germinate 0
B. Can germinate in vegetated areas but in a narrow range or in special conditions 2
C. Can germinate in existing vegetation in a wide range of conditions 3
U. Unknown

Score 2

Documentation:
Describe germination requirements:
Japanese knotweed can germinate in vegetated areas. Seeds require chilling to break dormancy (Beerling et al. 1994, Densmore et al. 2001).
Rational:

Sources of information:
Beerling, D.J., J. P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.
Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

2.8. Other species in the genus invasive in Alaska or elsewhere

A. No 0
B. Yes 3
U. Unknown

Score 3

Documentation:
Species:
Polygonum perfoliatum L., *P. polystachyum* Wallich ex Meisn., and *P. sachalinense* F. Schmidt ex Maxim. are declared noxious in a number of American states (Rice 2006, USDA, NRSC 2006). Also *Polygonum arenastrum* Jord. ex Boreau, *P. caespitosum* Blume, *P. convolvulus* L., *P. persicaria* L., *P. lapathifolium* L., *P. orientale* L., and *P. aviculare* L. are listed as a weeds in the PLANTS Database (USDA, NRSC 2006). A number of *Polygonum* species native to North America have a weedy habit and are listed as noxious weeds in some of the American states. Although the latest taxonomy

considers these species as members of three different genus: *Polygonum*, *Fallopia* and *Persicaria* (FNA 1993+), they are closely related taxa and can be considered as congeneric weeds.

Sources of information:

Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 7+ vols. New York and Oxford.

Rice, P.M. 2006. INVADERS Database System (http://invader.dbs.umt.edu). Division of Biological Sciences, University of Montana, Missoula, MT 59812-4824.

USDA, NRCS. 2006. *The PLANTS Database*, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

2.9. Aquatic, wetland, or riparian species

A.	Not invasive in wetland communities	0
B.	Invasive in riparian communities	1
C.	Invasive in wetland communities	3
U.	Unknown	

Score 3

Documentation:

Describe type of habitat:

Japanese knotweed often found near water sources, such as along streams and rivers, in waste places, utility rights-of-way, neglected gardens, and around old homesites (Beerling et al. 1994, Densmore et al. 2001, Seiger 1991).

Rational:

Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Total Possible 25

Total 21

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3. DISTRIBUTION

3.1. Is the species highly domesticated or a weed of agriculture

A.	No	0
B.	Is occasionally an agricultural pest	2
C.	Has been grown deliberately, bred, or is known as a significant agricultural pest	4
U.	Unknown	

Score 4

Documentation:

Identify reason for selection, or evidence of weedy history:

Japanese knotweed has been planted as ornamental (Densmore et al. 2001, Seiger 1991).

Rational:

Sources of information:

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of

Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

3.2. Known level of impact in natural areas

A.	Not known to cause impact in any other natural area	0
B.	Known to cause impacts in natural areas, but in dissimilar habitats and climate zones than exist in regions of Alaska	1
C.	Known to cause low impact in natural areas in similar habitats and climate zones to those present in Alaska	3
D.	Known to cause moderate impact in natural areas in similar habitat and climate zones	4
E.	Known to cause high impact in natural areas in similar habitat and climate zones	6
U.	Unknown	

Score: 6

Documentation:

Identify type of habitat and states or provinces where it occurs:

Japanese knotweed has invaded rivers bars in Sitka National Historical Park (Densmore et al. 2001) and has established additional infestations in the Tongass National Forest (Stensvold 2000). Large stands have been found along the river banks in Pennsylvania and Ohio (Seiger 1991).

Sources of information:

Densmore, R.V., P.C. McKee, C. Roland. 2001. Exotic plants in Alaskan National Park Units. Report on file with the National Park Service – Alaska Region, Anchorage, Alaska. 143 pp.

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Stensvold, M. 2000. Noxious weed surveys and projects conducted on the Tongass National Forest 1997-2000. Technical report on file, Tongass National Forest. 2 pp.

3.3. Role of anthropogenic and natural 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 disturbances	3
C.	Can establish independent of any known natural or anthropogenic disturbances	5
U.	Unknown	

Score: 5

Documentation:

Identify type of disturbance:

Japanese knotweed can establish in native habitats (Stensvold 2000, Shaw and Seiger 2002).

Rational:

Sources of information:

Stensvold, M. 2000. Noxious weed surveys and projects conducted on the Tongass National Forest 1997-2000. Technical report on file, Tongass National Forest. 2 pp.

Shaw R.H. and L.A. Seiger. 2002. Japanese Knotweed – Biological Control of Invasive Plants in the Eastern United States. In Van Driesche, R. et al., 2002. Biological Control of Invasive Plants in the Eastern United States, USDA Forest Service Publication FHTET-2002-04, 413 pp.

3.4. Current global distribution

A.	Occurs in one or two continents or regions (e.g., Mediterranean region)	0
B.	Extends over three or more continents	3
C.	Extends over three or more continents, including successful introductions in arctic or subarctic regions	5
U.	Unknown	

Score: 3

Documentation:
Describe distribution:
Japanese knotweed is native of Japan, Northern China, Taiwan, and Korea. It is now a serious introduced pest in Europe, the United Kingdom, North America, and New Zealand. It is widely distributed in North America (found in at least 42 states and most Canadian provinces) (Seiger 1991, Shaw and Seiger 2002).
Rational:

Sources of information:
Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.
Shaw R.H. and L.A. Seiger. 2002. Japanese Knotweed – Biological Control of Invasive Plants in the Eastern United States. *In* Van Driesche, R. et al., 2002. Biological Control of Invasive Plants in the Eastern United States, USDA Forest Service Publication FHTET-2002-04, 413 p.

3.5. Extent of the species U.S. range and/or occurrence of formal state or provincial listing

A.	0-5% of the states	0
B.	6-20% of the states	2
C.	21-50%, and/or state listed as a problem weed (e.g., "Noxious," or "Invasive") in 1 state or Canadian province	4
D.	Greater than 50%, and/or identified as "Noxious" in 2 or more states or Canadian provinces	5
U.	Unknown	

Score 5

Documentation:
Identify states invaded:
Japanese knotweed is Noxious in California (List B), Oregon (List B), and Washington (List C) (Rice 2006, USDA, NRCS 2006).
Rational:

Sources of information:
Rice, P.M. 2006. INVADERS Database System (http://invader.dbs.umt.edu). Division of Biological Sciences, University of Montana, Missoula, MT 59812-4824.
USDA, NRCS. 2006. *The PLANTS Database*, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Total Possible 25
Total 23

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4. FEASIBILITY OF CONTROL

4.1. Seed banks

A.	Seeds remain viable in the soil for less than 3 years	0
B.	Seeds remain viable in the soil for between 3 and 5 years	2
C.	Seeds remain viable in the soil for 5 years and more	3
U.	Unknown	

Score U

Documentation:
Identify longevity of seed bank:
Unknown
Rational:
Hybrid seeds of *P.* x *bohemica*, stored at room temperature, retained viability for four years (Beerling et al. 1994)
Sources of information:

Beerling, D.J., J.P. Bailey, and A.P. Conolly. 1994. *Fallopia japonica* (Houtt.) Ronse Decraene. Journal of Ecology 82:959-979.

4.2. Vegetative regeneration

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

Score: 3

Documentation:

Describe vegetative response:

Japanese knotweed is capable of regeneration from very small fragments of rhizome (as little as 0.7 grams) (Seiger 1991, Shaw and Seiger 2002)..

Rational:

Sources of information:

Seiger, L. 1991. Element Stewardship Abstract for *Polygonum cuspidatum*. The Nature Conservancy in collaboration with the International Network of Natural Heritage Programs and Conservation Data Centers. Natural Heritage Databases. Arlington, VA.

Shaw R.H. and L.A. Seiger. 2002. Japanese Knotweed – Biological Control of Invasive Plants in the Eastern United States. In Van Driesche, R. et al., 2002. Biological Control of Invasive Plants in the Eastern United States, USDA Forest Service Publication FHTET-2002-04, 413 p.

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; requires a minor investment in human and financial resources	2
C.	Management requires a major short-term investment of human and financial resources, or a moderate long-term investment	3
D.	Management requires a major, long-term investment of human and financial resources	4
U.	Unknown	

Score: 4

Documentation:

Identify types of control methods and time-term required:

Japanese knotweed is extremely difficult and expensive to control (Child and Wade 2000, Seiger 1991, Shaw and Seiger 2002).

Rational:

Sources of information:

Child, L.E. and P.M. Wade. 2000. The Japanese Knotweed manual. The management and control of an invasive alien weed. Downland Reprographics Limited, West Stoke, Chichester, West Sussex. 123 pp.

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Total Possible	7
Total	7

Total for 4 sections Possible	97
Total for 4 sections	84

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