

Assessment date 2020 Assesed by Petri and Lieurance

<b><i>Maackia amurensis (Amur Maackia)</i> ALL ZONES</b>		<b>Answer</b>	<b>Score</b>
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	0	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	1	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	1
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	n	0
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	n	0
5.01	Aquatic	n	0

5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	y	1
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	n	-1
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	n	-1
6.07	Minimum generative time (years)	14	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	unk	-1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	n	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	y	1
8.03	Well controlled by herbicides	unk	1
8.04	Tolerates, or benefits from, mutilation or cultivation	unk	-1
8.05	Effective natural enemies present in U.S.	don't know	
<b>Total Score</b>			<b>-2</b>
<b>Implemented Pacific Second Screening</b>			<b>No</b>
<b>Risk Assessment Results</b>			<b>Low</b>

section	# questions answered	satisfy minimum?
A		11 yes
B		12 yes
C		20 yes
total		43 yes

	Reference	Source data
1.01	<p>1. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a></p> <p>1. GRIN; <a href="https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?23023">https://npgsweb.ars-grin.gov/gringlobal/taxonomydetail.aspx?23023</a></p> <p>2-3. The Morton Arboretum; <a href="https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination">https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination</a></p> <p>4. Missouri Botanical Garden; <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis</a></p>	<p>1. Maackia amurensis is used as an ornamental, forage, and erosion control species. 2. Cultivar "MaacNificent" is more cold hardy (Zone 3) and has better fall color than the wild type. 3. Similarly, cultivar 'Summertime' is more cold hard (Zone 3) and has a smaller growth form. 4. Amur maackia typically grows in cultivation at a slow-to-moderate rate to a height of 20-30 ft, but can grow up to 60 ft in the wild. 5. Cultivars with greater cold tolerance potential could increase invasion risk and smaller size could decrease invasion risk relative to the wild type, however, no studies were found to support either of those claims.</p>
1.02		
1.03		
2.01	<p>1. Missouri Botanical Garden; <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis</a></p> <p>1. Gilman &amp; Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maaamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maaamua.pdf</a></p> <p>2. Dave's Garden; <a href="https://davesgarden.com/guides/pf/go/50042/">https://davesgarden.com/guides/pf/go/50042/</a></p> <p>2. NC State Extension; <a href="https://plants.ces.ncsu.edu/plants/maackia-amurensis/">https://plants.ces.ncsu.edu/plants/maackia-amurensis/</a></p>	<p>No computer analysis was performed 1. Maackia amurensis is tolerant to USDA Zones 4-7. 2. Some sources claim that this species is also tolerant to Zone 8, which would allow for climate suitability in Florida.</p>
2.02	<p>1-2. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a></p> <p>2. Hosking et al., 2007; <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a></p> <p>2-3. GBIF; <a href="https://www.gbif.org/species/5360278">https://www.gbif.org/species/5360278</a></p> <p>3. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a></p>	<p>No computer analysis was performed 1. The native range of Maackia amurensis is Russia far east to North China and Japan. 2. Amur maackia has been introduced to Central and Southern European Russia, Ukraine, Belarus, Krym, Sakhalin, Transcaucasus, Sweden, New Zealand, and Australia. 3. This species is not currently reported in the USA, aside from as preserved specimens.</p>
2.03	<p>1. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a></p> <p>1. GBIF; <a href="https://www.gbif.org/species/5360278">https://www.gbif.org/species/5360278</a></p> <p>1. Hosking et al., 2007; <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a></p>	<p>1. Adopted to 5 Koppen-Geiger climate classes- Dwa (Native: China, Korea), Dfa: (Native: Japan), Dba (Introduced: Central and Eastern Europe), Cfa (Native: Japan), and Cfb (Introduced: New Zealand, NWS Australia).</p>
2.04	<p>1-2. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a></p> <p>1. Korea Meteorological Administration; <a href="https://www.kma.go.kr/eng/biz/climate_01.jsp">https://www.kma.go.kr/eng/biz/climate_01.jsp</a></p> <p>2. World Weather &amp; Climate Information; <a href="https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Tokyo,Japan">https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Tokyo,Japan</a></p> <p>3. Gilman &amp; Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maaamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maaamua.pdf</a></p>	<p>1. Southern South Korea, part of the native range of Maackia amurensis, receives annual precipitation from 1000-1800mm (40-70in). 2. Similarly, the average rainfall in Japan is 1530mm (60in). 3. However, this species does prefer well-drained soils. 3. Adopted to 5 Koppen-Geiger climate classes- Dwa (Native: China, Korea), Dfa: (Native: Japan), Dba (Introduced: Central and Eastern Europe), Cfa (Native: Japan), and Cfb (Introduced: New Zealand, NWS Australia).</p>

2.05	1. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a> 1. GBIF; <a href="https://www.gbif.org/species/5360278">https://www.gbif.org/species/5360278</a> 1. Hosking et al., 2007; <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a>	1. Outside of its native range, <i>Maackia amurensis</i> has been introduced to Central and Southern European Russia, Ukraine, Belarus, Krym, Sakhalin, Transcaucasus, Sweden, New Zealand, and Australia.
3.01	1-2. Hosking et al., 2007; <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a>	1. There is one report of <i>Maackia amurensis</i> naturalizing in New South Wales (Australia), where more than 20 seed producing plants are growing in a disturbed natural area downwind from the presumed cultivated garden plant parent. 2. This species is not known to be naturalized elsewhere in Australia or overseas.
3.02	1. Gilman & Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/maamua.pdf</a>	No Evidence 1. To the contrary, Amur maackia is an ornamental plant commonly suggested for planting in urban areas and surface roots are not usually a problem.
3.03		No Evidence
3.04		No Evidence
3.05	1. The Plant List; <a href="http://www.theplantlist.org/tpl1.1/search?q=Maackia">http://www.theplantlist.org/tpl1.1/search?q=Maackia</a> 1. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. There are around ten species in the genus <i>Maackia</i> and no evidence was found of any invasive congeners.
4.01	1. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. These features are not in the description in the species (efloras)
4.02		No Evidence
4.03	1. Walker, 2012; <a href="http://www.omnisterra.com/bot/pp_home.cgi">http://www.omnisterra.com/bot/pp_home.cgi</a> 2. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a>	No Evidence 1. Amur maackia is not listed in the Parasitic Plant Database. 2. This species is in the family Fabaceae, which is not a family known to be parasitic.
4.04	1. Kew Science; <a href="http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2">http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:324545-2</a>	1. <i>Maackia amurensis</i> has been used for forage.
4.05	1. Van den Berk Nurseries; <a href="https://www.vdberk.com/trees/maackia-amurensis/">https://www.vdberk.com/trees/maackia-amurensis/</a> 2. Wang et al., 2015; <a href="https://www.sciencedirect.com/science/article/abs/pii/S0168159115002646">https://www.sciencedirect.com/science/article/abs/pii/S0168159115002646</a> 2. The Site Gardener; <a href="http://plants.thesitegardener.com/plant/1815/amur-maackia/">http://plants.thesitegardener.com/plant/1815/amur-maackia/</a> 2. Hess Landscape Nursery; <a href="http://www.hesslandscapenursery.com/plant_library/plant/1816/maackia-amurensis-starburst/">http://www.hesslandscapenursery.com/plant_library/plant/1816/maackia-amurensis-starburst/</a>	1. <i>Maackia amurensis</i> is generally considered non-toxic. 2. Deer are known to eat this species in natural areas and gardens (The Site Gardener, Hess Landscape).
4.06	1. Dara et al., 2015; <a href="https://academic.oup.com/jipm/article/6/1/20/2936989">https://academic.oup.com/jipm/article/6/1/20/2936989</a> 1. EPPO Global Database; <a href="https://gd.eppo.int/taxon/MCKAM/pests">https://gd.eppo.int/taxon/MCKAM/pests</a>	1. <i>Maackia amurensis</i> is a host for <i>Lycorma delicatula</i> , a new potentially invasive pest in the United States.
4.07	1. Jacke & Toensmeier, 2005; <a href="https://books.google.com/books?id=1OXTAgAAQBAJ">https://books.google.com/books?id=1OXTAgAAQBAJ</a>	No Evidence 1. A book on edible garden plants listed that all parts of this plant are toxic to people; however we found no further evidence of toxic impacts from planting it as an ornamental tree.
4.08	1. WSU Extension; <a href="https://cascadiacd.org/images/site_graphics/FIRE-RESISTANT-PLANTS-BOOK-2017-sept.pdf">https://cascadiacd.org/images/site_graphics/FIRE-RESISTANT-PLANTS-BOOK-2017-sept.pdf</a> 1. Trunckee Meadows Water Authority; <a href="https://tmwa.com/plants/maackia/">https://tmwa.com/plants/maackia/</a> 2. Shan et al., 2008; <a href="https://onlinelibrary.wiley.com/doi/abs/10.1002/fam.974">https://onlinelibrary.wiley.com/doi/abs/10.1002/fam.974</a>	1. Amur maackia is considered a 'fire resistant' and 'low fire hazard' plant. 2. However, one source recommended further research should be done before recommending this species as a fire break.
4.09	1. Missouri Botanical Garden; <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis</a> 2. Liu et al., 2018; <a href="https://bmcecol.biomedcentral.com/articles/10.1186/s12898-018-0177-9">https://bmcecol.biomedcentral.com/articles/10.1186/s12898-018-0177-9</a>	1. Amur maackia prefers full sun. 2. This species has been found to be negatively impacted by growing in shady sites compared to sunny ones.

4.10	1. The Morton Arboretum; <a href="https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination">https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination</a> 1-2. Gilman & Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a> 2. Giridhar et al., 1995; <a href="https://www.hrjournal.org/doi/abs/10.24266/0738-2898-13.1.40">https://www.hrjournal.org/doi/abs/10.24266/0738-2898-13.1.40</a>	1. Maackia amurensis grows best on slightly alkaline or acidic, well-drained soils and has a high drought tolerance. 2. Amur Maackia has nitrogen fixing bacteria associated with its root system, allowing for easier growth in infertile systems.
4.11	1. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a> 2. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. Maackia amurensis is in family Fabaceae. 2. The growth form of this species is a tree.
4.12	1. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a> 2. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. Maackia amurensis is in family Fabaceae. 2. The growth form of this species is a tree.
5.01	1. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a> 2. The Morton Arboretum; <a href="https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination">https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination</a>	1. Maackia amurensis is in family Fabaceae. 2. This species is intolerant of soils with poor drainage.
5.02	1. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a> 2. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. Maackia amurensis is in family Fabaceae. 2. The growth form of this species is a tree.
5.03	1. Gilman & Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a> 1. Giridhar et al., 1995; <a href="https://www.hrjournal.org/doi/abs/10.24266/0738-2898-13.1.40">https://www.hrjournal.org/doi/abs/10.24266/0738-2898-13.1.40</a> 2. USDA PLANTS Database; <a href="https://plants.usda.gov/core/profile?symbol=MAAM9">https://plants.usda.gov/core/profile?symbol=MAAM9</a>	1. Amur Maackia has nitrogen fixing bacteria associated with its root system. 2. This species is in family Fabaceae, which is a family known to fix nitrogen.
5.04	1. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. These features are not in the description of the species.
6.01	1. Chen et al., 2014; <a href="https://academic.oup.com/jpe/article/7/4/337/976948">https://academic.oup.com/jpe/article/7/4/337/976948</a>	1. Surveys done in a forest in China documented seed dispersal, seed production, and seedlings of Amur maackia.
6.02	1. Kim & Han, 2018; <a href="https://www.degruyter.com/view/journals/biol/13/1/article-p137.xml">https://www.degruyter.com/view/journals/biol/13/1/article-p137.xml</a> 2. Hosking et al., 2007; <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a>	1. Seeds of Amur maackia were collected from its native range in Korea and successfully germinated in laboratory trials. 2. This species has naturalized in New South Wales through seed production outside of cultivation.
6.03	1. The Plant List; <a href="http://www.theplantlist.org/tpl1.1/search?q=Maackia">http://www.theplantlist.org/tpl1.1/search?q=Maackia</a> 1. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a>	1. There are arounds ten species in the genus Maackia and no evidence was found of hybridization.
6.04	1. Levings, 2006; <a href="https://etd.ohiolink.edu/letd.send_file%3Faccession%3Dmiami1165584057%26disposition%3Dinline">https://etd.ohiolink.edu/letd.send_file%3Faccession%3Dmiami1165584057%26disposition%3Dinline</a> 2. Fedoreev et al., 2004; <a href="https://www.researchgate.net/profile/Marina_Veselova/publication/226473247_Maksar_A_preparation_based_on_Amur_maackia/links/54bf19e70cf2acf661cdc23a/Maksar-A-preparation-based-on-Amur-maackia.pdf">https://www.researchgate.net/profile/Marina_Veselova/publication/226473247_Maksar_A_preparation_based_on_Amur_maackia/links/54bf19e70cf2acf661cdc23a/Maksar-A-preparation-based-on-Amur-maackia.pdf</a>	1. Amur maackia is capable of self-fertilization.
6.05	1. Wang et al., 2017; <a href="https://onlinelibrary.wiley.com/doi/abs/10.1111/jvs.12494">https://onlinelibrary.wiley.com/doi/abs/10.1111/jvs.12494</a> 1. The Morton Arboretum; <a href="https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination">https://www.mortonarb.org/trees-plants/tree-plant-descriptions/amur-maackia#destination</a>	1. Maackia amurensis is pollinated by insects, particularly bees.
6.06	1. Gilman & Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a>	1. Maackia amurensis is propagation by seeds or cuttings.

6.07	<p>1. Chindyaeva et al., 2018;  <a href="https://link.springer.com/article/10.1134%2FS2075111718030025">https://link.springer.com/article/10.1134%2FS2075111718030025</a> 2. Shoot Gardening Co.; <a href="https://www.shootgardening.co.uk/plant/maackia-amurensis">https://www.shootgardening.co.uk/plant/maackia-amurensis</a> 3. Useful Tropical Plants; <a href="http://temperate.theferns.info/plant/Maackia+amurensis">http://temperate.theferns.info/plant/Maackia+amurensis</a></p>	<p>1. In a Russian arboretum, Amur maackia trees flowered after 14 years. 2. Maackia amurensis generally takes 20-50 years to reach maturity. 3. This species is a slow-growing tree but flowers quite young.</p>
7.01	<p>1. Gilman &amp; Watson, 1994;  <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a> 1. PFAF Plant Database; <a href="https://pfaf.org/user/Plant.aspx?LatinName=Maackia+amurensis">https://pfaf.org/user/Plant.aspx?LatinName=Maackia+amurensis</a> 1. Hosking et al., 2007;  <a href="https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001">https://www.researchgate.net/publication/242111653_Plant_species_first_recognised_as_naturalised_for_New_South_Wales_in_2002_and_2003_with_additional_comments_on_species_recognised_as_naturalised_in_2000-2001</a> 2. eFloras;  <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a></p>	<p>1. Maackia amurensis grows in urban areas and forests, and only occasionally in disturbed areas. 2. Fruits of this species are large and do not have morphological dispersal adaptations.</p>
7.02	<p>1. Betrock Information Systems Inc.;  <a href="https://www.plantsearch.com/new/search_plants.cfm?advq=Maackia%20amurensis&amp;subresultid=15032">https://www.plantsearch.com/new/search_plants.cfm?advq=Maackia%20amurensis&amp;subresultid=15032</a> 1. PlantScout by Dave's Garden; <a href="https://davesgarden.com/products/ps/search.php?search_text=Maackia+amurensis&amp;submit=Search">https://davesgarden.com/products/ps/search.php?search_text=Maackia+amurensis&amp;submit=Search</a> 2. USDA APHIS;  <a href="https://www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/downloads/replacementtreetable.pdf">https://www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/downloads/replacementtreetable.pdf</a></p>	<p>1. Maackia amurensis are available for sale at Betrock's Plant Search and PlantScout. 2. But since these trees are long lived, they are generally considered difficult to find on the market.</p>
7.03		No Evidence
7.04	<p>1. Chen et al., 2014;  <a href="https://academic.oup.com/jpe/article/7/4/337/976948">https://academic.oup.com/jpe/article/7/4/337/976948</a> 1. Wang et al., 2017; <a href="https://onlinelibrary.wiley.com/doi/abs/10.1111/jvs.12494">https://onlinelibrary.wiley.com/doi/abs/10.1111/jvs.12494</a> 2. Li et al., 2012; <a href="https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1654-1103.2011.01344.x">https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1654-1103.2011.01344.x</a> 2. Zhang et al., 2012;  <a href="https://www.researchgate.net/profile/Chunyu_Zhang8/publication/274314873_Species-Habitat_Associations_in_a_Northern_Temperate_Forest_in_China/links/551b7b7b0cf251c35b509b8c.pdf">https://www.researchgate.net/profile/Chunyu_Zhang8/publication/274314873_Species-Habitat_Associations_in_a_Northern_Temperate_Forest_in_China/links/551b7b7b0cf251c35b509b8c.pdf</a> 2. Liu et al., 2018;  <a href="https://bmcecol.biomedcentral.com/articles/10.1186/s12898-018-0177-9">https://bmcecol.biomedcentral.com/articles/10.1186/s12898-018-0177-9</a></p>	<p>1. Seeds of this species are dispersed primarily through gravity as opposed to wind, because they are heavy and are not carried as far as other wind dispersing plants. 2. In general this species is known to have limited dispersal ability and be confined to a single habitat or areas.</p>
7.05		No Evidence
7.06	<p>1. Shin &amp; Shibuya, 2007;  <a href="https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9">https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9</a> 2. Gilman &amp; Watson, 1994;  <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a></p>	<p>1. Seeds of Maackia amurensis are not animal dispersed. 2. Fruit of this species is not considered showy or attractive to animals.</p>
7.07	<p>1. Shin &amp; Shibuya, 2007;  <a href="https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9">https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9</a> 2. Gilman &amp; Watson, 1994;  <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a></p>	<p>1. Seeds of Maackia amurensis are not animal dispersed. 2. Fruit of this species is not considered showy or attractive to animals.</p>
7.08	<p>1. Shin &amp; Shibuya, 2007;  <a href="https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9">https://www.tandfonline.com/doi/abs/10.1007/s10310-006-0240-9</a> 2. Gilman &amp; Watson, 1994;  <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a></p>	<p>1. Seeds of Maackia amurensis are not animal dispersed. 2. Fruit of this species is not considered showy or attractive to animals.</p>

8.01	<p>1. Chen et al., 2014 supplemental;  <a href="https://academic.oup.com/jpe/article/7/4/337/976948">https://academic.oup.com/jpe/article/7/4/337/976948</a> 2. Kim &amp; Han, 2018; <a href="https://www.degruyter.com/view/journals/biol/13/1/article-p137.xml">https://www.degruyter.com/view/journals/biol/13/1/article-p137.xml</a> 2. PFAF Plant Database; <a href="https://pfaf.org/user/Plant.aspx?LatinName=Maackia+amurensis">https://pfaf.org/user/Plant.aspx?LatinName=Maackia+amurensis</a> 3. eFloras; <a href="http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206">http://efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=200012206</a></p>	<p>1. In experimental forest plots in China, <i>Maackia amurensis</i> individuals were found to have 207-767 seeds per plant. 2. With no pre-treatment for germination, germination rate for this species was 25%, but germination for this species is considered highly variable. 3. Aside from the study mentioned above no specific numbers of seed production could be found; but, each branch has a 4-6 in flower stalk and each legume pod has 1-4 seeds, so there's potential for very high seed production on larger trees.</p>
8.02	<p>1. Nabieva et al., 2018; <a href="http://www.ikprress.org/index.php/PCBMB/article/view/4291">http://www.ikprress.org/index.php/PCBMB/article/view/4291</a> 2. ZhiTing et al., 2009; <a href="https://www.cabdirect.org/cabdirect/abstract/20093208332">https://www.cabdirect.org/cabdirect/abstract/20093208332</a> 3. Dave's Garden; <a href="https://davesgarden.com/guides/pf/go/50042/">https://davesgarden.com/guides/pf/go/50042/</a></p>	<p>No specific mention of dormancy length could be found, but there were multiple references to seed dormancy. 1. 'The mature seeds of <i>Maackia amurensis</i> demonstrate dormancy, which restricted seedling production and propagation of this valuable plant'. 2. This species was one of the dominant species in a seed bank in logged forest gaps. 3. It is recommended to scarify these seeds as they have a thick seed coat.</p>
8.03		No Evidence
8.04	<p>1. Missouri Botanical Garden; <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis</a></p>	<p>No Direct Evidence, but cultivation seems to harm species more than benefit 1. <i>Maackia amurensis</i> typically grows in cultivation at a slow-to-moderate rate to a height of 20-30 ft, but can grow up to 60 ft in the wild.</p>
8.05	<p>1. Gilman &amp; Watson, 1994; <a href="https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf">https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/ma_aamua.pdf</a> 1. Missouri Botanical Garden; <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=280635&amp;isprofile=1&amp;basic=Maackia%20amurensis</a></p>	<p>No Evidence 1. In general, <i>Amur maackia</i> is not considered to have serious problems with disease or pests.</p>