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Appendix 1

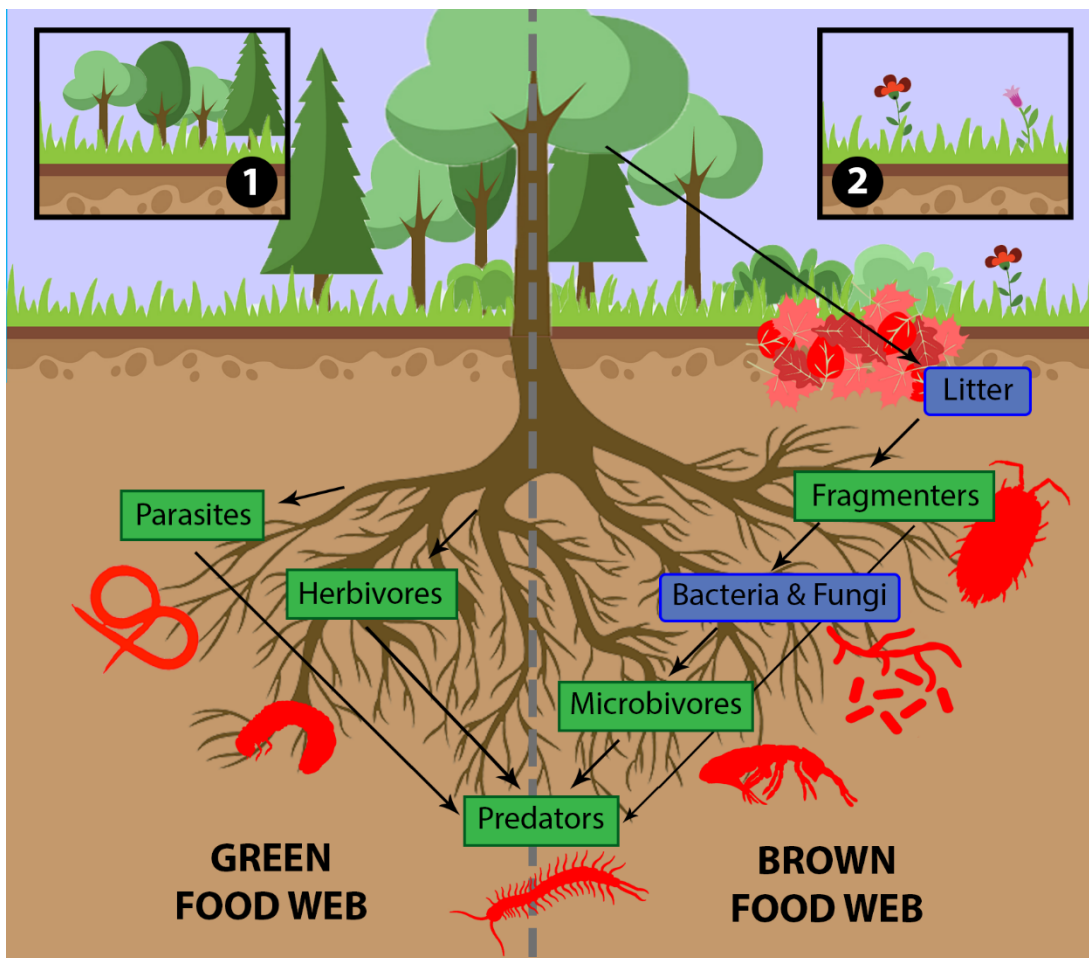


Figure 1. Schematic representation of the two main soil food web pathways. Belowground communities are affected both directly and indirectly by aboveground plant communities. Left: green, herbivory-based, food web. Right: brown, detrital-based, food web. Inspired by Wardle et al., 2004 and Van Kleunen et al., 2010. Variables in green were considered for analysis while variables in blue were not.

Table 1. Synthesis of invasive plant species effects on abundance of various soil and litter fauna taxa. Effect of IAS are based on a qualitative review of the considered paper, when stated or shown by the authors. Open habitats are grasslands, wetlands, moors and other habitats devoid of trees. Closed habitats are dense shrubs and forests. Cases highlighted (in bold) were included in the meta-analysis.

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference		
<i>Acari</i> (total)	positive	open	soil	<i>Agrostis stolonifera</i>	Gremmen et al. 1998		
		open	soil	<i>Buddleja davidii</i>	Peltzer et al. 2009		
		open	litter	<i>Phragmites australis</i>	Gratton and Denno 2005		
		closed	both	<i>Fallopia sachalinensis</i>	Skubala and Mierny 2009		
		closed	soil	<i>Impatiens glandulifera</i>	Rusterholz et al. 2014		
		closed	soil	<i>Mikania micrantha</i>	Guo-ming et al. 2011		
		closed	litter	<i>Ailanthus altissima</i>	Lindsay and French 2006		
		closed	litter	<i>Lonicera maackii</i>	Christopher and Cameron 2008		
		closed	litter	<i>Microstegium vimineum</i>	McGrath and Binkley 2009		
		closed	litter	<i>Quercus rubra</i>	Kohyt and Skubała 2013		
		closed	litter	<i>Tradescantia fluminensis</i>	Bassett 2014		
		closed	litter	<i>Tradescantia fluminensis</i>	Standish 2004		
		No trophic group assigned	neutral	open	soil	<i>Bromus tectorum</i>	Belnap and Phillips 2001
				open	soil	<i>Senecio jacobea</i>	Wardle et al. 1995
open	litter			<i>Andropogon gerardii</i>	St. John et al. 2006		
closed	both			<i>Arundo donax</i>	Maceda-Veiga et al. 2016		
closed	soil			<i>Ailanthus altissima</i>	Gutiérrez-López et al. 2014a		
closed	soil			<i>Quercus rubra</i>	Kohyt and Skubała 2013		
closed	litter			Multiple (litter)	Tuttle et al. 2009		
Predators	negative			open	soil	<i>Bromus tectorum</i>	Belnap et al. 2005
				open	soil	<i>Phragmites australis</i>	Angradi et al. 2001
				open	litter	3 invasive grasses	Wolkovich et al. 2009
				closed	both	<i>Fallopia sachalinensis</i>	Skubala and Mierny 2009
				closed	soil	<i>Ailanthus altissima</i>	Lindsay and French 2006
				closed	litter	<i>Ailanthus altissima</i>	Motard et al. 2015
				closed	litter	<i>Arundo donax</i>	Herrera and Dudley 2003
		closed	litter	<i>Asparagus scandens</i>	Bassett 2014		
		closed	litter	<i>Chrysanthemoides monilifera</i>	Lindsay and French 2006		
		closed	litter	<i>Hedychium gardnerianum</i>	Bassett 2014		
		Closed	Litter	<i>Impatiens glandulifera</i>	Tanner et al. 2013		
		<i>Acari</i> (Mesostigmata)	negative	open	soil	<i>Phragmites australis</i>	Gratton and Denno 2005
				closed	both	<i>Ailanthus altissima</i>	Gutiérrez-López et al. 2014b
				closed	soil	<i>Quercus rubra</i>	Kohyt and Skubała 2013
		closed	litter	<i>Ailanthus altissima</i>	Motard et al. 2015		

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
		closed	litter	<i>Impatiens glandulifera</i>	Rusterholz et al. 2014
	neutral	open closed closed	soil both soil	<i>Agrostis stolonifera</i> <i>Fallopia sachalinensis</i> <i>Impatiens glandulifera</i>	Gremmen et al. 1998 Skubala and Mierny 2009 Rusterholz et al. 2014
	positive	open closed	soil litter	<i>Phragmites australis</i> <i>Quercus rubra</i>	Angradi et al. 2001 Kohyt and Skubała 2013
<i>Acari</i> (Oribatida)	positive	closed closed closed	soil litter litter	<i>Impatiens glandulifera</i> <i>Quercus rubra</i> <i>Impatiens glandulifera</i>	Rusterholz et al. 2014 Kohyt and Skubała 2013 Rusterholz et al. 2014
Detrivores	neutral	open	soil	<i>Agrostis stolonifera</i>	Gremmen et al. 1998
	negative	open closed closed closed closed	soil both both soil litter	<i>Phragmites australis</i> <i>Ailanthus altissima</i> <i>Fallopia sachalinensis</i> <i>Quercus rubra</i> <i>Ailanthus altissima</i>	Angradi et al. 2001 Gutiérrez-López et al. 2014b Skubala and Mierny 2009 Kohyt and Skubała 2013 Motard et al. 2015
<i>Acari</i> (Actinedida)	neutral	open open	soil soil	<i>Phragmites australis</i> <i>Agrostis stolonifera</i>	Angradi et al. 2001 Gremmen et al. 1998
No trophic group assigned	positive	closed closed	both soil	<i>Ailanthus altissima</i> <i>Quercus rubra</i>	Gutiérrez-López et al. 2014b Kohyt and Skubała 2013
		closed	litter	<i>Quercus rubra</i>	Kohyt and Skubała 2013
<i>Aranea</i>	positive	open open closed closed	litter litter litter litter	Multiple (litter) <i>Phragmites australis</i> <i>Salix rubens</i> <i>Phoenix canariensis</i>	Wolkovich et al. 2009 Angradi et al. 2001 Greenwood et al. 2004 Talley et al. 2012a
Predators	neutral	open closed closed closed	litter litter litter litter	<i>Chrysanthemoides monilifera</i> <i>Lonicera maackii</i> <i>Pseudotsuga menziesii</i> <i>Follopia ssp.</i>	Wilkie et al. 2007a Christopher and Cameron, 2008 Finch and Szumelda 2007 Gerber et al. 2008
	negative	both open open open open closed	litter litter soil litter litter both	<i>Campylopus introflexus</i> <i>Microstegium vimineum</i> <i>Senecio jacobea</i> <i>Chrysanthemoides monilifera</i> <i>Phragmites australis</i> <i>Ailanthus altissima</i>	Schirmel et al. 2011 Tang et al. 2012 Wardle et al. 1995 Lindsay and French 2006 Gratton and Denno 2005 Gutiérrez-López et al. 2014b

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
		closed closed closed closed closed	soil litter litter litter litter	<i>Phoenix canariensis</i> <i>Ailanthus altissima</i> <i>Arundo donax</i> <i>Chromolaena odorata</i> <i>Impatiens glandulifera</i>	Iannone et al. 2015 Motard et al. 2015 Herrera and Dudley 2003 Mgobozi et al. 2008 Tanner et al. 2013
<i>Chilopoda</i>	positive	closed	litter	<i>Pseudotsuga menziesii</i>	Finch and Szumelda 2007
Predators	neutral	both open closed closed closed closed closed	litter litter litter litter both litter litter	<i>Follopia</i> ssp. <i>Chrysanthemoides monilifera</i> <i>Ailanthus altissima</i> <i>Asparagus scandens</i> <i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i> <i>Ailanthus altissima</i> <i>Ailanthus altissima</i> <i>Impatiens glandulifera</i>	Gerber et al. 2008 Lindsay and French 2006 Motard et al. 2015 Bassett 2014 Gutiérrez-López et al. 2014b Motard et al. 2015 Tanner et al. 2013
	negative	open	litter	<i>Vincetoxicum rossicum</i>	Ernst and Cappuccino 2005
<i>Coleoptera</i> (total)	positive	open open open open open	soil litter litter litter litter	<i>Agrostis stolonifera</i> <i>Alternanthera philoxeroides</i> <i>Senecio jacobea</i> <i>Ulex europaeus</i> <i>Salix cinerea</i> <i>Tradescantia fluminensis</i> <i>Pseudotsuga menziesii</i> <i>Salix rubens</i> Multiple (litter)	Gremmen et al. 1998 Bassett et al. 2011 Wardle et al. 1995 Harris et al. 2004 Watts et al. 2012 Bassett 2014 Finch and Szumelda 2007 Greenwood et al. 2004 Tuttle et al. 2009
No trophic group assigned	neutral	both both open open open open open open closed closed closed closed	litter litter litter litter litter litter litter litter litter litter litter litter	Multiple Multiple <i>Chrysanthemoides monilifera</i> <i>Solidago canadensis</i> <i>Solidago gigantea</i> <i>Vincetoxicum rossicum</i> <i>Phragmites australis</i> <i>Carpobrotus acinaciformis</i> <i>Chrysanthemoides monilifera</i> <i>Ailanthus altissima</i> <i>Asparagus scandens</i> <i>Hedychium gardnerianum</i> <i>Lonicera maackii</i> <i>Follopia</i> ssp.	Crisp et al. 1998 Samways et al. 1996 Lindsay and French 2006 Baranová et al. 2014 Ernst and Cappuccino 2005 Gratton and Denno 2005 Palmer et al. 2004 Wilkie et al. 2007b Motard et al. 2015 Bassett 2014 Christopher and Cameron 2008 Gerber et al. 2008

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
		closed	litter	<i>Microstegium vimineum</i>	McGrath and Binkley 2009
	negative	both open open open closed closed closed	litter litter litter litter litter litter litter	<i>Fallopia japonica</i> <i>Solidago canadensis</i> <i>Prosopis glandulosa</i> <i>Eragrostis lehmanniana</i> <i>Phoenix canariensis</i> <i>Arundo donax</i> <i>Tradescantia fluminensis</i> <i>Phoenix canariensis</i> <i>Impatiens glandulifera</i>	Kappes et al. 2007 de Groot et al. 2007 Steenkamp and Chown 1996 Litt and Steidl 2010 Talley et al. 2012a Herrera and Dudley 2003 Standish 2004 Talley et al. 2012a Tanner et al. 2013
<i>Coleoptera</i> (Carabidae)	positive	open	litter	<i>Ageratina adenophora</i>	Gu et al. 2008
Predators	neutral	open open closed	litter litter litter	<i>Alternanthera philoxeroides</i> <i>Campylopus introflexus</i> <i>Follopia ssp.</i>	Bassett et al. 2011 Schirmel et al. 2011 Gerber et al. 2008
	negative	open open closed	litter litter litter	<i>Solidago canadensis</i> <i>Solidago gigantea</i> <i>Solidago canadensis</i> <i>Pseudotsuga menziesii</i>	Baranová et al. 2014 de Groot et al. 2007 Finch and Szumelda 2007
<i>Collembola</i>	positive	open open closed	soil litter both	<i>Phragmites australis</i> <i>Senecio jacobea</i> <i>Microstegium vimineum</i>	Angradi et al. 2001 Wardle et al. 1995 Tuttle et al. 2009
Microbivores		closed closed closed closed	soil soil litter litter	<i>Ailanthus altissima</i> <i>Arundo donax</i> <i>Impatiens glandulifera</i> <i>Tradescantia fluminensis</i>	Gutiérrez-López et al. 2014a Maceda-Veiga et al. 2016 Rusterholz et al. 2014 Bassett 2014
	neutral	open open open open closed closed closed closed closed closed closed	litter soil soil litter both soil litter litter litter litter litter	Multiple (litter) <i>Bromus tectorum</i> <i>Buddeja davidii</i> <i>Chrysanthemoides monilifera</i> <i>Fallopia sachalinensis</i> <i>Impatiens glandulifera</i> <i>Microstegium vimineum</i> <i>Phoenix canariensis</i> <i>Tradescantia fluminensis</i> <i>Asparagus scandens</i> <i>Hedychium gardnerianum</i> <i>Lonicera maackii</i>	Wolkovich et al. 2009 Belnap et al. 2005 Peltzer et al. 2009 Lindsay and French 2006 Skubala and Mierny 2009 Rusterholz et al. 2014 McGrath and Binkley 2009 Talley et al. 2012b Standish 2004 Bassett 2014 Christopher and Cameron 2008

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
	negative	open open closed	soil litter litter	<i>Agrostis stolonifera</i> <i>Phragmites australis</i> <i>Ailanthus altissima</i>	Gremmen et al. 1998 Gratton and Denno 2005 Motard et al. 2015
<i>Diplopoda</i>	positive	closed closed	litter litter	<i>Ailanthus altissima</i> <i>Pseudotsuga menziesii</i>	Motard et al. 2015 Finch and Szumelda 2007
Detrivores	neutral	open closed closed closed closed	litter both litter litter litter	<i>Vincetoxicum rossicum</i> <i>Ailanthus altissima</i> <i>Asparagus scandens</i> <i>Hedychium gardnerianum</i> <i>Follopia ssp.</i> <i>Ailanthus altissima</i> <i>Impatiens glandulifera</i>	Ernst and Cappuccino 2005 Gutiérrez-López et al. 2014b Bassett 2014 Gerber et al. 2008 Motard et al. 2015 Tanner et al. 2013
	negative	both closed closed closed	litter soil litter litter	<i>Fallopia japonica</i> <i>Arundo donax</i> <i>Tradescantia fluminensis</i> <i>Arundo donax</i>	Kappes et al. 2007 Maceda-Veiga et al. 2016 Bassett 2014 Herrera and Dudley 2003
<i>Enchytraeids</i>	positive	open	soil	<i>Carmichaelia odorata</i>	St.John et al. 2012
Detrivores	neutral	closed closed	soil soil	<i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i>	Yeates and Williams 2001 Yeates and Williams 2001
	negative	open closed	soil soil	<i>Agrostis stolonifera</i> <i>Ulex europaeus</i>	Gremmen et al. 1998 Yeates and Williams 2001
<i>Isopoda</i>	positive	closed closed closed closed closed	both litter litter litter litter	Litter of various invasives <i>Arundo donax</i> <i>Asparagus scandens</i> <i>Pseudotsuga menziesii</i> <i>Tradescantia fluminensis</i>	Tuttle et al. 2009 Herrera and Dudley 2003 Bassett 2014 Finch and Szumelda 2007 Bassett 2014
Detrivores	neutral	both open closed closed	litter litter litter litter	<i>Fallopia japonica</i> <i>Chrysanthemoides monilifera</i> <i>Ailanthus altissima</i> <i>Hedychium gardnerianum</i>	Kappes et al. 2007 Lindsay and French 2006 Motard et al. 2015 Bassett 2014
	negative	open closed closed	soil soil litter	<i>Phragmites australis</i> <i>Ailanthus altissima</i> <i>Impatiens glandulifera</i>	Angradi et al. 2001 Gutiérrez-López et al. 2014b Tanner et al. 2013

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
<i>Oligochaeta</i>	positive	open open	soil litter	<i>Agrostis stolonifera</i> <i>Microstegium vimineum</i>	Gremmen et al. 1998 Tang et al. 2012
Detrivores		open	soil	Multiple	Xu et al. 2013
		closed	soil	<i>Berberis thunbergii</i> <i>Microstegium vimineum</i>	Kourtev et al. 1999
	neutral	closed closed closed	soil litter litter	<i>Rhamnus cathartica</i> <i>Ailanthus altissima</i> <i>Impatiens glandulifera</i> <i>Asparagus scandens</i> <i>Hedychium</i>	Iannone et al. 2015 Motard et al. 2015 Tanner et al. 2013
		closed	litter	<i>gardnerianum</i> <i>Tradescantia fluminensis</i>	Bassett 2014
		closed	litter	<i>Follopia ssp.</i>	Gerber et al. 2008
	negative	open open closed closed	soil soil soil soil	<i>Phragmites australis</i> <i>Chromolaena odorata</i> <i>Ligustrum sinense</i> <i>Rhamnus cathartica</i>	Angradi et al. 2001 Koné et al. 2012 Lobe et al. 2014 Wyckoff et al. 2014
<i>Opiliones</i>	positive	open	soil	<i>Senecio jacobea</i>	Wardle et al. 1995
Predators	neutral	both open	litter litter	<i>Fallopia japonica</i> <i>Microstegium vimineum</i>	Kappes et al. 2007 Tang et al. 2012
	negative	open	litter	<i>Microstegium vimineum</i>	Tang et al. 2012
<i>Hymenoptera</i> (Formicidae)	positive	open closed	litter both	<i>Carduus thoermeri</i> <i>Onopordum acanthium</i> <i>Microstegium vimineum</i>	Lescano and Farji-Brener 2011 Tuttle et al. 2009
Generalist predators		closed	litter	<i>Salix rubens</i>	Greenwood et al. 2004
	neutral	open	litter	<i>Chrysanthemoides monilifera</i>	Lindsay and French 2006
		open open	litter litter	<i>Phragmites australis</i> <i>Chrysanthemoides monilifera</i>	Gratton and Denno 2005 Lindsay and French 2006
		open open	litter litter	<i>Andropogon gayanus</i> <i>Chrysanthemoides monilifera</i>	Parr et al. 2010 Wilkie et al. 2007a
		closed closed	litter litter	<i>Phoenix canariensis</i> <i>Lonicera maackiii</i>	Talley et al. 2012b Christopher and Cameron 2008

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
	negative	closed open open open closed closed closed closed	both litter litter litter litter litter litter litter	<i>Microstegium vimineum</i> Multiple (litter) <i>Acacia salignia</i> <i>Vincetoxicum rossicum</i> <i>Pseudotsuga menziesii</i> Fallopia ssp. <i>Arundo donax</i> <i>Impatiens glandulifera</i>	Tuttle et al. 2009 Wolkovich et al. 2009 French and Major 2001 Ernst and Cappuccino 2005 Finch and Szumelda 2007 Gerber et al. 2008 Herrera and Dudley 2003 Tanner et al. 2013
<i>Nematoda</i> (Total)	positive	open open open closed	soil litter na both	<i>Phragmites australis</i> <i>Spartina alterniflora</i> Multiple <i>Hedychium gardnerianum</i>	Angradi et al. 2001 Chen et al. 2007 Morriën et al. 2012 Yeates and Williams 2001
No trophic group assigned	neutral	open open open open open open closed	soil soil open soil soil litter both	<i>Bromus tectorum</i> <i>Ambrosia trifida</i> <i>Raphanus sativus</i> <i>Buddleja davidii</i> <i>Solidago gigantea</i> <i>Solidago canadensis</i> <i>Tradescantia fluminensis</i>	Belnap and Phillips 2001 Liang et al. 2007 Pearse et al. 2014 Peltzer et al. 2009 Quist et al. 2014 Schittko and Wurst 2014 Yeates and Williams 2001
	negative	both open open open closed	soil soil soil na both	<i>Heracleum sosnowskyi</i> <i>Bromus tectorum</i> <i>Melaleuca quinquenervia</i> <i>Ageratina adenophora</i> <i>Chromolaena odorata</i> <i>Ulex europaeus</i>	Renčo and Baležentienė 2015 Belnap et al. 2005 Porazinska et al. 2007 Xiao et al. 2013 Yeates and Williams 2001
<i>Nematoda</i> (Bacterivorous)	positive	open open	soil litter	<i>Ambrosia trifida</i> <i>Spartina alterniflora</i>	Liang et al. 2007 Chen et al. 2007
Microbivores	neutral	open open open closed	na open na both	Multiple <i>Raphanus sativus</i> <i>Ageratina adenophora</i> <i>Chromolaena odorata</i> <i>Hedychium gardnerarium</i>	Morriën et al. 2012 Pearse et al. 2014 Xiao et al. 2013 Yeates and Williams 2001
	negative	open	soil	<i>Bromus tectorum</i>	Belnap et al. 2005
<i>Nematoda</i> (Root-feeders and Parasites)	positive	open closed	soil both	<i>Ambrosia trifida</i> <i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i> <i>Ulex europaeus</i>	Liang et al. 2007 Yeates and Williams 2001

Taxa	Effect of IAS	Habitat	Soil layer	Invasive species	Reference
Herbivores	neutral	open open	na litter	Multiple <i>Spartina alterniflora</i>	Morriën et al. 2012 Chen et al. 2007
		closed	both	<i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i> <i>Ulex europaeus</i>	Yeates and Williams 2001
	negative	open open	soil soil	<i>Bromus tectorum</i> <i>Melaleuca quinquenervia</i> <i>Ageratina adenophora</i> <i>Chromolaena odorata</i>	Belnap et al. 2005 Porazinska et al. 2007 (Xiao et al. 2013)
<i>Nematoda</i> (Fungivorous)	positive	open open	soil na	<i>Ambrosius trifida</i> Multiple	Liang et al. 2007 Morriën et al. 2012
Microbivores	negative	open open open	soil open soil	<i>Bromus tectorum</i> <i>Raphanus sativus</i> <i>Melaleuca quinquenervia</i> <i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i> <i>Ulex europaeus</i>	Belnap et al. 2005 Pearse et al. 2014 Porazinska et al. 2007 Yeates and Williams 2001
		closed	both		
<i>Nematoda</i> (Predators)	positive	open open	open soil	<i>Raphanus sativus</i> <i>Buddleja davidii</i>	Pearse et al. 2014 Peltzer et al. 2009
Predators	neutral	open open	soil na	<i>Ambrosia trifida</i> Multiple <i>Ageratina adenophora</i> <i>Chromolaena odorata</i>	Liang et al. 2007 Morriën et al. 2012 Xiao et al. 2013
		open open	litter	<i>Spartina alterniflora</i> <i>Hedychium gardnerianum</i> <i>Tradescantia fluminensis</i> <i>Ulex europaeus</i>	Chen et al. 2007 Yeates and Williams 2001

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