WEED RISK ASSESSMENT FORM

Botanical name: *Gypsophila paniculata* L.

Common name: baby's-breath

Assessors:

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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	Yes	

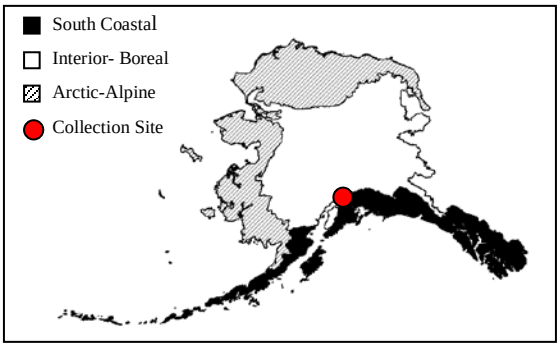
B.	**Invasiveness Ranking**	Total (Total Answered*) Possible	Total
1	Ecological impact	40 (40)	20
2	Biological characteristic and dispersal ability	25 (25)	14
3	Ecological amplitude and distribution	25 (25)	18
4	Feasibility of control	10 (7)	3
	Outcome score	100 (97)[b]	55 [a]
	Relative maximum score†		0.57

* 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.*
	South Coastal
Yes	Interior-Boreal
	Arctic-Alpine



Documentation: *Gypsophila paniculata* has been collected in Anchorage and Matanuska-Susitna Valley in Alaska (I. Lapina – pers. obs., J. Snyder – pers. com.).
Sources of information:
Lapina, I. botanist, Alaska Natural Heritage Program, University of Alaska Anchorage, 707 A Street, Anchorage, Alaska. Tel: (907) 257-2710 – Pers. obs
Snyder, J. UAF Cooperative Extension Service. 2221 E. Northern Lights Blvd. #118 Anchorage, AK 99508-4143 tel: (907) 786-6310 alt.tel: (907) 743-9448 – Pers. com.

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

No

– If "No" is3 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 high. Range of the species includes Banff, Alberta, Canada and Regina, Saskatchewan, Canada (Darwemt 1975), which has a 61% and 54% climatic match with Nome respectively. *Gypsophila paniculata* can withstand considerable variation in temperature and moisture. It is one of the few perennial ornamentals recommended for gardens located on permafrost (Darwent 1975). This suggests that establishment of *Gypsophyla paniculata* in lower part of Arctic-Alpine Alaska may be possible. Establishment is also likely in drier portions of the South Coastal region, such as upper Lynn Canal.
Sources of information: CLIMEX for Windows, Version 1.1a. 1999. CISRO Publishing, Australia.
Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science. 55: 1049-1058.

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 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; 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 3

Documentation:
Identify ecosystem processes impacted:
Baby's-breath appears to reduce available nutrients for co-occurring grass species (Robson 2004, Wisconsin DNR 2004).
Rational:
Protein content of desirable grasses declines with the presence of *Gypsophila paniculata* (Wisconsin DNR 2005).

Sources of information:
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 7

Documentation:

Identify type of impact or alteration:
Baby's-breath can form dense stands and out-compete native perennial species (Darwent 1975, Rutledge and McLendon 1996, Wisconsin DNR 2005).
Rational:

Sources of information:
Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science. 55: 1049-1058.
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 5

Documentation:

Identify type of impact or alteration:
Baby's-breath likely displaces native species (Robson 2004, Rutledge and McLendon 1996, Wisconsin DNR 2005).
Rational:

Sources of information:
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page.

http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 5

Documentation:

Identify type of impact or alteration:

Though baby's breath is not used by native mammals or birds, it has the ability to degrade wildlife habitat (Robson 2004). Baby's breath contains high levels of saponins that could result in animal toxicity (Plants for a future 2002). Flowers of this plant are attractive to numerous species of pollinating bees and flies (Darwent 1975, Darwent and Coupland 1966), potentially impacting pollination ecology of co-occurring plant species. Baby's-breath is also reported to be an alternate host for number of viruses (Royer and Dickinson 1999).

Rational:

Sources of information:

Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science. 55: 1049-1058.
Darwent, A. L., and R. T. Coupland. 1966. Life history of *Gypsophila paniculata*. Weeds 14: 313-318.
Plants for a future. 2002. *Gypsophila paniculata.* Available: http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Gypsophila+paniculata&CAN=LATIND [January 24, 2005].
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.

Total Possible 40
Total 20

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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/m^2)	2
D.	Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m^2)	3
U.	Unknown	

Score 3

Documentation:

Describe key reproductive characteristics (including seeds per plant):

Baby's-breath reproduces entirely by seed. Plants are capable of producing up to 14,000

seeds (Royer and Dickinson 1999, Rutledge and McLendon 1996).
Rational:

Sources of information:
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).

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 3

Documentation:
Identify dispersal mechanisms:
Most capsules drop off near the parent plant. However, wind is capable of carrying seeds distances of 1 km (Rutledge and McLendon 1996). At maturity, the plant often breaks off at base and tumbles in the wind, spreading seeds widely (Royer and Dickinson 1999).
Rational:

Sources of information:
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).

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:
Baby's-breath is cultivated in gardens and flower beds; it is readily available for sale at nurseries. It has escaped cultivation into pastures and rangelands (Robson 2004, Rutledge and McLendon 1996, Whitson et al. 2000). Its fairly wide distribution in the northwestern US may be a result of it invading transportation corridors (Robson 2004).It is also a potential seed contaminant (USDA, ARS 2004).
Rational:

Sources of information:
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University.

Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/var/apache/cgi-bin/npgs/html/taxon.pl?2017 (June 15, 2004).
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.

2.4. Allelopathic

A.	No	0
B.	Yes	2
U.	Unknown	

Score 0

Documentation:

Describe effect on adjacent plants:
No considerable allelopathic effects were found in experiments (Robson 2004).
Rational:

Sources of information:
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].

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:
Baby's-breath has been observed to out-compete native perennial plants (Darwent 1975, MAFF 2005, Robson 2004, Rutledge and McLendon 1996, Wisconsin DNR 2005).
Rational:
It has the ability to thrive in a variety of climatic conditions and soil types; water and nutrient allocation is facilitated by its deep tap root. Grasses exhibited reduced growth rates in the micro-environment closest to the largest plants (Robson 2004).
Sources of information:
Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science. 55: 1049-1058.
MAFF - Ministry of Agriculture, Food and Fisheries. Government of British Columbia. Pest Management. Aggressive ornamentals. Baby's breath (Gypsophila paniculata). Available: http://www.agf.gov.bc.ca/cropprot/index.htm [January 19, 2005].
Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.ht

ml [January 24, 2005].
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 0

Documentation:
Describe grow form:
Baby's-breath forms dense stands, but it does not have climbing or smothering growth habit (Douglas et al. 1998, Royer and Dickinson 1999, Whitson et al. 2000).
Rational:

Sources of information:
Douglas, G.W., G.B. Straley, D. Meidinger, and J. Pojar. 1998. Illustrated flora of British Columbia. British Columbia, Ministry of Environment, Lands and Parks, Ministry of Forest. v.1. 436 pp.
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
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:
Maximum germination occurs at temperatures ranging from 50°F-82°F from the depth no more then 0.25 cm in the soil (Rutledge and McLendon 1996, Wisconsin DNR 2005). Germination is not light sensitive (Darwent and Coupland 1966) and is therefore likely to occur in vegetated areas.
Rational:

Sources of information:
Darwent, A. L., and R. T. Coupland. 1966. Life history of *Gypsophila paniculata*. Weeds 14: 313-318.
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19,

2005].

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

A.	No	0
B.	Yes	3
U.	Unknown	

Score 0

Documentation:
Species:
Other introduced species of the genus are known in U.S. but they are not listed as weeds (Royer and Dickinson 1999, USDA 2002).
Sources of information:
Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (http://plants.usda.gov). 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 0

Documentation:
Describe type of habitat:
Baby's-breath occurs in pastures, roadsides, hay fields, and waste places (Royer and Dickinson 1999, Rutledge and McLendon 1996, Wisconsin DNR 2005).
Rational:

Sources of information:
Royer, F. and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.
Rutledge, C.R. and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

Total Possible 25
Total 14

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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:
Baby's-breath is cultivated in gardens and flower beds. It has escaped cultivation into pastures and rangelands (Darwent 1975, Rutledge and McLendon 1996, Whitson et al. 2000).

Rational:

Sources of information:

Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science 55: 1049-1058.

Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).

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.

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 3

Documentation:

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

Baby's-breath has invaded grasslands in Canada (MAFF 2005). Large infestations occurred in lightly-grazed pastures located on sand dunes (Darwent 1975). It is known to invade sand dunes in Wisconsin (Wisconsin DNR 2005). Baby's breath is becoming a threat to semi-disturbed areas of native grasslands in Idaho (Robson 2004).

Sources of information:

Darwent, A.L. 1975. The biology of Canadian weeds. 14. *Gypsophila paniculata* L. Canadian Journal of Plant Science. 55: 1049-1058.

MAFF - Ministry of Agriculture, Food and Fisheries. Government of British Columbia. Pest Management. Aggressive ornamentals. Baby's breath (*Gypsophila paniculata*). Available: http://www.agf.gov.bc.ca/cropprot/index.htm [January 19, 2005].

Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].

Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 3

Documentation:

Identify type of disturbance:

Baby's-breath occurs in lightly grazed pastures and grasslands (Robson 2004, Wisconsin DNR 2005), and on stabilized sand dunes in Saskatchewan (Darwent and Coupland 1966).

Rational:

Sources of information:

Darwent, A. L., and R. T. Coupland. 1966. Life history of *Gypsophila paniculata*. Weeds 14: 313-318.

Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].

Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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:

Baby's-breath is native to Europe and temperate Asia. It is now widespread throughout North America (MAFF 2005, Royer and Dickinson 1999, USDA, ARS 2004).

Rational:

Sources of information:

MAFF - Ministry of Agriculture, Food and Fisheries. Government of British Columbia. Pest Management. Aggressive ornamentals. Baby's breath (*Gypsophila paniculata*). Available: http://www.agf.gov.bc.ca/cropprot/index.htm [January 19, 2005].

Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.

USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/var/apache/cgi-bin/npgs/html/taxon.pl?2017 (June 15, 2004).

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:

Baby's-breath is widespread across Canada and the northern United States (MAFF 2005, Royer and Dickinson 1999, USDA, ARS 2004). This species is listed as a noxious weed in California and Washington (USDA 2002).

Rational:

Sources of information:

MAFF - Ministry of Agriculture, Food and Fisheries. Government of British Columbia. Pest Management. Aggressive ornamentals. Baby's breath (*Gypsophila paniculata*). Available: http://www.agf.gov.bc.ca/cropprot/index.htm [January 19, 2005].

Royer, F., and R. Dickinson. 1999. Weeds of the Northern U.S. and Canada. The University of Alberta press. 434 pp.

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/var/apache/cgi-bin/npgs/html/taxon.pl?2017 (June 15, 2004).

Total Possible	25
Total	18

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:
There is no data concerning seed viability.
Rational:

Sources of information:

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: 0

Documentation:
Describe vegetative response:
The plant does not sprout from root or stumps (MAFF 2005, Rutledge and McLendon 1996, Wisconsin DNR 2005).
Rational:

Sources of information:
MAFF - Ministry of Agriculture, Food and Fisheries. Government of British Columbia. Pest Management. Aggressive ornamentals. Baby's breath (*Gypsophila paniculata*). Available: http://www.agf.gov.bc.ca/cropprot/index.htm [January 19, 2005].
Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).
Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

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 3

Documentation:

Identify types of control methods and time-term required:

Annual tilling is very effective in control of baby's-breath. This species is also sensitive to herbicides. In Canada, heavy grazing has suppressed growth of plants and prevented the establishment of seedlings. Mowing or clipping does not appear effective (Robson 2004, Rutledge and McLendon 1996, Wisconsin DNR 2005).

Rational:

Sources of information:

Robson, S. 2004. Baby's breath (*Gypsophila paniculata*). Idaho State University. Available: http://www.cnr.uidaho.edu/range454/2003%20Pet%20weeds/babys_breath.html [January 24, 2005].

Rutledge, C.R., and T. McLendon. 1996. An Assessment of Exotic Plant Species of Rocky Mountain National Park. Department of Rangeland Ecosystem Science, Colorado State University. 97 pp. Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/othrdata/Explant/explant.htm (Version 15DEC98).

Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].

Total Possible	7
Total	3

Total for 4 sections Possible	97
Total for 4 sections	55

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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.

Wisconsin Department of Natural Resources. 2004. http://dnr.wi.gov [January 19, 2005].