

Family: *Rosaceae*

Taxon: *Rubus Natchez*

Synonym: NA

Common Name: Rubus 'Natchez'

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 7
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	Low
203	Broad climate suitability (environmental versatility)		y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	?
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)	y
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	
405	Toxic to animals		y=1, n=0	n
406	Host for recognized pests and pathogens		y=1, n=0	
407	Causes allergies or is otherwise toxic to humans		y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		y=1, n=0	
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0	y
411	Climbing or smothering growth habit		y=1, n=0	n

412	Forms dense thickets	y=1, n=0	
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 7

Supporting Data:

101	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	Is the species highly domesticated? See following comments] "A new cultivar of blackberry called 'Natchez' is described herein. The new cultivar originated from a hand pollinated cross of Ark. 2005 and Ark. 1857 made in 1998. The seeds resulting from this controlled hybridization were germinated in a greenhouse in the spring of 1999 and planted in a field near Clarksville, Ark. The seedlings fruited during the summer of 2001 and one seedling, designated Ark. 2241, was selected for its early season of ripening, large fruit size, excellent fruit quality, excellent plant health, and thornless canes...the new cultivar and its progenitor lines phenotypically exhibit characters predominately of the erect eastern United States species, <i>Rubus allegheniensis</i> Porter (highbush blackberry) possibly introgressed with <i>R. argutus</i> Link. (tall blackberry). Its genes for thornlessness were derived from the British cultivar 'Merton Thornless' (non patented), a derivative of <i>Rubus ulmifolius</i> Schott." [although this is an artificial thornless cultivar, the loss of competitive traits (i.e. thorns) appears to be offset by other traits that could make it more competitive. There is not enough evidence at this time to conclude that this species has lost its ability to survive without human assisted cultivation.]
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2011. Top Tropicals. Rubus hybrid. Top Tropicals Botanical Garden, http://toptropicals.com/cgi-bin/garden_catalog/cat.cgi?uid=Rubus_hybrid	[Species suited to tropical or subtropical climate(s)? 2-high] "Blackberry Natchez is a new release from Univ. of Arkansas. It's an erect, thornless blackberry bush. It has good fruit quality and ripens early. Berries are larger than Navaho and Arapaho varieties, about 3 berries per oz. Ripening season starts in June. Does very well in Florida"
202	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Quality of climate match data? 0-low] "The new and distinct cultivar of blackberry originated from a hand pollinated cross of Ark. 2005 (non patented, unreleased genotype) xArk. 1857 (non-patented, unreleased genotype) made in 1998 and located near Clarksville, Ark. (West- 20 Central Arkansas)." [hybrid of unpublished parental lineage]
203	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897-1899.	[Broad climate suitability (environmental versatility)? Yes] "Plant hardiness was observed to be good on 'Natchez' in that it showed no to little injury to canes and buds. Minimum winter low temperatures at Clarksville during evaluation reached -14 °C (Dec. 2005) and plants did not show injury at this temperature."
203	2009. ScienceDaily. New Blackberry Fruit Introduced. http://www.sciencedaily.com/releases/2009/02/090217141425.htm	[Broad climate suitability (environmental versatility)? Yes] "'Natchez' is expected to perform well in areas where 'Apache', 'Arapaho', 'Ouachita', or 'Navaho' are adapted, including all areas of the South and into the Midwest, in addition to the West and Pacific Northwest."
203	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Broad climate suitability (environmental versatility)? Yes] "Test plantings over a wide geographic area have shown this new cultivar to be adapted to differing soil and climatic conditions. The new cultivar has been named the 'Natchez' cultivar."
203	2011. Florida Hill Nursery. Fruits -n- Berries :: Natchez blackberry bush live plant NEW Rubus. http://www.passionfruitplants.com/index.php?main_page=product_info&cPath=4&products_id=64	[Broad climate suitability (environmental versatility)? Yes] "Thrives in zones 5-10." [broad climate suitability according to this retailer]
204	2009. Andersen, P.C./Williamson, J.G./Crocker, T.E.. Sustainability Assessment of Fruit & Nut Crops in North Florida & North Central Florida. HS765. University of Florida IFAS Ext., Gainesville, FL http://edis.ifas.ufl.edu/pdf/IFAS/IFAS36700.pdf	[Native or naturalized in regions with tropical or subtropical climates? Unknown] "Prior to 1985, blackberries grown in Florida were cultivars released from the University of Florida, such as 'Oklawaha', 'Flordagrind', and also 'Brazos' from Texas (Sherman and Arnold 1973). However, recent introductions in north Florida of blackberry cultivars from the University of Arkansas have become increasingly popular. Most of the University of Arkansas' cultivars are resistant to double blossom. The thorny cultivars include 'Shawnee' (Moore et al. 1985) and 'Kiowa' (Moore and Clark 1996). Thornless blackberry cultivars include 'Arapaho' (Moore and Clark 1993), 'Navaho' (Moore and Clark 1993), 'Apache' (Clark and Moore 1999a), 'Ouachita' (Clark and Moore 2005), and 'Natchez' (Clark and Moore 2008). All of the blackberries from the University of Arkansas are patented. The southern limit of adaptation for these cultivars appears to be north Florida."
204	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Native or naturalized in regions with tropical or subtropical climates? Unknown] "A new cultivar of blackberry called 'Natchez' is described 5 herein. The new cultivar originated from a hand pollinated cross of Ark. 2005 and Ark. 1857 made in 1998." [Artificial hybrid of undisclosed parental lineage]

205	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Does the species have a history of repeated introductions outside its natural range?] "A new cultivar of blackberry called 'Natchez' is described 5 herein. The new cultivar originated from a hand pollinated cross of Ark. 2005 and Ark. 1857 made in 1998." [Artificial hybrid of undisclosed parental lineage]
301	2011. WRA Specialist. Personal Communication.	[Naturalized beyond native range? Unknown] No evidence that this artificial hybrid has escaped from cultivation to date, as it is relatively new and just becoming available commercially.
302	2011. WRA Specialist. Personal Communication.	[Garden/amenity/disturbance weed? No] No evidence to date. Artificial hybrid cultivar only recently becoming commercially available.
303	2011. WRA Specialist. Personal Communication.	[Agricultural/forestry/horticultural weed? No] No evidence to date. Artificial hybrid cultivar only recently becoming commercially available.
304	2011. WRA Specialist. Personal Communication.	[Environmental weed? No] No evidence to date. Artificial hybrid cultivar only recently becoming commercially available. Cultivar traits are similar to many of the worst invasive <i>Rubus</i> species, and suggest that if <i>Rubus</i> 'Natchez' does escape from cultivation, there could be serious detrimental impacts to natural or agricultural systems.
305	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Congeneric weed? Yes] " <i>Rubus argutus</i> ...forms impenetrable thickets... <i>Rubus cuneifolius</i> ...plant coppices vigorously and forms dense thickets... <i>Rubus ellipticus</i> ...shrub forms impenetrable thickets that displace native vegetation and affect wildlife by impeding movement and reducing habitats... <i>Rubus fruticosus</i> ...forms extensive and dense impenetrable thickets, shading out all other vegetation, displacing it and affecting wildlife habitats... <i>Rubus niveus</i> ...displaces native vegetation, impedes regeneration of native shrubs and trees and affect wildlife habitats... <i>Rubus ulmifolius</i> ...grows in dense patches that displace native vegetation...."
305	2011. USDA Natural Resources Conservation Service. Hawaii State-listed Noxious Weeds. http://plants.usda.gov/java/noxious?rptType=State&statefips=15	[Congeneric weed? Yes] <i>Rubus argutus</i> , <i>Rubus ellipticus</i> , <i>Rubus niveus</i> , & <i>Rubus sieboldii</i> listed as Hawaii State Noxious Weeds
401	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Produces spines, thorns or burrs? No] "The plants are genetically thornless, having the 25 recessive genes for thornless derived from the cultivar Merton Thornless (non patented)...Thornless, erect to semi-erect. Floricane (dormant or winter cane) diameter: base 1.85 cm, midpoint 1.38 cm, terminal 1.12 cm."
402	1988. Coté, J.-F./Thibault, J.-R.. Allelopathic Potential of Raspberry Foliar Leachates on Growth of Ectomycorrhizal Fungi Associated with Black Spruce. <i>American Journal of Botany</i> 75(7): 966-970. 75(7): 966-970.	[Allelopathic? Unknown] "In vitro bioassays on seven species of ectomycorrhizal fungi associated with black spruce (<i>Picea mariana</i> (Mill.) BSP) were tested under allelopathic action of raspberry (<i>Rubus idaeus</i> L.). Radial growth inhibitions were observed when fungi were confronted with increasing concentrations (0%/0.1% 0.5%/0.2.5%) of foliar leachates made from May, July, and September material (1986). For the 2.5% treatments, species <i>Paxillus involutus</i> , <i>Laccaria proxima</i> , <i>Laccaria bicolor</i> , <i>Thelephora terrestris</i> and <i>Cortinarius pseudonapus</i> grew only 6, 8, 32, 42, and 46% of their control, whereas <i>Hebeloma cylindrosporum</i> and <i>Cenococcum geophilum</i> were stimulated. Tree seedlings from raspberry invaded plantation showed mycorrhizal infection rate over 75%, with fine roots mainly colonized by <i>C. geophilum</i> . In combination with efforts of tree improvement and based on the results of this study, it seems important to select a well-adapted mycorrhizae, when interference by raspberry is involved." [Some <i>Rubus</i> species can exhibit allelopathic properties, but no information exists for the relatively new cultivar <i>Rubus</i> 'Natchez']
403	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Parasitic? No] <i>Rubus</i> hybrid (<i>Rosaceae</i>)
404	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. <i>Hortscience</i> . 43(6): 1897-1899.	[Unpalatable to grazing animals? Unknown] "'Natchez' is the twelfth release in a series of erect-growing, high-quality, productive, floricane-fruiting blackberry (<i>Rubus</i> L. subgenus <i>Rubus</i> Watson) cultivars developed by the University of Arkansas." [No information on foliage palatability of this relatively new cultivar]
405	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. <i>Hortscience</i> . 43(6): 1897-1899.	[Toxic to animals? No] "'Natchez' is the twelfth release in a series of erect-growing, high-quality, productive, floricane-fruiting blackberry (<i>Rubus</i> L. subgenus <i>Rubus</i> Watson) cultivars developed by the University of Arkansas." [Commercial cultivar created for human consumption with no reported evidence of toxic or allergenic effects]
406	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Host for recognized pests and pathogens? Unknown] "Plants and fruit are moderately resistant to anthracnose [<i>Elsinoe veneta</i> (Burkh.) Jenkins], and plants appear immune to orange rust [<i>Gymnoconia nitens</i> (Schwein.) F. Kern and H.W. Thurston.] and double blossom/ 30 rosette [<i>Cercospora rubi</i> (Wint.) Plakidas]." [unknown if hybrid may support other pests or pathogens]

407	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897–1899.	[Causes allergies or is otherwise toxic to humans? No] "'Natchez' is the twelfth release in a series of erect-growing, high-quality, productive, floricanes-fruiting blackberry (<i>Rubus</i> L. subgenus <i>Rubus</i> Watson) cultivars developed by the University of Arkansas." [Commercial cultivar created for human consumption with no reported evidence of toxic or allergenic effects]
408	2011. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems? Unknown] If able to form thickets, this cultivar could potentially increase fire hazards in drier areas, but no direct evidence at this time.
409	2011. Dave's Garden. PlantFiles: Blackberry <i>Rubus</i> 'Natchez'. http://davesgarden.com/guides/pf/go/189492/	[Is a shade tolerant plant at some stage of its life cycle? No] "Sun Exposure: Full Sun"
410	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Tolerates a wide range of soil conditions? Yes] "Test plantings over a wide geographic area have shown this new cultivar to be adapted to differing soil and climatic conditions. The new cultivar has been named the 'Natchez' cultivar."
411	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897–1899.	"If primocanes are tipped at 1.1 m to control length and encourage lateral branching, 'Natchez' can be grown in a hedgerow without trellis support. However support of floricanes during fruiting is recommended and with a support trellis, the slightly less erect canes of 'Natchez' should be easily managed by growers." [Suggests that plant is lower growing, and may form dense thickets, but is not a climber]
412	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Forms dense thickets? Unknown] " <i>Rubus argutus</i> ...forms impenetrable thickets... <i>Rubus cuneifolius</i> ...plant coppices vigorously and forms dense thickets... <i>Rubus ellipticus</i> ...shrub forms impenetrable thickets that displace native vegetation and affect wildlife by impeding movement and reducing habitats... <i>Rubus fruticosus</i> ...forms extensive and dense impenetrable thickets, shading out all other vegetation, displacing it and affecting wildlife habitats... <i>Rubus niveus</i> ...displaces native vegetation, impedes regeneration of native shrubs and trees and affect wildlife habitats... <i>Rubus ulmifolius</i> ...grows in dense patches that displace native vegetation...." [no evidence that <i>Rubus</i> 'Natchez' forms dense thickets, but traits of the genus suggest that this could be possible if the plant escapes from cultivation.]
501	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Aquatic? No] Terrestrial <i>Rubus</i> hybrid
502	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Grass? No] <i>Rubus</i> hybrid, Rosaceae
503	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Nitrogen fixing woody plant? No] <i>Rubus</i> hybrid [Although some Rosaceae genera are nitrogen fixers]
504	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] <i>Rubus</i> hybrid
601	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Evidence of substantial reproductive failure in native habitat? No] "Fruit clusters are medium-large, cymose, and are mostly borne on the periphery of the plant canopy, providing easy access to harvest. Flower fertility is high and clusters are well 65 filled." [Artificial <i>Rubus</i> hybrid]
602	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	"The seeds resulting from this controlled hybridization were germinated in a greenhouse in the spring of 1999 and planted in a field near Clarksville, Ark. The seedlings fruited during the summer of 2001 and one seedling, designated Ark. 2241, was selected for its early season of ripening, large fruit size, excellent fruit quality, excellent plant health, and thornless canes...The new cultivar exhibits excellent fruit fertility with full drupelet set in contrast to Ouachita, which has slight drupelet sterility on some berries...Dry seed 60 weight averages 4.2 mg/seed, and seeds are comparable to those of Ouachita."

603	2004. Randell, R.A./Howarth, D.G./Morden, C.W.. Genetic analysis of natural hybrids between endemic and alien <i>Rubus</i> (Rosaceae) species in Hawai'i. <i>Conservation Genetics</i> . 5: 217–230: 217–230.	[Hybridizes naturally? Unknown] "Abstract A population of putative hybrids between the endemic <i>Rubus hawaiiensis</i> and naturalized <i>R. rosifolius</i> was discovered in Kīpahulu Valley, on the island of Maui in the Hawaiian archipelago. The goal of this study was to molecularly characterize this natural hybridization event, investigate the mode of hybridization, and determine the male fertility of the hybrid individuals. Both morphological and RAPD marker data indicate that the putative hybrid individuals are the progeny of <i>R. rosifolius</i> and <i>R. hawaiiensis</i> . All 39 hybrid individuals sampled had the chloroplast DNA haplotype of <i>R. rosifolius</i> . Thus hybridization appears to be asymmetric, with <i>R. rosifolius</i> acting as the maternal parent. All hybrid individuals assessed for pollen stainability were sterile, and there was no evidence of backcrossing to either parent. This result suggests that hybrids are of the first filial generation and that variation among hybrids reflects differences within the parental populations. Sympatric populations of <i>R. hawaiiensis</i> and <i>R. rosifolius</i> occur on four islands and six additional alien species of <i>Rubus</i> are naturalized and sympatric with <i>R. hawaiiensis</i> in Hawai'i. Further investigation is merited to assess whether hybridization may pose a threat to the long term viability of <i>R. hawaiiensis</i> . This study highlights the increasing frequency and negative consequences of native-alien hybridization and the importance of maintaining active alien species control programs in the Hawaiian Islands." [natural hybridization has been documented in the genus <i>Rubus</i> , but it is unknown whether this could occur with the relatively new cultivar <i>Rubus</i> 'Natchez']
604	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Self-compatible or apomictic? Yes] "Self fertile."
604	2010. Ruple, A.L./Clark, J.R./Garcia, M.E.. An Evaluation of Fertility in Arkansas Primocane-fruited Blackberries. <i>Hortscience</i> . 45(7): 1000–1005.	[Self-compatible or apomictic? Yes] "Abstract. Floral fertility of five primocane-fruited (PF) blackberry (<i>Rubus</i> L. subgenus <i>Rubus</i> Watson) genotypes ('Prime-Jim'□, APF 31, 'Prime-Ark□ 45', APF-59, and APF- 77) and three floricanefruited (FF) genotypes ('Navaho', 'Natchez', and 'Ouachita') were tested under field conditions using floricaneflowers with four pollination treatments: undisturbed open pollinated, emasculated self-pollinated, emasculated and cross-pollinated with pollen from a similar fruiting type (PF · PF or FF · FF), and emasculated and cross-pollinated with pollen from a different fruiting type (PF · FF or FF · PF)...There were no significant differences in pollen tube growth between cross- and self-pollination for any other genotype."
605	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Requires specialist pollinators? No] "Blossom color.-White Group (155D). Reproductive organs.-Stamens - erect, numerous. Pistils - numerous. Pollen - normal and abundant. Self fertile. Flower diameter.-3.16 cm. Petal size.-Length: 1.63 cm. Width: 1.38 cm. Number flowers per cluster.-Mean of 7 with range of 4 to 10. Number o/petals per flower.-6. Number o/sepals per flower.-5 to 6. Peduncle length.-1.83 cm. Peduncle color.-Yellow-Green Group (146B). Cyme type.-Elongate simple cyme." [Flowers are self-fertile, and the morphology does not suggest adaptations for specialized pollinators]
605	2010. Ruple, A.L./Clark, J.R./Garcia, M.E.. An Evaluation of Fertility in Arkansas Primocane-fruited Blackberries. <i>Hortscience</i> . 45(7): 1000–1005.	[Requires specialist pollinators? No] "Abstract. Floral fertility of five primocane fruiting (PF) blackberry (<i>Rubus</i> L. subgenus <i>Rubus</i> Watson) genotypes ('Prime-Jim'□, APF 31, 'Prime-Ark□ 45', APF-59, and APF- 77) and three floricanefruited (FF) genotypes ('Navaho', 'Natchez', and 'Ouachita') were tested under field conditions using floricaneflowers with four pollination treatments: undisturbed open pollinated, emasculated self-pollinated, emasculated and cross-pollinated with pollen from a similar fruiting type (PF · PF or FF · FF), and emasculated and cross-pollinated with pollen from a different fruiting type (PF · FF or FF · PF)...There were no significant differences in pollen tube growth between cross- and self-pollination for any other genotype."
606	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Reproduction by vegetative fragmentation? Yes] "Growth habit.-Vigorous, with moderate suckering from crowns, moderate suckering from roots, canes erect to semi-erect."
607	2010. Agri-Starts, Inc.. Edibles. http://www.agristarts.com/htm/edibles.htm	[Minimum generative time (years)? 2] "'Natchez' and 'Ouachita' are both floricanes, meaning they will produce fruit on 2 year old wood."
607	2011. Top Tropicals. <i>Rubus</i> hybrid. Top Tropicals Botanical Garden, http://toptropicals.com/cgi-bin/garden_catalog/cat.cgi?uid=Rubus_hybrid	[Minimum generative time (years)? 2] "Your plants will begin producing fruit, in late spring, in their second year. While the plant itself is perennial, the canes themselves are biennial. Fruit is produced on second year growth. New canes grow, berry-less, the first year and produce fruit in the second year."

701	2003. Starr, F./Starr, K./Loope, L.L.. Rubus ellipticus - Yellow Himalayan raspberry - Rosaceae. USGS - Biological Resources Haleakala Field Station Maui, http://www.hear.org/starr/hiplants/reports/pdf/rubus_ellipticus.pdf	[Propagules likely to be dispersed unintentionally? Unknown] "On Maui, R. ellipticus is not yet established in the wild. However, plants have been observed on hapu'u (Cibotium spp.) tree ferns and parts that are shipped from infested areas of Hawai'i. ... These ferns appear "clean" during transport, then seeds sprout some time later in their new locations. There are likely more locations on Maui where Rubus ellipticus will be found in the future. Rubus ellipticus is a noxious weed and strategies for preventing inter-island transport are needed." [Unknown for Rubus 'Natchez', but potential exists for inadvertent transport of seeds as has been documented with Rubus ellipticus]
702	2009. ScienceDaily. New Blackberry Fruit Introduced. http://www.sciencedaily.com/releases/2009/02/090217141425.htm	[Propagules dispersed intentionally by people? Yes] "Outstanding characteristics of 'Natchez' include early fruit-ripening date, high fruit quality, consistent high yields, large fruit size, and excellent postharvest fruit-handling potential. Superior plant characteristics include thornless, erect to semierect canes and good vigor and health. 'Natchez' also shows good potential for home garden use." [marketed commercially]
702	2010. Agri-Starts, Inc.. Edibles. http://www.agristarts.com/htm/edibles.htm	[Propagules dispersed intentionally by people? Yes] Sold commercially
703	2003. Starr, F./Starr, K./Loope, L.L.. Rubus ellipticus - Yellow Himalayan raspberry - Rosaceae. USGS - Biological Resources Haleakala Field Station Maui, http://www.hear.org/starr/hiplants/reports/pdf/rubus_ellipticus.pdf	[Propagules likely to disperse as a produce contaminant? Unknown] "On Maui, R. ellipticus is not yet established in the wild. However, plants have been observed on hapu'u (Cibotium spp.) tree ferns and parts that are shipped from infested areas of Hawai'i. ... These ferns appear "clean" during transport, then seeds sprout some time later in their new locations. There are likely more locations on Maui where Rubus ellipticus will be found in the future. Rubus ellipticus is a noxious weed and strategies for preventing inter-island transport are needed." [Unknown for Rubus 'Natchez', but potential exists for inadvertent seed contamination of tree fern trunks, or other produce, as has been documented with Rubus ellipticus]
704	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Propagules adapted to wind dispersal? No] "The fruit are long and cylindrical in shape, bright glossy black in color and very attractive. The fruit are large (8-9 g) and 1.5 to 2.0 g larger than the size of the fruit of the Ouachita cultivar."
705	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897-1899.	[Propagules water dispersed? Probably not] "Fruit of 'Natchez' are elongated and somewhat blocky and very attractive with an exceptional glossy, black finish" [Unlikely. Rubus fruits are adapted for bird and vertebrate dissemination]
706	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897-1899.	[Propagules bird dispersed? Yes]? Yes "Fruit of 'Natchez' are elongated and somewhat blocky and very attractive with an exceptional glossy, black finish"
706	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Propagules bird dispersed? Yes] "Plants and fruit of this new cultivar differ phenotypically from its parents. The new cultivar is earlier ripening and 5 larger in fruit size than the parent Ark. 2005, and is more productive and larger than parent Ark.1857. The new cultivar retains larger fruit size throughout the harvest season than either of the parent blackberries." [fleshy-fruited, and presumably capable of being dispersed by birds and other vertebrate frugivores]
707	2008. Clark, J.R./Moore, J.N.. 'Natchez' Thornless Blackberry. Hortscience. 43(6): 1897-1899.	[Propagules dispersed by other animals (externally)? No] "Fruit of 'Natchez' are elongated and somewhat blocky and very attractive with an exceptional glossy, black finish" [Unlikely. Rubus fruits are adapted for interanal bird and vertebrate dissemination & lack means of external attachment]
708	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	"Plants and fruit of this new cultivar differ phenotypically from its parents. The new cultivar is earlier ripening and 5 larger in fruit size than the parent Ark. 2005, and is more productive and larger than parent Ark.1857. The new cultivar retains larger fruit size throughout the harvest season than either of the parent blackberries." [fleshy-fruited, and seeds presumably capable of surviving passage through guts of birds and other vertebrate frugivores]
801	2010. Clark, J.R.. United States Plant Patent - Blackberry Plant names 'Natchez'. Patent No.: US PP20,891 P3. United States Patent & Trademark Office, Alexandria, VA	[Prolific seed production (>1000/m2)? Unknown] "Drupelet size.-Medium, 0.51 cm. Seedsize.-Length0.37 cm, width 0.212 cm, 0.01 g (dry wt., individual seed)." [seed production yields not available]
802	2002. Shelton, M.G./Cain, M.D.. Potential carry-over of seeds from 11 common shrub and vine competitors of loblolly and shortleaf pines. Canadian Journal of Forest Research. 32: 412-419.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "To evaluate the potential carry-over of the seeds from 11 shrub and vine competitors of these two important southern pines, we designed packets so that fruits could be deposited on the forest floor and subsequently extracted over a 3-year period...blackberry (Rubus argutus Link) were moderate in viability (7-19%) after the third year of field storage" [related species Rubus argutus has long-lived seed bank, but unknown for Rubus 'Natchez']

803	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Well controlled by herbicides? Unknown for Rubus 'Natchez'] Chemical control of several invasive Rubus species is described in greater detail, which suggests that herbicide use may be effective at controlling Rubus 'Natchez'.
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] Rubus 'Natchez' is a relatively new commercial cultivar, with no information on herbicide use or efficacy. Some other invasive Rubus species are effectively controlled with herbicides.
804	2011. Top Tropicals. Rubus hybrid. Top Tropicals Botanical Garden, http://toptropicals.com/cgi-bin/garden_catalog/cat.cgi?uid=Rubus_hybrid	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "After you have harvested the last of the fruit in early summer you need to prune back, to the ground, all the canes that bore fruit that year." [tolerates heavy pruning]
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally? Unknown]