

Family: *Oleaceae*

Taxon: *Olea europaea ssp cuspidata*

Synonym: *Olea africana* Mill.
Olea chrysophylla Lam.
Olea cuspidata Wall. ex G. Don (basionym)
Olea europaea subsp. *africana* (Mill.) P. S. G
Olea ferruginea Royle
Olea sativa var. *verrucosa* (Willd.) Roem. & S
Olea verrucosa (Willd.) Link

Common Name: Wild Olive
Brown olive
African Olive
Olea europaea subsp. *Cuspidata*
Indian olive

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	H(Hawai'i)
Status:	Assessor Approved	Data Entry Person:	HPWRA OrgData	WRA Score	11
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)	High
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	y
205	Does the species have a history of repeated introductions outside its natural range?			y=-2, ?=-1, n=0	y
301	Naturalized beyond native range			y = 1*multiplier (see Appendix 2), n= question 205	y
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)	y
305	Congeneric weed			n=0, y = 1*multiplier (see Appendix 2)	n
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	n
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	y
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	y
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	
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	
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	y
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
803	Well controlled by herbicides	y=-1, n=1	y
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	n

Designation: H(Hawai'i)

WRA Score 11

Supporting Data:

101	2002. Green, P.S.. A Revision of <i>Olea L.</i> (Oleaceae). <i>Kew Bulletin</i> . 57(1): 91-140.	[Is the species highly domesticated?? No] "This is the widespread wild olive which occurs from South to North-East Africa, and from South-West Asia to the drier parts of Yunnan and Sichuan in China (see the maps as figs 1 & 2 in Green & Wickens 1989)." [In contrast to ssp. <i>europaea</i> "This is the cultivated olive, one of the world's oldest cultivated plants, and only known as such."]
101	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Is the species highly domesticated? No] "Although part of the <i>Olea europaea</i> complex, African Olive is part of a tropical wild olive group, and has a weed ecology that is distinct from European Olive."
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Species suited to tropical or subtropical climate(s) 2-high] " <i>O. europaea</i> ssp. <i>cuspidata</i> (African wild olive) is a sclerophyllous evergreen tree with a heavy branched and rounded crown. It grows to 5–15 m (maximum 25 m) tall and is widely distributed in Afromontane forests, particularly in drier highland forests in association with <i>Juniperus procera</i> Hochst. ex Endl. (Cupressaceae, East African pencil cedar), forest margins, riverine forests and evergreen montane scrub from 1250 to 3000 m above sea level in Sudan, Somalia and southward through east tropical Africa into South Africa (Green, 2003)."
201	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Species suited to tropical or subtropical climate(s) 2-high] "The major area of natural distribution for African Olive is eastern Africa, where it extends throughout the eastern African states from the southern tip of Africa to the northeast regions. It is commonly recorded for the countries of Tanzania, Kenya, Ethiopia, Mozambique, Sudan, Namibia, Somalia and South Africa. From eastern Africa, the distribution extends into the Middle East region with occurrences in Yemen and Saudi Arabia. A significant Asian centre of African Olive distribution is northern India, Afghanistan, Pakistan and Kashmir. The most easterly natural distribution is China, particularly the drier parts of Yunan and Sichuan (Green 2002)."
202	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Quality of climate match data 2-high] "...widely distributed in Afromontane forests, particularly in drier highland forests in association with <i>Juniperus procera</i> Hochst. Ex Endl. (Cupressaceae, East African pencil cedar), forest margins, riverine forests and evergreen montane scrub from 1250 to 3000 m above sea level in Sudan, Somalia and southward through east tropical Africa into South Africa (Green, 2003)."
203	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Broad climate suitability (environmental versatility)? Yes] "A medium-sized, evergreen tree which is indigenous in western Himalaya in the Indo Pakistan sub-continent, ascending to 2000 m." [Elevation range exceeds 1000 m]
203	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Broad climate suitability (environmental versatility)? Yes] "The capacity for African Olive to establish in both temperate and subtropical zones, underlie the potential for spread well beyond current distribution in New South Wales." ... "The establishment of African Olive as major woody weed species in the subtropical climate of Norfolk Island (average annual rainfall 1325 mm, range 784– 1856 mm) is a clear indication of its adaptability to climatic zones outside current distribution in mainland Australia." ... "African Olive appears to tolerate a wide range of environmental conditions and is able to establish in temperate or subtropical environments." ... "Distributional data show that African Olive has been able to invade a wide range of habitats ranging from temperate regions with about 800 mm rainfall through to subtropical zones which receive 1200 mm annual rainfall."
203	2008. Breton, C./Guerin, J./Ducattillon, C./Medail, F./Kull, C.A./Berville, A.. Taming the wild and 'wilding' the tame: Tree breeding and dispersal in Australia and the Mediterranean. <i>Plant Science</i> . 175: 197–205.	[Broad climate suitability (environmental versatility)? Yes] "The olive and oleaster spread in thermo Mediterranean and meso-Mediterranean climates characterized by deep drought during summer. The olive must be watered in arid climates. In contrast subsp. <i>cuspidata</i> is found in a variety of different climates: arid in Yemen and humid in the highlands of India and East Africa. The adaptation flexibility of this subspecies may increase its invasive potential."
204	2002. Green, P.S.. A Revision of <i>Olea L.</i> (Oleaceae). <i>Kew Bulletin</i> . 57(1): 91-140.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "This subspecies has become naturalized in Hawaii, Australia, New Zealand and on Norfolk Island, but how and when it was introduced is not known."

204	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "...from 1250 to 3000 m above sea level in Sudan, Somalia and southward through east tropical Africa into South Africa (Green, 2003)."
204	2007. Besnard, G./Henry, P./Wille, L./Cooke, D./Chapuis, E.. On the origin of the invasive olives (<i>Olea europaea</i> L., Oleaceae). <i>Heredity</i> . 99: 608–619.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "This study confirmed that successful invasion can occur even after an important bottleneck (for example, Hawaii). Furthermore, subspecies <i>cuspidata</i> and <i>europaea</i> invaded different areas, with the former mainly found in warm temperate to tropical areas and the latter in areas displaying a typical Mediterranean climate. However, as both subspecies increase their ranges, chances for hybridization and introgression will increase, putatively leading to higher within population genetic diversity and increasing potential for evolutionary changes (Kolbe et al., 2004; Facon et al., 2006)."
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Naturalized beyond native range? Yes] "...naturalized and becoming a serious pest in the vicinity of 'Ainahou Ranch, Hawaii."
301	2002. Green, P.S.. A Revision of <i>Olea</i> L. (Oleaceae). <i>Kew Bulletin</i> . 57(1): 91-140.	[Naturalized beyond native range? Yes] "This subspecies has become naturalized in Hawaii, Australia, New Zealand and on Norfolk Island, but how and when it was introduced is not known."
301	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Naturalized beyond native range? Yes] "African Olive, <i>Olea europaea</i> subsp. <i>Cuspidata</i> (Wall. ex G.Don) Cif. (family Oleaceae) is a dense-crowned tree introduced into Australia for horticulture in the mid 19th century. In recent decades, African Olive has become an aggressive woody weed, capable of forming a dense and permanent canopy in a wide range of vegetation types in south-west Sydney and beyond." ... "In Australia both the European Olive (<i>Olea europaea</i> subsp. <i>europaea</i>) and African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) have naturalised." ... "African Olive is listed by the Bay of Plenty Regional Environment Council as a weed of open coastal scrub and modified sites near native forest margins. It occurs on both inshore and offshore islands such as Raoul Island (Kermadec Island group), where it is showing aggressive weed tendencies similar to on Norfolk Island (BPRC 2006). An African Olive eradication program is currently being implemented on Raoul Island by the New Zealand Department of Conservation (Ambrose pers. comm.). Occasional occurrences have been reported around Auckland city and the inner Hauraki Gulf islands where it displaces coastal shrubs and trees (BPRC 2006)."
301	2010. Frohlich, D./Lau, A.. New plant records from O'ahu for 2008. <i>Bishop Museum Occasional Papers</i> . 107: 3-18.	[Naturalized beyond native range? Yes]" <i>Olea europaea</i> ssp. <i>cuspidata</i> , which is the wild form of the cultivated olive (Staples & Herbst 2005), is a frequently cultivated hedge and feature plant in the O'ahu urban landscape. Already, it has been collected as naturalized on Kaua'i, Lāna'i, Maui, and the Big Island (Lorence & Wagner 1995; Herbst & Wagner 1999; Starr et al. 1999, 2010). Birds are the most likely disperser of this plant, which produces abundant, fleshy fruit (Staples & Herbst 2005). Material examined. O'AHU: Pālehua Rd at second gate before alphabetical driveways begin, roadside vegetation, 535 m (1760 ft), 14 May 2008, K. Kawelo USARMY 92."
301	2010. Starr, F./Starr, K./Loope, L.L.. New plant records from the Hawaiian Archipelago. <i>Bishop Museum Occasional Papers</i> . 107: 61-68.	[Naturalized beyond native range? Yes] " <i>Olea europaea</i> subsp. <i>cuspidata</i> (African olive) spreads by fruit-eating birds and has been documented as naturalized on Kaua'i, o'ahu, Maui, and Hawai'i (Wagner et al. 1999; Lorence et al. 1995; Starr et al. 1999; Frohlich & Lau 2010). on Lāna'i, it is widely cultivated and naturalized near Lāna'i City. This collection represents a new island record for Lāna'i"
302	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Garden/amenity/disturbance weed? Environmental Weed. See 3.04] "African Olive invasion leads to a loss in native plant diversity, and research into restoration ecology is needed, particularly for sites with an established cover of African Olive where bush regeneration, and cutting and poisoning are the main methods of control."
303	2012. WRA Specialist. Personal Communication.	[Agricultural/forestry/horticultural weed? Environmental Weed. See 3.04]

304	1992. Santos, G.L. et al.. Herbicidal Control of Selected Alien Plant Species in Hawai'i Volcanoes National Park. Pp. 341-375 in Stone, C.P. et al. (eds.) Alien Plant Invasions in Native Ecosystems of Hawai'i. University of Hawaii CPSU, Honolulu, HI	[Environmental weed? Yes] "Olive (<i>Olea europaea</i> subsp. <i>africana</i>), a relatively recent pest in Hawai'i Volcanoes National Park, is found on over 14,825 a (6,000 ha) on the former 'Ainahou Ranch. Its current elevational range in the Park is between 1,640 and 3,280 ft (500-1,000 m) (J.T. Tunison, pers. comm.), and the infestation has expanded rapidly since the removal of cattle (<i>Bos taunts</i>) in the early 1970s. Trees 16 ft (5 m) tall have been observed, and it is believed that olive will shade out native species. This olive produces copious fruit, and seedlings beneath a parent tree may exceed 110 individuals/ft ² (1,200/m ²) (G.L. Santos, unpub. data)."
304	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Environmental weed? Yes] "African Olive, <i>Olea europaea</i> subsp. <i>Cuspidata</i> (Wall. ex G.Don) Cif. (family Oleaceae) is a dense-crowned tree introduced into Australia for horticulture in the mid 19th century. In recent decades, African Olive has become an aggressive woody weed, capable of forming a dense and permanent canopy in a wide range of vegetation types in south-west Sydney and beyond." ... "African Olive is a declared noxious weed in NSW and South Australia, and listed nationally as a potential environmental weed (Csurches & Edwards 1998)."
304	2009. Cuneo, P./Jacobson, C.R./Leishman, M.R.. Landscape-scale detection and mapping of invasive African Olive (<i>Olea europaea</i> L. ssp. <i>cuspidata</i> Wall ex G. Don Ciferri) in SW Sydney, Australia using satellite remote sensing. <i>Applied Vegetation Science</i> . 12([Environmental weed? Yes] "African Olive (<i>Olea europaea</i> ssp <i>cuspidata</i>) was introduced into Australia for horticultural purposes in the mid 19th century, and has established as an aggressive environmental weed that is readily spread by frugivorous birds (Spennemann & Allen 2000). It is an evergreen small to medium tree with a dense crown that is part of the <i>Olea europaea</i> complex, which includes the European or edible olive. In recent decades, it has become invasive in the Cumberland Plain region of western Sydney, Australia, and is capable of forming a dense and permanent mid-canopy in a wide range of vegetation types (Cuneo & Leishman 2006). It is highly invasive in drier woodlands, riverine environments, coastal headlands and dune systems (Muyt 2001), outcompeting established native vegetation and casting dense shade that prevents regeneration of native plants (DEH 2004). African Olive is also recorded as a serious woody weed in the Hunter Valley and Illawarra regions of New South Wales, Australia, as well as on Norfolk Island and the Hawaiian Islands of Maui and Kauai ... The establishment and expansion of African Olive as an invasive weed in the Cumberland Plain region is significant because the region contains 12 Endangered Ecological Communities (EEC) that are listed under the NSW Threatened Species Conservation Act 1995."
305	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Congeneric weed? No. Subspecies <i>europaea</i> can be invasive, however] "European Olive (<i>Olea europaea</i> subsp. <i>europaea</i>) is well documented as an environmental weed in Australia, particularly in the Adelaide region of South Australia where cultivated trees have been abandoned and their progeny have established in remnant bushland (Spennemann & Allen 2000a, Crossman 2002)."
401	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Produces spines, thorns or burrs? No] "Trees to 8-10 m tall with a broad crown, sometimes shrubby; young branches grayish lepidote. Leaves narrowly elliptic to oblong or lanceolate, (1-) 2-8 cm long, (0.3-) 0.5-1.5 (-2) cm wide, upper surface glabrous, lower surface moderately to densely grayish, green, or golden lepidote" ... "Lower leaf surface moderately to densely green or golden lepidote and thinly fleshy fruit ca. 6-7 mm long" [Subspecies <i>cuspidata</i>]
402	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Allelopathic? Unknown] "A distinctive bare soil zone is evident along the margins of established stage African Olive stands, beyond the tree crown, but it is not known whether the development of a dense African Olive crown has an allelopathic effect on native species, similar to that described for weedy European Olives in Australia (Plant & Animal Control Commission 2006)."
403	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Parasitic? No] "Trees to 8-10 m tall..."
404	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Unpalatable to grazing animals? No] "It is a slow growing, shade, drought, and fire tolerant tree, often lopped for fodder."

404	2009. Aynekulu, E./Denich, M./Tsegaye, D.. Regeneration Response of <i>Juniperus procera</i> and <i>Olea europaea</i> subsp <i>cuspidata</i> to Exclosure in a Dry Afromontane Forest in Northern Ethiopia. Mountain Research and Development. 29(2): 143–152.	[Unpalatable to grazing animals? No] "The Afromontane forests of northern Ethiopia have been degraded and fragmented for centuries. Recently, efforts have been made to restore these forests by protecting them from livestock interference. In this study, the natural regeneration of <i>Juniperus procera</i> Hochst. Ex Endl. and <i>Olea europaea</i> L. subsp <i>cuspidata</i> (Wall. ex G. Don) Cif. Is investigated under protected conditions after 3 years of enclosure and under open management systems in a dry Afromontane forest in northern Ethiopia. Data on the floristic and structural compositions of the vascular plants were collected using 32 randomly selected plots (20 m 3 20 m), while nested plots (10 m 3 10 m) were used to investigate the seedling bank at the protected and adjacent open sites. The results reveal that there was a significantly higher regeneration of <i>O. europaea</i> on the protected site than on the open site (P 5 0.01). However, there was no significant difference between the 2 sites for <i>J. procera</i> (P 5 0.16). Thus, protecting the degraded forest in northern Ethiopia seems to be an appropriate management option for the regeneration of <i>O. europaea</i> . The regeneration status of <i>J. procera</i> at both sites is poor, which indicates that protecting the forest from livestock and human disturbance is unlikely to lead to regeneration of this species. Further investigation of other factors that hinder the regeneration of <i>J. procera</i> is therefore recommended."
404	2009. Cuneo, P./Jacobson, C.R./Leishman, M.R.. Landscape-scale detection and mapping of invasive African Olive (<i>Olea europaea</i> L. ssp. <i>cuspidata</i> Wall ex G. Don Ciferri) in SW Sydney, Australia using satellite remote sensing. Applied Vegetation Science. 12([Unpalatable to grazing animals? No] "The prevalence of African Olive on steeper terrain may be due to lower accessibility for grazing stock to steep slopes, as stock are known to inhibit the growth and establishment of young seedlings (Parsons & Cuthbertson 2001)."
405	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Toxic to animals? No] "It is a slow growing, shade, drought, and fire tolerant tree, often lopped for fodder."
406	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Host for recognized pests and pathogens? Potentially] "Pests recorded Insects: <i>Zygina oleae</i> Snails: <i>Helix aspersa</i> (common snail) Fungus diseases: <i>Eupelte amicta</i> Pests recorded at the generic level (<i>Olea</i>): Insects: <i>Aspidiotus nerii</i> (<i>aucuba</i> scale) <i>Ceroplastes rubens</i> (red wax scale) <i>Coccus hesperidum</i> (brown soft scale) <i>Cossus cossus</i> (carpenter moth) <i>Diaspidiotus ostreaeformis</i> (pear oyster scale) <i>Diaspidiotus perniciosus</i> (San José scale) <i>Metcalfa pruinosa</i> (frosted moth-bug) <i>Nipaecoccus nipae</i> (spiked mealybug) <i>Saissetia oleae</i> (olive scale) <i>Siphoninus phillyreae</i> (ash whitefly) Pests recorded at the family level (<i>Oleaceae</i>): Insects: <i>Aspidiotus nerii</i> (<i>aucuba</i> scale) <i>Cryptotermes brevis</i> (powderpost termite) <i>Taeniothrips inconsequens</i> (pear thrips)"
407	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Causes allergies or is otherwise toxic to humans? No] "The fruits are also eaten by monkeys, mongoose and humans (Pooley 1993). The leaves are used to make a tea, a gargle for sore throats and an eye lotion (University of Pretoria 2004)."[No evidence]
408	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Creates a fire hazard in natural ecosystems? Possibly] "African Olive regenerates readily from a lignotuber structure at the base of the trunk after fire, in a similar manner to the native shrub <i>Bursaria spinosa</i> with which it commonly cooccurs in the Sydney region. African Olive seedlings up to 1 m high are killed by low intensity fire (von Richter et al. 2005)."[Dense thickets of trees could possibly increase fire risk]
409	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is a shade tolerant plant at some stage of its life cycle? Yes] "It is a slow growing, shade, drought, and fire tolerant tree, often lopped for fodder."
409	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "In undisturbed forest, germination results in populations of shade tolerant and slowly growing seedlings (Teketay and Granstrom, 1997), and both in set-aside areas and grazing land, natural regeneration has been documented under early-successional shrubs (Aerts et al., 2006a)."
410	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Tolerates a wide range of soil conditions ? Yes] "Soil descriptors - Soil texture: light; medium - Soil drainage: free - Soil reaction: acid; neutral - Special soil tolerances: shallow; infertile"
411	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Climbing or smothering growth habit? No] "Trees to 8-10 m tall with a broad crown, sometimes shrubby..."

412	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Forms dense thickets? Yes] "African Olive is one of the worst woody weeds on Norfolk Island, occurring as isolated plants, scattered clumps, and impenetrable thickets (DEH 2004). Norfolk Island was settled by Europeans in 1788 and considerable deforestation occurred soon after (Hill 2002). As the native forest was cleared African Olive became a major weed, and quickly established dense closed monoculture forests."
412	2009. Cuneo, P./Jacobson, C.R./Leishman, M.R.. Landscape-scale detection and mapping of invasive African Olive (<i>Olea europaea</i> L. ssp. <i>cuspidata</i> Wall ex G. Don Ciferri) in SW Sydney, Australia using satellite remote sensing. <i>Applied Vegetation Science</i> . 12([Forms dense thickets? Yes] "In recent decades, it has become invasive in the Cumberland Plain region of western Sydney, Australia, and is capable of forming a dense and permanent mid-canopy in a wide range of vegetation types (Cuneo & Leishman 2006) ... The total area of dense African Olive infestation mapped in the study area for the year 2000 imagery was 1907 ha, which is significantly more than the 1361 ha identified as "olive understory" by NPWS mapping for the entire Cumberland Plain region in 2002."
501	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Aquatic? No] "Trees to 8-10 m tall with a broad crown, sometimes shrubby; young branches grayish lepidote."
502	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Grass? No] "Trees to 8-10 m tall..." [Oleaceae]
503	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Nitrogen fixing woody plant? No] Oleaceae
504	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Trees to 8-10 m tall with a broad crown, sometimes shrubby; young branches grayish lepidote."
601	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermly, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Evidence of substantial reproductive failure in native habitat? No. Although threatened due to overharvesting] "Once established, the tree is drought resistant, but because of its multiple uses (e.g. durable timber, traditional oxploughs, firewood and charcoal) both young and mature trees have been overharvested dramatically in Ethiopia. As a result this valuable tree is now under threat of local extinction (Negash, 2003)."
601	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Evidence of substantial reproductive failure in native habitat? No. Threatened from overexploitation] "Due primarily to over exploitation of its useful timber, African Olive is considered threatened in some African regions and is a protected tree in the Northern Cape, Free State and North-west Provinces of South Africa."
602	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces viable seed? Yes] " It coppices well, produces root suckers and may also be grown from seed and cuttings."
603	2007. Besnard, G./Henry, P./Wille, L./Cooke, D./Chapuis, E.. On the origin of the invasive olives (<i>Olea europaea</i> L., Oleaceae). <i>Heredity</i> . 99: 608–619.	[Hybridizes naturally? Possibly Yes] "Furthermore, Besnard et al. (2007) identified hybridization and reticulation among the olive subspecies. Consequently, subspecies <i>europaea</i> and <i>cuspidata</i> are likely to hybridize or introgress when in sympatry (Besnard et al., 2001c; Rubio de Casas et al., 2006). This phenomenon could alleviate the loss of genetic diversity due to bottlenecks arising from small initial founder populations during colonization events (Husband and Barrett, 1991; Lee, 2002) and contribute to the ecological success of colonizing populations. However, genomic incompatibilities may affect the fitness of early generations of hybrids (Rieseberg et al., 1996)."
603	2008. Breton, C./Guerin, J./Ducattillon, C./Medail, F./Kull, C.A./Berville, A.. Taming the wild and 'wilding' the tame: Tree breeding and dispersal in Australia and the Mediterranean. <i>Plant Science</i> . 175: 197–205.	[Hybridizes naturally? Possibly No] "However, even though both subsp. have been introduced in Australia, subsp. <i>cuspidata</i> x subsp. <i>europaea</i> may not cross naturally. This is suggested by experiments provided by P. Villemur (unpublished) in the nursery of Institut National de la Recherche Agronomique in Montpellier which show a shift in blooming by 1 month between the two subspecies. An equivalent situation is found in Morocco where the two subsp. <i>maroccana</i> and <i>europaea</i> are in sympatry (thrive in the same area), but they did not cross because subsp. <i>maroccana</i> blooms 1 month earlier than subsp. <i>europaea</i> [85,86]."
604	2008. Breton, C./Guerin, J./Ducattillon, C./Medail, F./Kull, C.A./Berville, A.. Taming the wild and 'wilding' the tame: Tree breeding and dispersal in Australia and the Mediterranean. <i>Plant Science</i> . 175: 197–205.	[Self-compatible or apomictic? Possibly No] "About 60 cultivars have been introduced and feral olives are expected to derive from some of them. However, due to self-incompatibility for most of them we expected that crosses occurred between those cultivars."

604	2008. Seifi, E.. Self-incompatibility of Olive. PhD. Dissertation. University of Adelaide, Adelaide, Australia	[Self-compatible or apomictic? Possibly No] "Most olive cultivars are self-incompatible and do not produce a commercial yield after self-pollination."
604	2009. Paudel, S.. Current Status of Wild Olive (<i>Olea cuspidata</i> Wall.ex G. Don) in Bajura District of Nepal. B. Sc. Thesis. Kathmandu Forestry College, Tribhuvan University, Kathmandu, Nepal	[Self-compatible or apomictic? Possibly] "The flowers are largely wind pollinated with most olive varieties being self-pollinating, yet fruit set is usually improved by cross pollination with other varieties. There are self incompatible varieties that do not set fruit without other varieties nearby, and there are varieties that are incompatible with certain others. Incompatibility can also occur due to environmental reasons such as high temperatures."
605	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Requires specialist pollinators? No] "Pollination under Australian conditions is not documented, but is considered to be primarily by wind (as for European Olive) and a range of insects."
606	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Reproduction by vegetative fragmentation? No] No evidence
606	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Reproduction by vegetative fragmentation? No] No evidence
607	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Minimum generative time (years)? 5+] "Seedling growth rate is highly variable and dependent on aspect and moisture availability, with plants growing vigorously along creek and drainage lines. Plants in dry, open, exposed sites are commonly less than 1 m high after 5–10 years (D. Benson, pers. comm.). In moist, more protected sites, plants reach sexual maturity after 5–6 years and are commonly shrubs 3–4 m high and 3–4 m wide, with an average stem diameter of 35 mm at this early fruit-bearing age."
701	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Fruit – purple black thinly fleshed drupe, round 6–7 mm diameter" ... "The establishment of African Olive along roadsides and exclusion of native species has a significant impact on native plant diversity, as roadsides are often the last refuge for understorey species that have been lost through grazing and clearing of adjacent properties." [No evidence, and no means of external attachment, despite growing in heavily trafficked areas."
702	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] "A medium-sized, evergreen tree which is indigenous in western Himalaya in the Indo Pakistan sub-continent, ascending to 2000 m. It is a slow growing, shade, drought, and fire tolerant tree, often lopped for fodder. It coppices well, produces root suckers and may also be grown from seed and cuttings. The stem is generally crooked. The wood is used for agricultural implements, turnery articles, tool handles and as a fuel. The rootstock of this species is sometimes used for grafting the European olive, <i>Olea europaea</i> . It is a useful tree for soil conservation and erosion control in its natural habitat."
702	2007. Besnard, G./Henry, P./Wille, L./Cooke, D./Chapuis, E.. On the origin of the invasive olives (<i>Olea europaea</i> L., Oleaceae). <i>Heredity</i> . 99: 608–619.	[Propagules dispersed intentionally by people? Yes] "Subspecies <i>cuspidata</i> is not of a great economic importance, but its wood is sometimes used to make furniture in South Africa and it is cultivated as an ornamental tree in China. In addition, it has been utilized as a rootstock and hedge plant (Spennemann and Allen, 2000; Starr et al., 2003)."
703	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules likely to disperse as a produce contaminant? No] No evidence
704	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afrotropical forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Propagules adapted to wind dispersal? No] "The ovoid-ellipsoid drupes have a fleshy mesocarp (pulp) and are green and dark purple-black when ripe (Green, 2003). The seeds are dispersed in the main rainy season (Teketay and Granstrom, 1997), primarily by frugivorous birds."
704	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules adapted to wind dispersal? No] "The fleshy ovoid fruits develop from March to July (native range) and are 7–10 mm in size turning dark brown to black on maturity."

705	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules water dispersed? Potentially] "In its native range African Olive is a small medium evergreen tree which grows in a wide range of habitats, including open woodlands, rocky mountain slopes and along watercourses (Table 2). African Olive trees have a dense bushy habit and typically grow to 5–10 m in height (Palgrave 1983). When growing under ideal conditions such as stream banks, trees can attain a height of 15–18 m. In dry exposed conditions trees develop a bushy, rounded habit with a dense canopy and gnarled trunk." [Although not specifically adapted for water dispersal, regular occurrence around and preference for areas along watercourses suggests fruits and seeds may be dispersed by water]
706	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Propagules bird dispersed? Yes] "The ovoid-ellipsoid drupes have a fleshy mesocarp (pulp) and are green and dark purple-black when ripe (Green, 2003). The seeds are dispersed in the main rainy season (Teketay and Granstrom, 1997), primarily by frugivorous birds."
706	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules bird dispersed? Yes] "Fruiting trees in their natural habitat attract a range of fruit-eating birds eg. pigeons, parrots, louries, mousebirds, bulbuls and starlings (Venter & Venter 1996). The fruits are also eaten by monkeys, mongoose and humans (Pooley 1993)."
706	2009. Cuneo, P./Jacobson, C.R./Leishman, M.R.. Landscape-scale detection and mapping of invasive African Olive (<i>Olea europaea</i> L. ssp. <i>cuspidata</i> Wall ex G. Don Ciferri) in SW Sydney, Australia using satellite remote sensing. <i>Applied Vegetation Science</i> . 12([Propagules bird dispersed? Yes] "African Olive (<i>Olea europaea</i> ssp <i>cuspidata</i>) was introduced into Australia for horticultural purposes in the mid 19th century, and has established as an aggressive environmental weed that is readily spread by frugivorous birds (Spennemann & Allen 2000)."
707	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules dispersed by other animals (externally)? No] "Fruit – purple black thinly fleshed drupe, round 6–7 mm diameter" [Adapted for internal consumption and dissemination]
708	2006. Aerts, R./Maes, W./November, E./Negussie, A./Hermy, M./Muys, B.. Restoring dry Afromontane forest using bird and nurse plant effects: Direct sowing of <i>Olea europaea</i> ssp. <i>cuspidata</i> seeds. <i>Forest Ecology and Management</i> . 230: 23–31.	[Propagules survive passage through the gut? Yes] "Our analysis confirms that full or partial passage through the digestive tract of frugivorous birds influences germination of <i>O. europaea</i> seeds (Fig. 4). In general, ingested seeds germinated in greater numbers and took less time to germinate than uningested seeds (cf. Traveset and Verdu', 2002)."
708	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Propagules survive passage through the gut? Yes] "Though there is no quantitative data on the seed rain resulting from bird dispersal, Leishman, A. (2001) has recorded Silvereyes voiding up to 16 olive seeds, and a single Olive-backed Oriole voiding in excess of 30 olive seeds at Mount Annan during the holding time (30 minutes) prior to banding."
801	1992. Santos, G.L. et al.. Herbicidal Control of Selected Alien Plant Species in Hawai'i Volcanoes National Park. Pp. 341-375 in Stone, C.P. et al. (eds.) <i>Alien Plant Invasions in Native Ecosystems of Hawai'i</i> . University of Hawaii CPSU, Honolulu, HI	[Prolific seed production (>1000/m ²)? Yes] "This olive produces copious fruit, and seedlings beneath a parent tree may exceed 110 individuals/ft ² (1,200/m ²) (G.L. Santos, unpub. data)."
801	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Prolific seed production (>1000/m ²)? Possibly Yes] "After shrubs begin fruiting they develop dense seedling "mats" in the seed fall zone of each plant. Seedling densities of 950 seedlings/m ² are commonly observed, and seedlings in these dense 'mats' have the capacity to remain suppressed in this 'seedling bank' stage for many years."
801	2009. Cuneo, P./Jacobson, C.R./Leishman, M.R.. Landscape-scale detection and mapping of invasive African Olive (<i>Olea europaea</i> L. ssp. <i>cuspidata</i> Wall ex G. Don Ciferri) in SW Sydney, Australia using satellite remote sensing. <i>Applied Vegetation Science</i> . 12([Prolific seed production (>1000/m ²)? Possibly Yes] "The fruit production capacity of mature African Olive trees is 425 000 fruit per season (Cuneo & Leishman 2006), and this combined with dense infestations of up to 270 ha in size will create considerable propagule pressure for further spread."
802	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Evidence that a persistent propagule bank is formed (>1 yr)? Yes] "Baskin and Baskin (1998) report that <i>Olea africana</i> (syn. <i>Olea europaea</i> subsp. <i>cuspidata</i>) seed exhibits morphophysiological dormancy, ie before germination can occur the embryo must grow to a specific size, and the physiological inhibiting mechanism of the embryo must be broken." ... "Seed longevity in the soil seedbank is considered to be up to 2 years (von Richter, unpub. data), similar to other Oleaceae genera such as Privet (Panetta 2000)." ... "There is a need for further research into the persistence of African Olive seed in the soil seedbank, and the process by which seed dormancy is overcome."

802	2010. Janes, J.K./Steane, D.A./Vaillancourt, R.E.. Seed ecology of the invasive woody plant African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>): implications for management and restoration. <i>Australian Journal of Botany</i> . 58(5): 335–341.	[Evidence that a persistent propagule bank is formed (>1 yr)? Yes] "Abstract. Knowledge of the seed ecology of invasive exotic species, including soil seedbank dynamics, is essential to understanding key factors in successful invasion and in identifying management opportunities. African Olive, <i>Olea europaea</i> L. subsp. <i>cuspidata</i> , is an exotic invasive woody plant in Hawaii, Norfolk Island and eastern Australia, and is now well established in the Cumberland Plain region of western Sydney, Australia. In the present study, the key aspects of the seed ecology of African Olive were determined for populations in western Sydney. Extracted seed germinated at a wide range of temperatures, consistent with tolerance of a wide range of climatic conditions. A seed-burial experiment indicated a slow decrease in viability down to 70.3% during the first year, followed by a rapid decline down to 14.7% in the second year. Probit analysis indicated that under field conditions, seed persistence in the soil was ~29 months (2.4 years). In situ germination was low (3.3%) and did not occur until the mechanical constriction of the endocarp was released through decomposition. The woody seed endocarp was found to be permeable to water, indicating that physical dormancy was not imposed by providing a barrier to water uptake. Within its invasive range, African Olive produces abundant seed. However, the rapid loss of viability of soil stored seed results in a narrow window of opportunity for germination. The short persistence of seed in the soil may provide an opportunity for managers to achieve control of African Olive once mature plants are removed."
803	1992. Santos, G.L. et al.. <i>Herbicide Control of Selected Alien Plant Species in Hawai'i Volcanoes National Park</i> . Pp. 341-375 in Stone, C.P. et al. (eds.) <i>Alien Plant Invasions in Native Ecosystems of Hawai'i</i> . University of Hawaii CPSU, Honolulu, HI	[Well controlled by herbicides? Yes] "Herbicide tests were conducted between April 1984 and June 1986 on seven species of alien plants classified as threats to native ecosystems within Hawai'i Volcanoes National Park. The study was designed to be an initial series of tests to develop effective alien plant treatment techniques and to obtain baseline information on the effects of herbicides on native flora. Highly effective treatments were found for olive (<i>Olea europaea</i> subsp. <i>africana</i>) (TORDON RTU on cut stumps) and for both species of silk oak (<i>Grevillea banksii</i> and <i>G. robusta</i>) (2.5% GARLON 4 in diesel oil applied in continuous frill cuts). No hazards to native plants were detected."
804	2005. CAB International. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "It is a slow growing, shade, drought, and fire tolerant tree, often lopped for fodder. It coppices well, produces root suckers and may also be grown from seed and cuttings."
804	2005. von Richter, L./Little, D./Benson, D.. Effects of low intensity fire on the resprouting of the weed African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) in Cumberland Plain Woodland, western Sydney. <i>Ecological Management & Restoration</i> . 6(3): 230–233.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes. Large trees tolerate fire] "Discussion. Our results show that a significant proportion of small African Olive plants were killed by a low intensity burn and that the majority of plants were likely to be less than five years old, although some may be as old as 10 years. Indeed other observations at Mount Annan indicate that suppressed seedlings may survive for a number of years under mature Olive canopies. Whereas most plants smaller than 20 mm diameter were killed, it should be noted that rainfall for the year after the fire was only 524 mm which is approximately two thirds of the average annual rainfall for the Camden region. In fact, rainfall for the previous two years was also lower than average. This lower rainfall may have increased the effectiveness of the fire by reducing the ability of small plants to resprout because of water stress."
804	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "African Olive regenerates readily from a lignotuber structure at the base of the trunk after fire, in a similar manner to the native shrub <i>Bursaria spinosa</i> with which it commonly cooccurs in the Sydney region. African Olive seedlings up to 1 m high are killed by low intensity fire (von Richter et al. 2005)."
805	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. <i>Manual of the flowering plants of Hawaii</i> . Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Presumably No] "...naturalized and becoming a serious pest in the vicinity of `Ainahou Ranch, Hawaii."
805	2006. Cuneo, P./Leishman, M.R.. African Olive (<i>Olea europaea</i> subsp. <i>cuspidata</i>) as an environmental weed in eastern Australia: a review. <i>Cunninghamia</i> . 9(4): 545-557.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? No] "There are no known biological control agents used in the control of African Olive in Australia. Olive Lace Bug (<i>Frogattia olivinia</i>) is native to NSW and southern Queensland and has potential as a biological control agent for weedy <i>Olea</i> species. Olive Lace Bug is known as a pest of European Olive (WA Agriculture 2004) and has established widely on weedy European olives in South Australia, causing small olive fruits on heavily infected trees to fall before ripening (Robertson 2005). Olive Lace Bug has not been noted as impacting on African Olive, and research is required to determine if it could provide a level of biological control. With the rapid growth of the olive industry in Australia in recent decades, any move to introduce a biological control agent for African Olive is likely to encounter strong industry resistance."

