

Citation:

Zachariades, C. (2018) Biological control of invasive alien plants in South Africa: a list of all insects, mites and pathogens considered as biological control agents from 1913-2018. <http://www.arc.agric.za/arc-ppri/Documents/Table1-NaturalEnemiesAll.pdf>

Table 1. Target weed species in South Africa, their region of origin and degree of biological control achieved (see below for definitions): **all natural enemies** studied, their feeding guilds or association with the host plant, present research status, and degree of agent damage to the weed (if established) (see below for definitions), and key references for each (see separate references document). Winston et al. (2014) was consulted for some sources of agents.

Scientific name and author Common name Region of origin	Degree of control	Natural enemy	Feeding guild	Agent research status	Damage inflicted	Source of agent	Key references
ALISMATACEAE							
<i>Sagittaria platyphylla</i> (Engelm.) J.G. Sm broad-leaf arrowhead, delta arrowhead or delta duck potato North America	Not applicable	<i>Listronotus appendiculatus</i> (Boheman) (Coleoptera: Curculionidae)	Flower feeder	Under investigation		Mississippi (USA)	
		<i>Listronotus frontalis</i> (LeConte) (Coleoptera: Curculionidae)	Tuber feeder	Under investigation		Mississippi (USA)	
		<i>Listronotus lulentus</i> (Boheman), (Coleoptera: Curculionidae)	Leaf feeder	Shelved		Mississippi (USA)	
		<i>Listronotus sordidus</i> (Gyllenhal) (Coleoptera: Curculionidae)	Root crown feeder	Shelved		Mississippi (USA)	
ARACEAE							
<i>Pistia stratiotes</i> L. water lettuce South America	Complete	<i>Neohydronomus affinis</i> Hustache (Coleoptera: Curculionidae)	Leaf and stem borer	Released 1985, established	Extensive	Brazil via Australia	Cilliers 1991; Coetzee et al 2011b
ASTERACEAE							
<i>Ageratina adenophora</i> (Spreng.) R.M.King & H.Rob. (= <i>Eupatorium adenophorum</i> Spreng.) crofton weed Central America	Negligible	<i>Baeodromus eupatorii</i> (Arthur) Arthur (Pucciniales: Puccinosiraceae)	Leaf rust pathogen	Shelved		Mexico	Heystek et al. 2011
		(?) <i>Eugnosta medioxima</i> (Razowski) (Lepidoptera: Tortricidae)	Shoot tip and stem borer	Shelved		Mexico	Heystek et al. 2011
		<i>Lophoceramica</i> sp. (Lepidoptera: Noctuidae)	Leaf feeder	Rejected		Mexico	Heystek et al. 2011
		<i>Passalora ageratinae</i> Crous & A.R. Wood (= " <i>Phaeoramularia</i> " sp.) (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Released 1987, established	Moderate	Prob. Central America, prob. via Hawaii (USA), via Australia	Morris 1989, 1991; Buccellato et al. 2012
		<i>Pentispa fairmairei</i> (Chapuis) (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Rejected		Mexico	Heystek et al. 2011

		<i>Procecidochares utilis</i> Stone (Diptera: Tephritidae)	Stem galler	Released 1984, established	Moderate	Mexico	Kluge 1991; Erasmus et al.1992; Buccellato et al. 2012
<i>Ageratina riparia</i> (Regel) R.M.King & H.Rob. (= <i>Eupatorium riparium</i> Regel) mistflower Central America	Complete	<i>Entyloma ageratinae</i> R.W. Barreto &H.C. Evans (Entylomatales: Entylomataceae)	Leaf pathogen	Released 1989, established	Considerable	Jamaica via Hawaii (USA)	Morris 1991
<i>Campuloclinium macrocephalum</i> (Less.) DC. (formerly <i>Eupatorium macrocephalum</i> Less.) pompom weed South America	Negligible	<i>Cochylis campuloclinium</i> Brown (Lepidoptera: Tortricidae)	Flower feeder	Release permit issued		Argentina	Brown 2006; McConnachie et al. 2011
		<i>Liothrips tractabilis</i> Mound & Pereyra (Thysanoptera: Thripidae)	Stem galler	Released 2013, established	Moderate	Argentina	Mound & Pereyra 2008; McConnachie et al. 2011
		<i>Puccinia eupatorii</i> Dietel (Pucciniales: Pucciniaceae)	Leaf rust pathogen	Not released, occurs locally	Moderate		McConnachie et al. 2011; Retief et al. 2016
		<i>Zeale</i> (= <i>Adesmus</i>) <i>nigromaculatus</i> Klug (Coleoptera: Cerambycidae)	Stem borer	Rejected		Argentina	Di Iorio et al. 1998; McConnachie et al. 2011
<i>Chromolaena odorata</i> (L.) R.M.King & H. Rob. (formerly <i>Eupatorium odoratum</i> L.) triffid weed North, Central & South America	Substantial	<i>Actinote antea</i> s (Doubleday) (Lepidoptera: Nymphalidae)	Leaf feeder	Shelved		Costa Rica	Caldwell & Kluge 1993
		<i>Actinote thalia pyrrrha</i> (Fabricius) (Lepidoptera: Nymphalidae)	Leaf feeder	Rejected		Bahia state, Brazil	Zachariades et al. 2002
		<i>Actinote thalia thalia</i> (Linnaeus) (Lepidoptera: Nymphalidae)	Leaf feeder	Rejected		Northern Venezuela	Strathie & Zachariades 2002
		<i>Adaina primulacea</i> Meyrick (Lepidoptera: Pterophoridae)	Stem galler	Shelved		Florida, USA	Zachariades et al. 1999; Matthews & Maharajh 2009
		<i>Calycomyza eupatorivora</i> Spencer (Diptera: Agromyzidae)	Leaf miner	Released 2003, established	Trivial	Jamaica	Zachariades et al. 2002; Strathie et al. 2007; Zachariades et al. 2011b; Nzama et al. 2014a&b
		<i>Carmenta chromolaenae</i> Eichlin (Lepidoptera: Sesiidae)	Stem-tip wilter	Shelved		Northern Venezuela	Eichlin et al. 2009
		<i>Cecidochares connexa</i> Macquart (Diptera: Tephritidae)	Stem galler	Shelved		Colombia via Indonesia; north-western Argentina	Zachariades et al. 1999
		<i>Conotrachelus reticulatus</i> Champion (Coleoptera: Curculionidae)	Stem-tip galler	Shelved		Northern Venezuela; Manhuaçu, Brazil	Zachariades et al. 2007, Zachariades et al. 2011b; Delgado et al 2014
		<i>Dichrorampha odorata</i> Brown & Zachariades (Lepidoptera: Tortricidae)	Stem-tip galler	Released 2013, establishment unconfirmed		Jamaica	Brown & Zachariades 2007, Dube et al. 2017
		<i>Dysschema sacrifica</i> Hübner (Lepidoptera: Erebiidae)	Leaf feeder	Rejected		Rio de Janeiro state, Brazil	Zachariades et al. 1999
<i>Leptocysta sexnebulosa</i> (Stål) (Hemiptera: Tingidae)	Sap sucker	Rejected		Northern Venezuela	Strathie & Zachariades 2002		

<i>Lixus aemulus</i> Petri (Coleoptera: Curculionidae)	Stem borer	Released 2011, establishment unconfirmed		Acre state, Brazil	Zachariades et al. 2002; Kluge & Zachariades 2006
<i>Lixus</i> sp. (Coleoptera: Curculionidae)	Stem borer	Shelved		Northern Venezuela	Zachariades et al. 1999
<i>Longitarsus</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Larva root feeder; adult leaf feeder	Rejected		Northern Venezuela; Trinidad	Strathie & Zachariades 2004; Zachariades et al. 2007
<i>Melanagromyza eupatoriella</i> Spencer (Diptera: Agromyzidae)	Stem-tip wilter	Under investigation		Florida, USA; Jamaica; Trinidad; Rio de Janeiro state, Brazil; Venezuela	Zachariades et al. 2007; Zachariades et al. 2011b; Robinson et al. 2013
<i>Pareuchaetes aurata</i> (Butler) (Lepidoptera: Erebidae)	Leaf feeder	Released 1990, not established		North-western Argentina	Kluge & Caldwell 1993a; Zachariades et al. 1999
<i>Pareuchaetes insulata</i> (Walker) (Lepidoptera: Erebidae)	Leaf feeder	Released 2001, established	Extensive, localised	Florida, USA; Jamaica; Cuba	Kluge & Caldwell 1993b; Strathie & Zachariades 2004; Strathie et al. 2007; Zachariades et al. 2011b; Dube et al 2009, 2014; Uyi et al. 2014 a&b, 2015, 2016a&b, 2017, Zachariades et al. 2016
<i>Pareuchaetes pseudoinsulata</i> Rego Barros (Lepidoptera: Erebidae)	Leaf feeder	Released 1989 & 1998, not established		Trinidad via USA; Trinidad via Indonesia; Northern Venezuela	Strathie & Zachariades 2002; Zachariades et al. 2011b
<i>Passalora caribensis</i> Crous & Den Breeÿen (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Cuba; Jamaica	Den Breeÿen et al. 2006
<i>Passalora chromolaenae</i> Crous & Den Breeÿen (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Mexico	Den Breeÿen et al. 2006
<i>Passalora convoluta</i> Crous & Den Breeÿen (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Costa Rica	Den Breeÿen et al. 2006
<i>Passalora perfoliati</i> (Ellis & Everh.) U. Braun & Crous (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Jamaica	Den Breeÿen et al. 2006
<i>Phestinia costella</i> Hampson (Lepidoptera: Pyralidae)	Stem-tip galler	Shelved		Florida, USA; Jamaica; Rio de Janeiro state, Brazil; Trinidad	Solis et al. 2008
<i>Polymorphomyia basilica</i> Snow (Diptera: Tephritidae)	Stem galler	Under investigation		Jamaica; Cuba	Zachariades et al. 2007

		<i>Pseudocercospora eupatoriella</i> Crous & Den Breeÿen (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		USA; Jamaica	Den Breeÿen et al. 2006
		<i>Recchia parvula</i> (Lane) (Coleoptera: Cerambycidae)	Stem and crown borer	Released 2016, establishment unconfirmed		North-western Argentina	Zachariades et al. 2007; Zachariades et al. 2011b
		<i>Septoria chromolaenae</i> Crous & Den Breeÿen (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Jamaica	Den Breeÿen et al. 2006
		<i>Septoria ekmaniana</i> Petr. & Cif. (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Rejected		Mexico	Den Breeÿen et al. 2006
<i>Cirsium vulgare</i> (Savi) Ten. spear thistle Europe	Negligible	<i>Rhinocyllus conicus</i> (Froelich) (Coleoptera: Curculionidae)	Seed feeder	Released 1984, 1986, established	Moderate	France	Zimmermann 1991; Hodson et al. 2003
		<i>Urophora stylata</i> (Fabricius) (Diptera: Tephritidae)	Seed feeder	Released 1984, 1987, 1989, 1990, not established		Germany, France	Zimmermann 1991
<i>Parthenium hysterophorus</i> L. parthenium Caribbean	Under evaluation	<i>Carmenta</i> sp. nr. <i>ithacae</i> (Lepidoptera: Sesiidae)	Root crown borer	Under investigation		Australia (originally Mexico)	
		<i>Epiblema strenuana</i> (Walker) (Lepidoptera: Tortricidae)	Stem galler	Under investigation		Australia (originally Mexico)	Dhileepan & Strathie 2009; Strathie et al. 2011; McConnachie 2015b
		<i>Listronotus setosipennis</i> (Hustache) (Coleoptera: Curculionidae)	Stem borer	Released 2013, established	Considerable	Argentina	Dhileepan & Strathie 2009; Strathie et al. 2011
		<i>Puccinia abrupta</i> var. <i>parthenicola</i> (Jack. & Holw.) (Pucciniales: Pucciniaceae)	Leaf rust pathogen	Not released, occurs locally	Moderate	Unknown origin	Wood & Scholler 2002; Dhileepan & Strathie 2009
		<i>Puccinia xanthii</i> Schwein. var. <i>parthenii-hysterophorae</i> Seier, H.C. Evans & Á. Romero (= <i>P. melampodii</i> ; Pucciniales: Pucciniaceae)	Leaf rust pathogen	Released 2010, established	Considerable	Australia (originally Mexico)	Dhileepan & Strathie 2009; Strathie et al. 2011
		<i>Smicronyx lutulentus</i> Dietz (Coleoptera: Curculionidae)	Seed feeder	Released 2015, established.	Unknown	Australia (originally Mexico)	Dhileepan & Strathie 2009; Strathie et al. 2011
		<i>Zygotogramma bicolorata</i> Pallister (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Released 2013, established	Considerable	Australia (originally Mexico)	Dhileepan & Strathie 2009; Strathie et al. 2011; McConnachie 2015a; Chidawanyika et al. 2017
<i>Silybum marianum</i> (L.) Gaertn. milk thistle Mediterranean, Asia	Not determined	<i>Rhinocyllus conicus</i> (Froelich) (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 1985, not established		California, USA	Zimmermann 1991

<i>Tithonia diversifolia</i> (Hemsl.) A.Gray Mexican sunflower Central America	Not applicable	<i>Physonota maculiventris</i> (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Release permit issued		Mexico	Mphephu et al. 2017
		<i>Platyphora ligata</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Shelved			Simelane et al. 2011b
		<i>Puccinia enceliae</i> Dietel & Holw. (Pucciniales: Pucciniaceae)	Leaf rust pathogen	Shelved		Mexico	Simelane et al. 2011b
		Unidentified species (Lepidoptera: ?Tortricidae)		Under investigation			
		Unidentified species (Lepidoptera: Tortricidae)	Shoot-tip feeder	Rejected		Mexico	Simelane et al. 2011b
<i>Tithonia rotundifolia</i> (Mill.) S.F.Blake red sunflower Central America	Under evaluation	<i>Canidia mexicana</i> Thomson (Coleoptera: Cerambycidae)	Stem borer (larva); leaf feeder (adult)	Shelved		Mexico	Simelane et al. 2011b
		<i>Chlosyne</i> sp. (Lepidoptera: Nymphalidae)	Leaf feeder	Shelved		Mexico	Simelane et al. 2011b
		<i>Lixus fimbriolatus</i> Boheman (Coleoptera: Curculionidae)	Stem borer (larva); leaf feeder (adult)	Under investigation		Mexico	Simelane et al. 2011b
		<i>Puccinia enceliae</i> Dietel & Holw. (Pucciniales: Pucciniaceae)	Leaf rust pathogen	Shelved		Mexico	Simelane et al. 2011b
		<i>Rhodoaenus auctus</i> Chevrolat (Coleoptera: Curculionidae)	Stem borer (larva); leaf feeder (adult)	Shelved		Mexico	Simelane et al. 2011b
		<i>Zygogramma piceicollis</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 2015, established	Considerable, localised	Mexico	Simelane et al. 2011b
		<i>Zygogramma signatipennis</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 2015, established	Considerable, localised	Mexico	Simelane et al. 2011b
		Unidentified species (Coleoptera: Curculionidae)	Stem borer (larva); leaf feeder (adult)	Under investigation			Simelane et al. 2011b
AZOLLACEAE							
<i>Azolla cristata</i> Kauff. Carolina water fern North and South America	Complete	<i>Stenopelmus rufinatus</i> Gyllenhal (Coleoptera: Curculionidae)	Fronde feeder	Alternative host, released 1997, established	Extensive	USA	Madeira et al. 2016
<i>Azolla filiculoides</i> Lam. red water fern South America	Complete	<i>Pseudolampsis guttata</i> (LeConte) (Coleoptera: Chrysomelidae: Galerucinae)	Fronde feeder	Rejected		USA	Hill & Oberholzer 2002
		<i>Stenopelmus brunneus</i> (Hustache) (Coleoptera: Curculionidae)	Fronde feeder	Shelved		Argentina	Hill & McConnachie 2009

		<i>Stenopelmus rufinus</i> Gyllenhal (Coleoptera: Curculionidae)	Frond feeder	Released 1997, established	Extensive	USA	McConnachie et al.2004; Hill et al. 2008; Coetzee et al. 2011b
BASELLACEAE							
<i>Anredera cordifolia</i> (Ten.) Steenis subsp. <i>cordifolia</i> Madeira vine South America	Under evaluation	<i>Isotes eruptiva</i> (Bechyné) (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder, possible root feeder	Shelved			Van der Westhuizen 2011
		<i>Loxomorpha</i> cf. <i>camboialis</i> (Guenée) [formerly in <i>Epipagis</i>] (Lepidoptera: Pyrilidae)	Leaf feeder	Rejected			Klein 1999; Van der Westhuizen 2011
		<i>Phenrica</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Shelved		Paraná, Brazil	Van der Westhuizen 2006, 2011
		<i>Plectonycha correntina</i> Lacordaire (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 2016, established	Trivial	Buenos Aires, Argentina	Cagnotti et al. 2007; Van der Westhuizen 2011
		Unidentified species (Lepidoptera: ?Gelechiidae)	Leaf miner	Rejected			
BIGNONIACEAE							
<i>Dolichandra unguis-cati</i> (L.) Lohman (formerly <i>Macfadyena unguis-cati</i> (L.) A.H.Gentry) cat's claw creeper Central and South America	Negligible	<i>Apteromechus notatus</i> (Hustache) (Coleoptera: Curculionidae)	Seed feeder	Under investigation		Paraná, Brazil	King et al. 2011b
		<i>Carvalhotingis hollandi</i> Drake (Hemiptera: Tingidae)	Leaf sucker	Released 2007, established	Unknown	Misiones, Argentina	Williams et al. 2008
		<i>Carvalhotingis visenda</i> Drake & Hambleton (Hemiptera: Tingidae)	Leaf sucker	Released 2007, established	Moderate	Misiones, Argentina	Williams et al. 2008
		<i>Cercosporella dolichandrae</i> Crous & den Breeÿen (Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Not released, occurs locally; also under investigation	Moderate		
		<i>Charidotis auroguttata</i> Boheman (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Released 1999, established	Trivial	Miranda, Venezuela	Sparks 1999; Williams 2002
		<i>Hedwigiella jureceki</i> (Obenberger) (Coleoptera: Buprestidae)	Leaf miner	Released 2007, established	Trivial	Misiones, Argentina	King et al. 2011b
		<i>Hypocosmia pyrochroma</i> Jones (Lepidoptera: Pyralidae)	Leaf feeder	Released 2010, establishment unconfirmed		Misiones, Argentina	Dhileepan et al. 2007; King et al. 2011b
		<i>Neocrassana undata</i> Linnavuori (Hemiptera: Cicadellidae)	Leaf feeder	Under investigation		Paraná, Brazil	Dhileepan et al. 2007; King et al. 2011b
<i>Tecoma stans</i> (L.) Juss ex Kunth var. <i>stans</i> yellow bells North and Central America	Under evaluation	<i>Clydonopterom sacculana</i> Bosc (Lepidoptera: Pyralidae)	Seed feeder	Rejected		Baja California Sur, Mexico	
		<i>Heikertingerella</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder (adult), root feeder (larva)	Under investigation		Chiapas, Xalapa Mexico	Madire et al. 2011a

		<i>Mada polluta</i> (Mulsant) (Coleoptera: Coccinellidae)	Leaf feeder	Released 2013, established	Moderate	Guerrero, Mexico	Madire et al. 2011a; Madire 2013
		<i>Prospodium appendiculatum</i> (G. Winter) Arthur (Pucciniales: Uropyxidaceae)	Leaf rust pathogen	Rejected		Southern USA, Mexico, north-west Argentina	Madire et al. 2011a
		<i>Prospodium transformans</i> (Ellis & Everh.) Cummins (Pucciniales: Uropyxidaceae)	Leaf rust pathogen	Released 2010, not established		Mexico	Wood 2008; Madire et al. 2011a
		<i>Pseudonapomyza</i> sp. (Diptera: Agromyzidae)	Leaf miner	Released 2014, established	Trivial	San Pedro, Argentina	Madire 2009/10; Madire et al. 2011a,b
CACTACEAE							
<i>Austrocylindropuntia subulata</i> (Muehlenpf.) Backeb. (= <i>Opuntia exaltata</i> (Berger)) long spine cactus South America	Not determined	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, established	Unknown	Argentina via Australia	Moran & Zimmermann 1991b
<i>Cereus jamacaru</i> DC. and <i>C. hildmannianus</i> K.Schum. queen of the night South America	Complete	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, established	Extensive	Argentina via Australia	Moran & Zimmermann 1991b; Klein 1999; Paterson et al. 2011
		<i>Nealcidion cereicola</i> (Fisher) [formerly in <i>Alcidion</i>] (Coleoptera: Cerambycidae)	Stem borer	Alternative host, released 1990, established	Considerable	Argentina via Australia	Klein 1999
<i>Cylindropuntia fulgida</i> (Engelm.) F.M.Knuth var. <i>fulgida</i> Zim chain-fruit cholla North and Central America	Complete	<i>Dactylopius tomentosus</i> (Lamarck), 'cholla' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Released 2008, established	Extensive	Mexico (Baja California)	Mathenge et al. 2009a,b, 2010a,b; Paterson et al. 2011
		<i>Dactylopius tomentosus</i> (Lamarck), 'imbricata' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, released 1970, established	Trivial	South-Western USA via Australia	Moran & Zimmermann 1991b
<i>Cylindropuntia fulgida</i> (Engelm.) F.M.Knuth var. <i>mamillata</i> (Engelm.) Backeb. boxing-glove cactus North and Central America	Complete	<i>Dactylopius tomentosus</i> (Lamarck), 'cholla' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Released 2008, established	Extensive	Mexico (Baja California)	
<i>Cylindropuntia imbricata</i> (Haw.) F.M.Knuth imbricate prickly pear North and Central America	Substantial	<i>Dactylopius tomentosus</i> (Lamarck), 'imbricata' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Released 1970, established	Considerable	South-Western USA via Australia	Moran & Zimmermann 1991b; Mathenge et al. 2009a
		<i>Metamasius spinolae</i> (Gyllenhal) (Coleoptera: Curculionidae)	Stem borer	Alternative host, released 1974, not established		Mexico	Moran & Zimmermann 1991b

<i>Cylindropuntia leptocaulis</i> (DC.) F.M.Knuth pencil cactus North and Central America	Complete	<i>Dactylopius tomentosus</i> (Lamarck) ('imbricata' biotype) (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, released 1977, established	Extensive	South-Western USA via Australia	Moran & Zimmermann 1991b; Mathenge et al. 2009a	
<i>Harrisia bonplandii</i> (Parm.) Britton & Rose (= <i>H. balansae</i> (K.Schum.) N.P.Taylor & Zappi) angular cactus, strangler cactus South America	Substantial	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, released 2006, established	Considerable	Argentina via Australia		
<i>Harrisia martinii</i> (Labour.) moon cactus South America	Complete	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Released 1983, established	Extensive	Argentina via Australia	Moran & Zimmermann 1991b; Klein 1999	
		<i>Nealcidion cereicola</i> Fisher [formerly in <i>Alcidion</i>] (Coleoptera: Cerambycidae)	Stem borer	Released 1990, established	Considerable	Argentina via Australia	Klein 1999	
<i>Harrisia pomanensis</i> (F.A.C.Weber) Britton & Rose midnight lady, devil's rope cactus South America	Substantial	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, released 2013, established	Considerable	Argentina via Australia		
<i>Harrisia tortuosa</i> (J.Forbes ex Otto & A.Dietr.) Britton & Rose spiny snake cactus South America	Substantial	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, released 2014, established	Considerable	Argentina via Australia		
<i>Hylocereus undatus</i> (Haw.) Britton & Rose dragon fruit Tropical America	Not determined	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, established	Unknown	Argentina via Australia		
<i>Opuntia aurantiaca</i> Lindl. jointed cactus South America	Substantial	<i>Amalfrida leithella</i> Dyar (Lepidoptera: Pyralidae)	Cladode borer	Shelved		Colombia, Venezuela	Moran & Zimmermann 1991a	
		<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, established	Moderate	Argentina via Australia	Moran & Annecke 1979; Moran & Zimmermann 1991a; Zimmermann et al. 2004	
		<i>Cactoblastis mundelli</i> Heinrich (Lepidoptera: Pyralidae)	Cladode borer	Shelved			Bolivia, Argentina	Moran & Zimmermann 1991a
		<i>Dactylopius austrinus</i> De Lotto (Hemiptera: Dactylopiidae)	Cladode sucker	Released 1935, established	Extensive		Central & Western Argentina via Australia	Moran & Annecke 1979; Moran & Zimmermann 1991a
		<i>Dasiops bourguini</i> (Blanchard) (Diptera: Lonchaeidae)	Cladode borer	Shelved				Moran & Zimmermann 1991a
		<i>Mimorista pulchellalis</i> Dyar (Lepidoptera: Crambidae)	Cladode borer	Released 1979, not established			Argentina (Parana)	Moran & Zimmermann 1991a
		<i>Nanaia</i> sp. (Lepidoptera: Pyralidae)	Cladode borer	Released 1983, not established			Peru	Moran & Zimmermann 1991a

		<i>Sigalgaita transilis</i> Heinrich (Lepidoptera: Pyralidae)	Fruit borer	Shelved		Peru	Moran & Zimmermann 1991a
		<i>Sigalgaita</i> sp. (Lepidoptera: Pyralidae)	Fruit borer	Shelved		Peru	Moran & Zimmermann 1991a
		<i>Zophodia tapiacola</i> (Dyar) [formerly in <i>Tucumania</i>] (Lepidoptera: Pyralidae)	Cladode borer	Released 1976 & 1982, not established		Argentina (Formosa & Buenos Aires Provinces)	Moran & Zimmermann 1991a
<i>Opuntia engelmannii</i> Salm-Dyck ex Engelm. (= <i>O. lindheimeri</i> , <i>O. tardospina</i>) small round-leaved prickly pear North and Central America	Negligible to substantial, depending on variety	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, released 1938, established	Trivial on large plants, moderate on small plants	Argentina via Australia	
		<i>Dactylopius opuntiae</i> (Cockerell), 'ficus' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, released 1938, established	Moderate to trivial, depending on climate & plant variety	USA (Texas, Arizona) via Australia	Moran & Zimmermann 1991b
		<i>Dactylopius opuntiae</i> (Cockerell), 'stricta' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, released 2012, established	Extensive, in combination with pathogen	Via Australia	
		<i>Dactylopius opuntiae</i> (Cockerell), various biotypes(?) (Hemiptera: Dactylopiidae)	Cladode sucker	Under investigation		USA (Arizona, New Mexico)	
<i>Opuntia ficus-indica</i> (L.) Mill. mission prickly pear, sweet prickly pear Central America	Substantial	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Released 1933, established	Extensive	Argentina via Australia	Annecke & Moran 1978; Zimmermann & Moran 1991
		<i>Dactylopius opuntiae</i> (Cockerell), 'ficus' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Released 1938, established	Extensive	USA (Texas, Arizona) via Australia	Annecke & Moran 1978; Zimmermann & Moran 1991
		<i>Lagocheirus funestus</i> (Thompson) [formerly in <i>Archlagocheirus</i>] (Coleoptera: Cerambycidae)	Stem borer	Released 1943, established	Trivial	Mexico via Australia	Annecke & Moran 1978; Zimmermann & Moran 1991
		<i>Metamasius spinolae</i> (Gyllenhal) (Coleoptera: Curculionidae)	Stem borer	Released 1948, established	Extensive	Mexico	Zimmermann & Moran 1991
<i>Opuntia humifusa</i> (Raf.) Raf. creeping prickly pear, large-flowered prickly pear North America	Complete	<i>Dactylopius opuntiae</i> (Cockerell), Australian ('stricta') biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, established	Considerable in hot, arid regions, moderate in cooler regions & Highveld	Via Australia	
<i>Opuntia monacantha</i> Haw. smooth/drooping prickly pear South America	Complete	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, established	Considerable	Argentina via Australia	Moran & Zimmermann 1991b; Zimmermann et al. 2009
		<i>Dactylopius ceylonicus</i> (Green) (Hemiptera: Dactylopiidae)	Cladode sucker	Released 1913, established	Extensive	Temperate South America, Brazil via Sri Lanka	Moran & Zimmermann 1991b; Zimmermann et al. 2009

<i>Opuntia salmiana</i> J.Parm. ex Pfeiff. bur cactus South America	Negligible	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, established	Trivial to moderate	Argentina via Australia	Moran & Zimmermann 1991b
		<i>Dactylopius salmianus</i> De Lotto (Hemiptera: Dactylopiidae)	Cladode sucker	Shelved		Argentina	Moran & Zimmermann 1991b
<i>Opuntia spinulifera</i> Salm-Dyck large round-leaved prickly pear Central America	Not determined	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, established	Unknown	Argentina via Australia	Moran & Zimmermann 1991b
<i>Opuntia stricta</i> (Haw.) Haw. Australian pest pear North America and Caribbean	Substantial	<i>Cactoblastis cactorum</i> (Berg) (Lepidoptera: Pyralidae)	Cladode borer	Alternative host, released 1980s, established	Extensive	Argentina via Australia	Hoffmann et al. 1999
		<i>Dactylopius opuntiae</i> (Cockerell), Australian ('stricta') biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Released 1997, established	Extensive	North America via Australia	Hoffmann et al. 1999; Paterson et al. 2011
<i>Opuntia tomentosa</i> Salm-Dyck velvet opuntia, velvet tree-pear Mexico and Guatemala	Substantial but localised	<i>Dactylopius opuntiae</i> (Cockerell), 'ficus' biotype (Hemiptera: Dactylopiidae)	Cladode sucker	Alternative host, released 1938, established	Extensive	USA (Texas, Arizona) via Australia	
<i>Peniocereus serpentinus</i> (Lag. & Rodr.) N.P. Taylor serpent cactus Mexico	Not determined	<i>Hypogeococcus festerianus</i> (Lizer y Trelles) (Hemiptera: Pseudococcidae)	Stem sucker	Alternative host, established	Unknown	Argentina via Australia	
<i>Pereskia aculeata</i> Mill. Barbados gooseberry, pereskia South America and Caribbean	Under evaluation	<i>Catorhintha schaffneri</i> Brailovsky & Garcia (Hemiptera: Coreidae)	Stem wilter	Released 2014, established	Unknown	Santa Catarina, Brazil	Paterson et al. 2014a,b
		<i>Loxomorpha cambogialis</i> (Guenée) [formerly in <i>Epipagis</i>] (Lepidoptera: Pyralidae)	Leaf feeder	Rejected		Brazil	Klein 1999
		<i>Maracayia chlorisalis</i> (Walker) (Lepidoptera: Crambidae)	Stem borer	Shelved		Santa Catarina and Rio de Janiero, Brazil	Klein 1999; Paterson et al. 2011
		<i>Pereskiophaga brasiliensis</i> Anderson (Coleoptera: Curculionidae)	Stem miner	Under investigation		Santa Catarina, Brazil	Anderson 2015
		<i>Phenrica guerini</i> Bechyné (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Released 1991 & 1995, established	Extensive locally	Rio de Janiero, Brazil	Klein 1999; Paterson et al. 2011, 2012
CLADOPHORACEAE (CHLOROPHYTA)							
<i>Cladophora glomerata</i> (L.) Kuetzing green alga, "draadalg" Widespread, probably indigenous	Not applicable	<i>Pythium</i> spp. (Chromista: Saprolegniales)	Fungal pathogen	Rejected			Wood 1999, 2003
CLUSIACEAE							
<i>Hypericum perforatum</i> L. St John's wort Europe and Asia	Complete	<i>Agrilus (Spiragrilus) hyperici</i> (Creutzer) (Coleoptera: Buprestidae)	Root borer	Released 1974- 1979, not established		France via Australia & California (USA)	Gordon & Kluge 1991

		<i>Aphis chloris</i> Koch (Hemiptera: Aphididae)	Sap sucker	Released 1982, not established		Germany via Canada	Gordon & Kluge 1991
		<i>Aplocera efformata</i> (Guenée) (Lepidoptera: Geometridae)	Leaf feeder	Released 1983, not established		France via Australia	Gordon & Kluge 1991
		<i>Chrysolina hyperici</i> (Forster) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 1960-1973, not established		England via Australia (1960); England via Australia via USA via Canada (1973)	Gordon & Kluge 1991
		<i>Chrysolina quadrigemina</i> Suffrian (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 1960-1973, established	Extensive	France via Australia	Gordon & Kluge 1991
		<i>Zeuxidiplosis giardi</i> (Kieffer) (Diptera: Cecidomyiidae)	Shoot-tip galler	Released 1972, established	Moderate	France via California (USA) via Australia	Gordon & Kluge 1991
COMMELINACEAE							
<i>Tradescantia fluminensis</i> Vell. wandering Jew, spiderwort South America	Not applicable	<i>Neolema abbreviata</i> (Lacordaire) (Coleoptera: Chrysomelidae: Criocerinae)	Shoot-tip and leaf feeder	Release permit issued		Brazil via New Zealand	Fowler et al., 2013
CONVOLVULACEAE							
<i>Convolvulus arvensis</i> L. field bindweed Europe and Asia	Not applicable	<i>Aceria malherbae</i> Nuzzaci (Acari: Trombidiformes: Eriophyidae)	Leaf galler	Released 1994, not established		Greece	Craemer 1995
		<i>Septoria</i> sp. (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Not released, occurs locally; rejected	Trivial		
FABACEAE							
<i>Acacia baileyana</i> F.Muell. Bailey's wattle Australia	Negligible	<i>Dasineura pilifera</i> Kolesik (Diptera: Cecidomyiidae)	Flower galler	Released 2016, established	Unknown	Victoria, Australia	
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 2006 & 2009, established	Moderate	NSW, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
<i>Acacia cyclops</i> A.Cunn. ex G.Don red eye, rooikrans Australia	Substantial	<i>Calonectria scoparia</i> Ribeiro & Matsuoka ex Peerally (Hypocreales: Nectriaceae) (anamorphic fungus: <i>Cylindrocladium candelabrum</i>)	Leaf spot pathogen	Not released, occurs locally; rejected	Trivial		
		<i>Dasineura dielsi</i> Rübsaamen (Diptera: Cecidomyiidae)	Flower galler	Released 2002, established	Extensive	WA, Australia	Adair 2005; Impson et al. 2009, 2011
		<i>Melanterius servulus</i> Pascoe (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 1991 & 1994, established	Considerable	WA, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Pseudolagarobasidium acaciicola</i> Ginns (Polyporales: Phanerochaetaceae)	Die-back pathogen	Not released, occurs locally; under investigation	Considerable		Wood & Ginns 2006, Kotzé et al. 2015

<i>Acacia dealbata</i> Link silver wattle Australia	Negligible	<i>Bruchophagus acaciae</i> (Cameron) (Hymenoptera: Eurytomidae)	Seed feeder	Shelved		Victoria, Australia	Impson et al. 2009
		<i>Dasineura pilifera</i> Kolesik (Diptera: Cecidomyiidae)	Flower galler	Released 2016, established	Unknown	Victoria, Australia	
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 1994-2007, established	Moderate	Australia	Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Perilampella hecataeus</i> Walker (Hymenoptera: Pteromalidae)	Bud and rachis galler	Under evaluation	unknown	Victoria, Australia	
<i>Acacia decurrens</i> (Wendl.) Willd. green wattle Australia	Negligible	<i>Dasineura pilifera</i> Kolesik (Diptera: Cecidomyiidae)	Flower galler	Release permit issued		Victoria, Australia	
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 2000-2007, established	Moderate	Victoria, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
<i>Acacia elata</i> A. Cunn. ex Benth. pepper tree wattle Australia	Not applicable	<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, under investigation		Australia	Dennill et al. 1999; Impson et al. 2009, 2011
<i>Acacia longifolia</i> (Andr.) Willd. long-leaved wattle Australia	Substantial	<i>Bruchophagus orarius</i> Nesor & Prinsloo (Hymenoptera: Eurytomidae)	Seed feeder	Shelved		Australia	Impson et al. 2009, 2011
		<i>Melanterius ventralis</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Released 1985, established	Extensive	Australia	Dennill & Donnelly 1991; Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Rayieria</i> sp. (Hemiptera: Miridae)	Leaf sucker	Rejected			Impson et al. 2009
		<i>Trichilogaster acaciaelongifoliae</i> (Froggatt) (Hymenoptera: Pteromalidae)	Bud galler	Released 1982, established	Extensive	Australia	Dennill & Donnelly 1991; Dennill et al. 1999; Impson et al. 2009
<i>Acacia mearnsii</i> De Wild. black wattle Australia	Substantial	<i>Asphondylia</i> sp. (Diptera: Cecidomyiidae)	Flower or pod galler	Shelved		Australia	Adair 2004; Adair et al. 2009
		<i>Ceratocystis albobundus</i> M.J.Wingf., De Beer & M.J.Morris (Microascales: Ceratocystidaceae)	Gummosis pathogen	Not released, occurs locally; shelved	Moderate, localised		Morris et al. 1999
		<i>Cylindrobasidium laeve</i> (Pers.) Chamuris (Polyporales: Physalacriaceae)	Early succession wood rot pathogen, prevents coppice growth	Not released, occurs locally; developed as cut stump inoculant "Stumpout"	Extensive when applied according to label instructions		Morris et al. 1999
		<i>Dasineura rubiformis</i> Kolesik (Diptera: Cecidomyiidae)	Flower galler	Present before release, established	Extensive in WC, Moderate EC, Trivial MP & KZN	Australia	Adair 2004; Impson et al. 2008, 2009, 2011
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Released 1993- 1996, established	Moderate	NSW, ACT, Australia	Dennill et al. 1999; Impson et al. 2009, 2011

<i>Acacia melanoxylon</i> R.Br. Australian blackwood Australia	Substantial	<i>Melanterius acaciae</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Released 1986, established	Extensive	Australia	Dennill et al. 1999; Impson et al. 2009, 2011
<i>Acacia podalyriifolia</i> A.Cunn. ex G.Don. pearl acacia Australia	Negligible	<i>Bruchophagus acaciae</i> (Cameron) (Hymenoptera: Eurytomidae)	Seed feeder	Alternative host, under investigation		Australia	Impson et al. 2009, 2011
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 2008, established	Moderate but localised	QLD, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
<i>Acacia pycnantha</i> Benth. golden wattle Australia	Substantial	<i>Cylindrobasidium laeve</i> (Pers.) Chamuris (Polyporales: Physalacriaceae)	Early succession wood rot fungus	Alternative host; not released, occurs locally; developed as cut stump inoculant "Stumpout", but never used	Extensive when applied according to label instructions		Morris et al. 1999
		<i>Melanterius maculatus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Alternative host, released 2005-2007, established	Moderate	SA, Vic, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Trichilogaster signiventris</i> (Girault) (Hymenoptera: Pteromalidae)	Bud galler	Released 1987 & 1992, established	Considerable/Extensive	Australia	Hoffmann et al. 2002; Impson et al. 2009, 2011
<i>Acacia saligna</i> (Labill.) H.L.Wendl. Port Jackson willow Australia	Substantial	<i>Melanterius compactus</i> Lea (Coleoptera: Curculionidae)	Seed feeder	Released 2001 & 2003, established	Considerable	WA, Australia	Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Uromycladium morrisii</i> Doungsa-ard, McTaggart, Geering & R.G. Shivas (Pucciniales: Pileolariaceae)	Gall former	Released 1987, established	Extensive	WA, Australia	Morris 1987, 1991, 1997, 1999; Wood & Morris 2007
<i>Caesalpinia decapetala</i> (Roth) Alston Mauritius thorn Asia	Negligible	<i>Acrocercops hyphantica</i> Meyrick (Lepidoptera: Gracillariidae)	Leaf miner	Rejected		India	Coetzer & Nesar 1999; Byrne et al. 2011
		<i>Lacera noctilio</i> (Fabricius) (Lepidoptera: Noctuidae)	Leaf feeder	Rejected			Coetzer & Nesar 1999
		<i>Spermophagus</i> sp. (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Rejected			Coetzer & Nesar 1999
		<i>Sulcobruchus subsuturalis</i> (Pic) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Released 1999, established	Trivial	India	Coetzer & Nesar 1999; Coetzer 2000; Byrne et al. 2011
<i>Gleditsia triacanthos</i> L. honey locust North America	Not determined	<i>Megabruchidius tonkineus</i> (Pic) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Not released, occurs locally	Unknown		
<i>Leucaena leucocephala</i> (Lam.) de Wit leucaena Tropical America	Negligible	<i>Acanthoscelides macrophthalmus</i> (Schaeffer) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Released 1999, established	Trivial	Mexico	Shoba & Olckers 2010; Olckers 2011a; Sharratt & Olckers 2012

<i>Paraserianthes lophantha</i> (Willd.) Nielsen (formerly <i>Albizia lophantha</i> Willd.) stink bean Australia	Substantial	<i>Melanterius servulus</i> Pascoe (Coleoptera: Curculionidae)	Seed feeder	Released 1989, established	Considerable	Australia	Dennill et al. 1999; Impson et al. 2009, 2011
		<i>Uromycladium woodii</i> Doungsa-ard, McTaggart, Geering & R.G. Shivas (Pucciniales: Pileolariaceae)	Gall former	Released 2016, established	Unknown	WA, Australia	
<i>Prosopis</i> L. species mesquite, prosopis North and Central America	Negligible	<i>Algarobius bottimeri</i> Kingsolver (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Released 1990, not established		South-western USA	Impson et al. 1999
		<i>Algarobius prosopis</i> (LeConte) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Released 1987, established	Considerable	Arizona, USA	Hoffmann et al. 1993; Impson et al. 1999; Roberts 2006; Van Klinken et al. 2009; Zachariades et al. 2011a
		<i>Asphondylia prosopidis</i> Cockerell (Diptera: Cecidomyiidae)	Flower-bud galler	Shelved		South-western USA	Park 2010; Zachariades et al. 2011a
		<i>Coelocephalapion gandolfoi</i> Kissinger (Coleoptera: Brentidae: Apioninae)	Seed feeder	Under investigation		Argentina	Mc Kay & Gandolfo 2007; Zachariades et al. 2011a
		<i>Evippe</i> sp. #1 (Lepidoptera: Gelechiidae)	Leaf miner + tier & feeder	Under investigation		Argentina, via Australia	
		<i>Mimosestes amicus</i> (Horn) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Rejected		Central America	Impson et al. 1999
		<i>Mimosestes protractus</i> (Horn) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Rejected		Central and North America	Impson et al. 1999
		<i>Neltumius arizonensis</i> (Schaeffer) (Coleoptera: Chrysomelidae: Bruchinae)	Seed feeder	Released 1993, established	Unknown	Arizona, USA	Coetzer & Hoffmann 1997; Impson et al. 1999; Strathie 1995
		<i>Oncideres rhodosticta</i> Bates (Coleoptera: Cerambycidae)	Stem borer	Under investigation		South-western USA	
		<i>Prosopidicola mexicana</i> Crous & C.L. Lennox (Diaporthales: Valsaceae)	Pod pathogen	Shelved		Mexico and Southern USA	Lennox et al. 2004
<i>Sesbania punicea</i> (Cav.) Benth. red sesbania South America	Complete	<i>Eudiagogus episcopalis</i> (Gyllenhal) (Coleoptera: Curculionidae)	Root feeder	Rejected		Argentina (Buenos Aires Prov)	Hoffmann & Moran 1991
		<i>Neodiplogrammus quadrivittatus</i> (Olivier) (Coleoptera: Curculionidae)	Stem borer	Released 1984, established	Extensive	Argentina (Buenos Aires Prov); Brazil (Rio Grande do Sul)	Hoffmann & Moran 1999
		<i>Rhyssomatus marginatus</i> Fähræus (Coleoptera: Curculionidae)	Seed feeder	Released 1984, established	Extensive	Argentina (Buenos Aires Prov)	Hoffmann & Moran 1999

		<i>Trichapion lativentre</i> (Béguin-Billecocq) (Coleoptera: Brentidae: Apioninae)	Flower-bud feeder	Released 1970s, established, present before release	Extensive	Argentina (Buenos Aires Prov)	Hoffmann & Moran 1999
<i>Spartium junceum</i> L. Spanish broom Europe	Not applicable	<i>Aceria spartii</i> (Canestrini) (Acari: Trombidiformes: Eriophyidae)	Stem galler	Shelved			Craemer et al.1996
HALORAGACEAE							
<i>Myriophyllum aquaticum</i> (Vell.) Verdc. parrot's feather South America	Complete	<i>Listronotus marginicollis</i> (Hustache) (Coleoptera: Curculionidae)	Stem borer	Shelved		Argentina	Cordo & DeLoach 1982; Oberholzer et al. 2007; Coetzee et al. 2011b
		<i>Lysathia</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Released 1994, established	Extensive	Brazil	Cilliers 1999; Coetzee et al. 2011b
		<i>Xanthomonas campestris</i> (Pammel) Dawson (?) (Proteobacteria: Xanthomonadales: Xanthomonadaceae)	Bacterial wilt	Not released, occurs locally; rejected	Considerable, localised, not persistent		Morris et al. 1999
<i>Myriophyllum spicatum</i> L. spiked water-milfoil Europe, Asia, North Africa	Not applicable	<i>Euhrychiopsis lecontei</i> Dietz. (Coleoptera: Curculionidae)	Stem borer	Shelved		USA	Coetzee et al. 2011a
HYDROCHARITACEAE							
<i>Egeria densa</i> Planch. Brazilian waterweed South America	Not applicable	<i>Hydrellia egeriae</i> Rodrigues (Diptera: Ephydriidae)	Leaf miner	Release application submitted		Albany, California, ex. Buenos Aires, Argentina	Coetzee et al. 2011a
<i>Hydrilla verticillata</i> (L.f.) Royle hydrilla Old World	Substantial	<i>Bagous hydrillae</i> O'Brien (Coleoptera: Curculionidae)	Stem miner	Shelved		Australia	Buckingham & Balciunas 1994; Balciunas et al. 1996; Coetzee et al. 2011a
		<i>Hydrellia pakistanae</i> Deonier (Diptera: Ephydriidae)	Leaf miner	Shelved		India and Pakistan via USA	Buckingham et al. 1989; Wheeler & Center 1996, 2001; Center et al. 1997; Coetzee et al. 2011a; Bownes 2015
		<i>Hydrellia purcelli</i> Deeming (Diptera: Ephydriidae)	Leaf miner	Release permit issued, shelved		Singapore	Coetzee et al. 2011a; Bownes 2014, 2015; Bownes & Deeming 2016
		<i>Parapoynx diminutalis</i> Snellen (Lepidoptera: Crambidae)	Leaf cutter	Not released, occurs locally	Extensive	Asia	Bownes, 2010, 2018
IRIDACEAE							
<i>Iris pseudacorus</i> L. yellow flag iris Europe	Not applicable	<i>Aphthona nonstriata</i> (Goeze) (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Under investigation		Belgium	
MELIACEAE							
<i>Melia azedarach</i> L. seringa Asia to Australia	Not applicable	<i>Aracercus fasciculatus</i> (DeGeer) (Coleoptera: Anthribidae)	Fruit pulp borer	Rejected			

MYRTACEAE							
<i>Leptospermum laevigatum</i> (Gaertn.) F. Muell. Australian myrtle Australia	Negligible	<i>Aristaea thalassias</i> (Meyrick) [formerly in <i>Parectopa</i>] (Lepidoptera: Gracillariidae)	Leaf feeder	Released 1996, established	Trivial	Australia	Gordon 1999b, Gordon 2011
		<i>Callococcus leptospermi</i> (Maskell) (Hemiptera: Eriococcidae)	Stem galler, sap sucker	Under investigation		Australia	Gordon 2011
		<i>Dasineura strobila</i> Dorchin (Diptera: Cecidomyiidae)	Bud galler	Released 1994, established, present before release	Trivial	Australia	Gordon 1999b; Dorchin & Adair 2011; Gordon 2011
		<i>Dasineura tomentosa</i> Dorchin (Diptera: Cecidomyiidae)	Shoot & flower-bud galler	Under investigation		Australia	Dorchin & Adair 2011
		<i>Doratifera</i> sp. (Lepidoptera: Limacodidae)	Leaf feeder	Rejected		Australia	
		<i>Fergusonina</i> sp. (Diptera: Fergusoninidae)	Flower-bud galler	Shelved		Australia	Gordon 1999b
PAPAVERACEAE							
<i>Argemone ochroleuca</i> Sweet and <i>A. mexicana</i> L. Mexican poppy Central America	Not applicable	<i>Conotrachelus</i> cf. <i>leucophaeatus</i> Fähræus (Coleoptera: Curculionidae)	Stem borer	Shelved		Mexico	Van der Westhuizen & Mpedi 2011
		<i>Sirocalodes</i> cf. <i>wickhami</i> (Champion) (Coleoptera: Curculionidae)	Seed feeder	Shelved		Mexico	Van der Westhuizen & Mpedi 2011
PINACEAE							
<i>Pinus pinaster</i> Aiton cluster pine Mediterranean	Not applicable	<i>Pissodes validirostris</i> Gyllenhal (Coleoptera: Curculionidae)	Cone borer	Under investigation		Portugal	Lennox et al. 2009; Hoffmann et al. 2011
<i>Pinus</i> L. spp. pines Europe	Not applicable	<i>Trisetacus</i> sp. (Acari: Trombidiformes: Eriophyidae)	Causes abortion of immature cones	Shelved			
POACEAE							
<i>Arundo donax</i> L. giant reed Mediterranean, Europe and Asia	Negligible	<i>Rhizaspidiotus donacis</i> Leonardi (Hemiptera: Diaspididae)	Rhizome, leaf and stem feeder	Under investigation		Spain, Greece	Moran & Goolsby (2010); Goolsby et al. (2010)
		<i>Tetramesa romana</i> Walker (Hymenoptera: Eurytomidae) - South African biotype	Stem galler	Present without being released	Trivial		Marshall et al. 2018
		<i>Tetramesa romana</i> Walker (Hymenoptera: Eurytomidae) - Granada biotype	Stem galler	Under investigation		Spain	
		<i>Tetramesa romana</i> Walker (Hymenoptera: Eurytomidae) - French biotype	Stem galler	Under investigation		France	Goolsby & Moran (2009); Moran & Goolsby (2009)

PONTERIACEAE

<p><i>Eichhornia crassipes</i> (C.Mart.) Solms water hyacinth South America</p>	Substantial	<p><i>Acremonium zonatum</i> (Sawada) W.Gams (anamorphic fungus; Hypocreales)</p>	Leaf pathogen	Not released, occurs locally	Trivial but can be considerable in presence of insect agents		Morris et al. 1999
		<p><i>Alternaria eichhorniae</i> Nag-Raj & Ponnappa (anamorphic fungus; Pleosporales: Pleosporaceae)</p>	Leaf pathogen	Not released, occurs locally; shelved	Trivial but can be considerable in presence of insect agents		Morris et al. 1999
		<p><i>Bellura densa</i> (Walker) (Lepidoptera: Noctuidae)</p>	Petiole borer	Rejected		USA	Center & Hill 2002
		<p><i>Cercospora piaropi</i> Tharp. (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)</p>	Leaf pathogen	Not released, occurs locally	Unknown, cannot be distinguished from <i>C. rodmanii</i> in the field		Morris et al. 1999
		<p><i>Cercospora rodmanii</i> Conway (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)</p>	Leaf pathogen	Released 1992, established	Considerable	USA	Hill & Cilliers 1999; Morris et al. 1999
		<p><i>Cornops aquaticum</i> (Brüner) (Orthoptera: Acrididae: Leptysminae)</p>	Leaf feeder	Released 2011, establishment unconfirmed		Amazonas, Brazil	Hill & Cilliers 1999; Bownes 2009, Bownes et al. 2010a,b; Coetzee et al. 2011b; Bownes et al. 2013a,b
		<p><i>Dyscinetus dubius</i> (Olivier) (Coleoptera: Scarabaeidae: Dynastinae)</p>	Crown borer	Rejected		Amazonas, Brazil	
		<p><i>Eccritotarsus catarinensis</i> (Carvalho) (Hemiptera: Miridae)</p>	Leaf sucker	Released 1996, established	Considerable	Santa Catarina, Brazil; and Loreto, Peru	Hill & Cilliers 1999; Coetzee et al. 2005, 2007, 2011b
		<p><i>Eccritotarsus eichhorniae</i> Henry (Hemiptera: Miridae)</p>	Leaf sucker	Released 2007, established	Considerable	Loreto, Peru	Paterson et al. 2016; Henry 2017
		<p><i>Megamelus scutellaris</i> Berg (Hemiptera: Delphacidae)</p>	Leaf sucker	Released 2013, established	Unknown	Argentina via USA	Coetzee et al. 2011b
		<p><i>Neochetina bruchi</i> Hustache (Coleoptera: Curculionidae)</p>	Stem borer	Released 1990 & 1996, established	Considerable	Argentina via Zimbabwe	Hill & Cilliers 1999; Coetzee et al. 2011b
		<p><i>Neochetina eichhorniae</i> Warner (Coleoptera: Curculionidae)</p>	Stem borer	Released 1974 & 1985, established	Considerable	Argentina	Hill & Cilliers 1999; Coetzee et al. 2011b
		<p><i>Niphograpta albiguttalis</i> Warren (Lepidoptera: Crambidae)</p>	Petiole borer	Released 1990, established	Considerable	Argentina via USA	Hill & Cilliers 1999; Coetzee et al. 2011b
<p><i>Orthogalumna terebrantis</i> Wallwork (Acari: Sarcoptiformes: Galumnidae)</p>	Leaf miner	Released 1989, established	Considerable	Argentina	Hill & Cilliers 1999; Coetzee et al. 2011b		
<p><i>Taosa longula</i> Remes Lenicov (Hemiptera: Dictyopharidae)</p>	Leaf sucker	Shelved		Argentina	Coetzee et al. 2011b		

		<i>Thrypticus circularis</i> Bickel & Hernández (Diptera: Dolichopodidae)	Petiole miner	Shelved		Argentina	Coetzee et al. 2011b
		<i>Uredo eichhorniae</i> Gonz. Frag. & Cif. (anamorphic fungus: Pucciniales)	Leaf pathogen	Shelved		Brazil	Morris et al. 1999
		<i>Xubida infusellus</i> (Walker) (Lepidoptera: Pyralidae)	Petiole borer	Shelved		Argentina	Coetzee et al. 2009
PROTEACEAE							
<i>Hakea gibbosa</i> (Sm.) Cav. rock hakea Australia	Negligible	<i>Aphanasium australe</i> (Boisduval) (Coleoptera: Cerambycidae)	Stem borer	Alternative host, released 2001, established	Unknown	Australia (NSW)	Gordon 1999a, 2003; Gordon & Fourie 2011
		<i>Erytenna consputa</i> Pascoe (Coleoptera: Curculionidae)	Green-fruit feeder	Alternative host, released 1975, established	Trivial	Australia (SA)	Gordon 1999a; Gordon & Fourie 2011
<i>Hakea sericea</i> Schrad. & J.C.Wendl. silky hakea Australia	Substantial	<i>Aphanasium australe</i> (Boisduval) (Coleoptera: Cerambycidae)	Stem borer	Released 2001, established	Unknown	Australia (NSW)	Gordon 1999a, 2003; Gordon & Fourie 2011
		<i>Bortesia</i> sp. (Hymenoptera: Torymidae)	Bud galler	Shelved		Australia	Kluge & Nesar 1991
		<i>Carposina autologa</i> Meyrick (Lepidoptera: Carposinidae)	Seed feeder	Released 1970 & 1982, established	Trivial	Australia (South East & South West)	Gordon 1999a; Gordon & Fourie 2011
		<i>Colletotrichum acutatum</i> J.H. Simmonds (Glomerellales: Glomerellaceae)	Stem gummosis disease	Not released, occurs locally; developed as mycoherbicide "Hakatak"	Extensive	South Africa	Morris 1991; Morris et al. 1999; Lubbe et al. 2004; Gordon & Fourie 2011
		<i>Cydmaea binotata</i> Lea (Coleoptera: Curculionidae)	Leaf & shoot borer	Released 1979, established	Trivial	Australia	Gordon 1999a; Gordon & Fourie 2011
		<i>Dicomada rufa</i> Blackburn (Coleoptera: Curculionidae)	Flower-bud feeder	Released 2006, established	Unknown	Australia	Gordon 1999a; Gordon & Fourie 2011
		<i>Dixoncis pictus</i> Oke (Coleoptera: Curculionidae)	Old-fruit borer	Shelved		Australia	Kluge & Nesar 1991
		<i>Erytenna consputa</i> Pascoe (Coleoptera: Curculionidae)	Green-seed feeder	Released 1970 & 1974, established	Extensive	Australia (SA)	Gordon 1999a; Gordon & Fourie 2011
<i>Sangarius paradoxus</i> Stål (Hemiptera: Acanthosomatidae)	Seed sucker	Rejected		Australia	Kluge & Nesar 1991		
<i>Hakea drupacea</i> (C.F.Gaertn.) Roem. & Schult. (formerly <i>Hakea suaveolens</i> R.Br.) sweet hakea Australia	Not applicable	<i>Aphanosperma occidentalis</i> Britton (Coleoptera: Cerambycidae)	Mature-fruit borer	Shelved			

ROSACEAE							
<i>Rubus cuneifolius</i> Pursh American bramble North America	Not applicable	<i>Gymnoconia nitens</i> (Schwein.) F.Kern & Thurst. (Pucciniales: Phragmidiaceae)	Systemic stem pathogen	Shelved		USA	Morris et al. 1999
<i>Rubus fruticosus</i> L. agg. blackberry Europe	Not applicable	<i>Phragmidium violaceum</i> (Schultz) G. Winter (Pucciniales: Phragmidiaceae)	Leaf pathogen	Shelved		Europe	
SALVINIACEAE							
<i>Salvinia molesta</i> D.S.Mitch. water fern South America	Complete	<i>Cyrtobagous salviniae</i> Calder & Sands (Coleoptera: Curculionidae)	Stem borer	Released 1985, established	Extensive	Brazil via Australia via Namibia	Cilliers et al. 2003; Coetzee et al. 2011b
		<i>Paulinia acuminata</i> (De Geer) (Orthoptera: Acrididae: Pauliniinae)	Fronde feeder	Shelved		Trinidad via Namibia	Julien et al. 2009
<i>Salvinia minima</i> Baker common salvinia South America	Not applicable	<i>Cyrtobagous salviniae</i> Calder & Sands, Florida strain (Coleoptera: Curculionidae)	Stem borer	Under investigation		USA	
SAPINDACEAE							
<i>Cardiospermum grandiflorum</i> Sw. balloon vine South America	Under evaluation	<i>Apocera zogographica</i> (Dyar) (Lepidoptera: Pyralidae)	Leaf tier	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Chlorostrymon simaethis sarita</i> (Skinner) (Lepidoptera: Lycaenidae)	Seed feeder	Rejected		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Cissoanthonomus tuberculipennis</i> Hustache (Coleoptera: Curculionidae)	Seed feeder	Released 2013, established	Extensive	Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Contarinia</i> sp. (Diptera: Cecidomyiidae)	Flower galler	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Gargaphia</i> sp. (Hemiptera: Tingidae)	Leaf sucker	Rejected		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Lisseurytomella flava</i> (Ashmead) (Hymenoptera: Eulophidae)	Seed feeder	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Moodnopsis</i> sp. nr. <i>perangusta</i> Dyar (Lepidoptera: Pyralidae)	Seed feeder	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Phyllachora rimulosa</i> Speg. (Phyllachorales: Phyllachoraceae)	Tar spot pathogen	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
		<i>Platynota xylophaea</i> (Meyrick) (Lepidoptera: Tortricidae)	Leaf tier	Shelved		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a
<i>Puccinia arechavaletae</i> Speg. (Pucciniales: Pucciniaceae)	Leaf pathogen	Under investigation		Argentina	Mc Kay et al. 2010; Simelane et al. 2011a		
SOLANACEAE							
<i>Cestrum laevigatum</i> Schtdl. inkberry South America	Not applicable	<i>Uromyces cestri</i> Bertero ex Mont. (Pucciniales: Pucciniaceae)	Rust pathogen	Rejected		Argentina	Fourie 2011

<i>Cestrum parqui</i> L'Hér. Chilean cestrum South America	Not applicable	? <i>Acallepitrix</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Leaf miner	Under investigation			
<i>Solanum elaeagnifolium</i> Cav silverleaf nightshade, satansbos North, Central and South America	Substantial	<i>Arvelius albopunctatus</i> (De Geer) Hemiptera: Pentatomidae)	Seed sucker	Rejected		Argentina	Olckers & Zimmermann 1991
		<i>Conotrachelus bisignatus</i> Boheman (Coleoptera: Curculionidae)	Seed feeder	Rejected		Argentina	Olckers & Zimmermann 1991
		<i>Ditylenchus phyllobius</i> (Thorne) (Nematoda: Tylenchida: Anguinidae)	Leaf galler	Shelved		Texas, USA	Olckers & Zimmermann 1991
		<i>Frumenta nephelomicta</i> (Meyrick) (Lepidoptera: Gelechiidae)	Fruit galler	Released 1979 & 1985, not established		Mexico	Olckers et al. 1999
		<i>Frumenta</i> sp. (Lepidoptera: Gelechiidae)	Stem & fruit galler	Released 1989, not established		Texas, USA	Olckers 1995; Adamski & Brown 2002
		<i>Gratiana lutescens</i> (Boheman) (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Rejected		Argentina	Hill 1999; Olckers et al. 1999
		<i>Leptinotarsa defecta</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 1992, established	Moderate	Texas, USA	Olckers & Hulley 1994; Olckers et al. 1995; Hoffmann et al. 1998
		<i>Leptinotarsa texana</i> (Schaeffer) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Released 1992, established	Extensive	Texas, USA	Olckers & Hulley 1994; Olckers et al. 1995; Hoffmann et al. 1998
		<i>Pseudocercospora egenula</i> (Syd.) U. Braun & Crous (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Rejected			
<i>Solanum mauritianum</i> Scop. bugweed South America	Negligible	<i>Acallepitrix</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Leaf miner	Rejected		Argentina, Brazil	Olckers 2004
		<i>Acrolepia xylophragma</i> (Meyrick) (Lepidoptera: Plutellidae)	Leaf miner	Rejected		Argentina	Olckers 1999, 2009
		<i>Adesmus hemispilus</i> (Germar) (Coleoptera: Cerambycidae)	Stem borer	Shelved		Argentina, Brazil	Olckers 1999, 2009
		<i>Anthonomus morticinus</i> Clark (Coleoptera: Curculionidae)	Flower-bud feeder	Shelved		Argentina, Brazil	Olckers 1999, 2009
		<i>Anthonomus santacruzii</i> Hustache (Coleoptera: Curculionidae)	Flower-bud feeder	Released 2008, established	Trivial	Argentina	Olckers 2003, 2008, 2011b; Cowie et al. 2016a, 2017; Singh & Olckers 2017; Cowie et al. 2018; English & Olckers 2018
		<i>Aponychus schultzi</i> Blanchard (Acari: Tetranychidae)	Leaf sucker	Shelved		Brazil	Pedrosa-Macedo et al. 2003

		<i>Collabismus notulatus</i> Boheman (Coleoptera: Curculionidae)	Shoot galler	Shelved		Argentina, Brazil	Olickers 1999, 2009
		<i>Conotrachelus squalidus</i> Boheman (Coleoptera: Curculionidae)	Stem borer	Shelved		Argentina, Paraguay	Olickers 1999, 2009
		<i>Corythaica cyathicollis</i> (Costa) (Hemiptera: Tingidae)	Leaf sucker	Rejected		Argentina	Olickers 1999, 2009
		<i>Gargaphia decoris</i> Drake (Hemiptera: Tingidae)	Leaf sucker	Released 1999, established	Trivial, occasional outbreaks	Argentina, Brazil	Olickers 2000a, 2011b; Olickers & Lotter 2004; Olickers & Borea 2009; Cowie et al. 2016b, 2018
		<i>Mycovellosiella brachycarpa</i> (Syd.) Deighton (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Rejected		Brazil	
		<i>Nealcidion bicristatum</i> (Bates) (Coleoptera: Cerambycidae)	Stem borer	Rejected		Argentina, Brazil	Olickers 1999, 2009
		<i>Platyphora biforis</i> (Germar) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Rejected		Brazil	Olickers 2000b
		<i>Platyphora conviva</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Rejected		Brazil	Olickers 2000b
		<i>Platyphora nigronotata</i> (Stål) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Rejected		Brazil	Olickers 2000b
		<i>Platyphora paraguana</i> (Jacoby) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Rejected		Argentina	Olickers 2000b
		<i>Platyphora semiviridis</i> (Jacoby) (Coleoptera: Chrysomelidae: Chrysomelinae)	Leaf feeder	Rejected		Brazil	Olickers 1998
<i>Solanum sisymbriifolium</i> Lam. wild tomato, dense-thorned bitter apple South America	Substantial	<i>Gratiana spadicea</i> (Klug) (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Released 1994, established	Extensive	Argentina, southern Paraguay and Brazil	Hill & Hulley 1995; Byrne et al. 2002; King et al. 2011a
		<i>Metriona elatior</i> (Klug) (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Rejected			Argentina

TAMARICACEAE

<i>Tamarix chinensis</i> Lour., <i>T. ramosissima</i> Ledeb. and their hybrids Chinese tamarisk pink tamarisk Eurasia	Not applicable	<i>Diorhabda carinulata</i> (Debrochers) (Coleoptera: Chrysomelidae)	Leaf feeder	Rejected		Fukang, China via Colorado, USA	DeLoach et al 2003; Tracy & Robbins 2009; Herr et al 2014; Marlin et al. 2017
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VERBENACEAE

<i>Lantana camara</i> L. (<i>sensu lato</i>) lantana Central and South America	Negligible (Highveld) to substantial (coastal & Lowveld)	<i>Aceria lantanae</i> (Cook) (Acari: Trombidiformes: Eriophyidae)	Flower galler	Released 2007, established	Extensive, on certain varieties in some areas	Florida, USA; Cuba	Urban et al. 2001, 2011a; Mukwevho et al. 2017
		<i>Aceria 'lantanae'</i> (Cook) (Acari: Trombidiformes: Eriophyidae)	Leaf galler	Rejected		Argentina, Brazil	
		<i>Aconophora compressa</i> Walker (Hemiptera: Membracidae)	Stem sucker	Rejected		Mexico, via Australia	Heystek & Baars 2005
		<i>Aerenicopsis championi</i> Bates (Coleoptera: Cerambycidae)	Stem borer	Shelved		Guatemala	Day et al. 2003
		<i>Aerenicopsis irumuara</i> Martins & Galileo (Coleoptera: Cerambycidae)	Stem borer	Shelved		Guatemala	Martins & Galileo 2004
		<i>Alagoasa decemguttata</i> (Fabricius) (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Rejected		Brazil	Baars & Nesar 1999, Urban et al. 2011b
		<i>Alagoasa extrema</i> (Harold) (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Rejected		Mexico	Williams 2005, 2006, Urban et al. 2011b
		<i>Alagoasa parana</i> Samuelson (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Released 1985, not established		Brazil via Australia	Cilliers & Nesar 1991
		<i>Asphondylia camarae</i> Mohn (Diptera: Cecidomyiidae)	Flower galler	Shelved		Mexico, Guatemala	Urban et al. 2011b
		<i>Autoplusia illustrata</i> (Guenée) (Lepidoptera: Noctuidae)	Leaf feeder	Released 1978 & 1984, not established		Colombia via Australia	Cilliers & Nesar 1991
		<i>Barela parvisaccata</i> Young (Hemiptera: Cicadellidae)	Leaf sucker	Rejected		Mexico	Phenye & Simelane 2005
		<i>Calycomyza lantanae</i> (Frick) (Diptera: Agromyzidae)	Leaf miner	Released 1982, established	Moderate	Trinidad via Australia; Later also Florida, USA	Baars & Nesar 1999
		<i>Charidotis pygmaea</i> (Klug) (Coleoptera: Chrysomelidae: Cassidinae)	Leaf feeder	Rejected		Colombia via Australia	Williams 2004
<i>Coelocephalopion camarae</i> Kissinger (Coleoptera: Brentidae: Apioninae)	Petiole galler	Released 2007, established	Moderate but localized	Mexico	Baars et al. 2006		

<i>Crociosema lantana</i> Busck [formerly in <i>Epinotia</i>] (Lepidoptera: Tortricidae)	Flower & receptacle miner	Present before release; released 1984, established	Trivial	Mexico via Hawaii, USA	Baars 2003
<i>Eutreta xanthochaeta</i> Aldrich (Diptera: Tephritidae)	Shoot galler	Released 1983, not established; rejected		Hawaii, USA	Mabuda 2005
<i>Falconia intermedia</i> (Distant) (Hemiptera: Miridae)	Leaf sucker	Released 1999, established	Moderate, localized	Jamaica	Baars et al. 2003
<i>Hypena laceratalis</i> Walker (Lepidoptera: Noctuidae)	Leaf feeder	Not released, native	Moderate	Native	Baars 2003
<i>Lantanophaga pusillidactyla</i> (Walker) (Lepidoptera: Pterophoridae)	Flower miner	Present before release; released 1984, not established	Trivial	Mexico via Hawaii, USA	Baars 2003
<i>Leptobyrsa decora</i> Drake (Hemiptera: Tingidae)	Leaf sucker	Released 1972-1984, not established		Colombia, Peru via Australia	Cilliers & Nesar 1991
<i>Longitarsus bethae</i> Savini & Escalona (Coleoptera: Chrysomelidae: Galerucinae)	Root feeder	Released 2007, established	Moderate, localised	Mexico	Simelane 2005, 2010
<i>Longitarsus columbicus columbicus</i> Harold (Coleoptera: Chrysomelidae: Galerucinae)	Root feeder	Shelved		Venezuela	Baars 2001
<i>Longitarsus howdeni</i> (Blake) (Coleoptera: Chrysomelidae: Galerucinae)	Root feeder	Shelved		Jamaica	Baars & Nesar 1999
<i>Longitarsus</i> sp. (Coleoptera: Chrysomelidae: Galerucinae)	Root feeder	Shelved		Mexico	Baars & Nesar 1999
<i>Macugonalia geographica</i> (Signoret) (Hemiptera: Cicadellidae)	Stem sucker	Rejected		Brazil	Urban et al. 2011b
<i>Neogalia sunia</i> (Guenée) (Lepidoptera: Noctuidae)	Leaf feeder	Released 1962 & 1969, not established		California, USA via Hawaii via Australia	Cilliers & Nesar 1991
<i>Octotoma championi</i> Baly (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Released 1978, 1995, not established		Costa Rica via Australia	Cilliers & Nesar 1991
<i>Octotoma scabripennis</i> Guérin-Mèneville (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Released 1971-1975, established	Considerable	Mexico, via Hawaii, via Australia	Cilliers 1987
<i>Omophoita albicollis</i> (Fabricius) (Coleoptera: Chrysomelidae: Galerucinae)	Leaf feeder	Rejected		Jamaica	Baars & Nesar 1999
<i>Ophiomyia camarae</i> Spencer (Diptera: Agromyzidae)	Leaf miner	Released 2001, established	Considerable	Florida, USA	Simelane 2002; Simelane & Phenyne 2005

<i>Ophiomyia lantanae</i> (Froggatt) (Diptera: Agromyzidae)	Fruit miner	Present before release; released 1961	Moderate	Mexico via Hawaii, USA	Cilliers 1987
<i>Orthonama ignifera</i> (Warren) [formerly in <i>Leptostales</i>] (Lepidoptera: Geometridae)	Leaf feeder	Release permit issued		Florida, USA; Mexico	Williams & Madire 2008
<i>Orthonama</i> sp. B (Lepidoptera: Geometridae)	Leaf feeder	Shelved			
<i>Passalora lantanae</i> (Chupp) U.Braun & Crous var. <i>lantanae</i> [formerly in <i>Mycovellosiella</i>] (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf pathogen	Released 2002, not established		Florida, USA	Den Breeÿen 2003; Den Breeÿen & Morris 2003; Retief 2010a
<i>Phenacoccus madeirensis</i> Green (Hemiptera: Pseudococcidae)	Leaf & shoot sucker	Shelved		Brazil	Day et al. 2003; Urban et al. 2011b
<i>Plagiohammus spinipennis</i> (Thomson) (Coleoptera: Cerambycidae)	Stem borer	Released 1973, not established		Mexico via Hawaii, USA via Australia	Cilliers & Nesar 1991
<i>Prospodium tuberculatum</i> (Speg.) Arthur (Pucciniales: Uropyxidaceae)	Leaf rust pathogen	Rejected		Brazil	Thomas et al. 2006; Retief 2010b
<i>Pseudanthonomus canescens</i> Faust (Coleoptera: Curculionidae)	Flower miner	Rejected		Guatemala	Urban et al. 2011b
<i>Pseudanthonomus griseipilis</i> Champion (Coleoptera: Curculionidae)	Flower miner	Rejected		Guatemala	Urban et al. 2011b
<i>Puccinia lantanae</i> Farl. (Pucciniales: Pucciniaceae)	Leaf and stem rust pathogen	Release permit issued; imported		Peru	Renteria et al. 2004
<i>Salbia haemorrhoidalis</i> (Guenée) (Lepidoptera: Crambidae)	Leaf feeder	Released 1962, established	Trivial	Cuba via Hawaii, USA	Baars 2003
<i>Septoria</i> sp. (anamorphic fungus; Mycosphaerellales: Mycosphaerellaceae)	Leaf spot pathogen	Rejected		Hawaii, USA	Trujillo 1995
<i>Teleonemia elata</i> Drake (Hemiptera: Tingidae)	Leaf sucker	Released 1972, not established		Brazil via Australia	Cilliers & Nesar 1991
<i>Teleonemia scrupulosa</i> Stål (Hemiptera: Tingidae)	Leaf & flower sucker	Released 1961, 1972, 1984, established	Considerable	Mexico via Hawaii (1961); C & S America via Australia (1972); via Mauritius (1984)	Baars & Nesar 1999
<i>Teleonema vulgata</i> Drake & Hambleton (Hemiptera: Tingidae)	Leaf sucker	Shelved		Brazil	Baars 2002
<i>Uroplata fulvopustulata</i> Baly (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Released 1978, not established		Costa Rica via Australia	Day et al. 2003

	<i>Uroplata girardi</i> Pic (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Released 1974, 1983, established	Considerable, coastal	Brazil via Hawaii, USA via Australia (1974); Argentina via Australia (1983)	Baars & Nesar 1999
	<i>Uroplata lantanae</i> Buzzi & Winder (Coleoptera: Chrysomelidae: Cassidinae)	Leaf miner	Released 1984, not established		Brazil via Australia	Cilliers & Nesar 1991
	Unidentified species (Hemiptera: Tingidae)	Leaf sucker	Rejected			Urban et al. 2011b

For each of the agents that has established successfully, a rating is given for the perceived degree of damage that it inflicts on the target weed. These ratings (Anon. 1999), which have been widely adopted since 1999, and slightly amended in this account, are sometimes based on formal measurements and otherwise on subjective visual assessments, and include the following categories. Extensive: Very high levels of damage, as much as could be expected from the agent. Few plants survive, or growth is arrested, or almost no seeds are produced. Considerable: High levels of damage. Some plants may survive but growth rates are noticeably slower, or seed production is reduced by more than 50%. Moderate: Perceivable damage, but most plants survive. Growth may be slowed to some extent, or seed production is reduced by less than 50%. Trivial: Some damage, but survival, growth and seed production of the plants is almost normal. Unknown: Agent has been too recently released, or has not been evaluated.

For each weed species on which at least one biological control agent has established, the impact of the agent (where only one is established) or combined impact of all agents (where two or more are established) (i.e. the degree of control) (adapted from Anon. 1999) is rated by estimating the degree to which the impact or importance of the target weed species has been reduced by the agent(s). Assessments are based on the degree of reduction in the use of alternative control methods (chemical or mechanical) since the introduction of biological control agents, and include the following categories. Complete: No other control measures are needed to reduce the weed to acceptable levels, at least in areas where the agents are established. Substantial: Other methods are needed to reduce the weed to acceptable levels, but less effort is required (e.g. less frequent herbicide applications or less herbicide needed per unit area). Negligible: In spite of damage inflicted by the agents, control of the weed remains entirely reliant on the implementation of other control measures. Not determined: Either the release of the agents has been too recent for meaningful evaluation, or the programme has not been evaluated. Under evaluation: an active programme is underway to evaluate the impact of biological control agents on the weed, which is expected to result in categorisation as complete, substantial or negligible control.

Adapted from: Klein, H. 2011. A catalogue of the insects, mites and pathogens that have been used or rejected, or are under consideration, for the biological control of invasive alien plants in South Africa. In: Moran, V.C., Hoffmann, J.H. & Hill, M.P. (Eds) Biological Control of Invasive Alien Plants in South Africa (1999-2010). African Entomology (Special Issue) 19(2): 515-549.

Last updated July 2018.

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