

## Annex 1

# Pest species distribution in the selected countries, by region

### AFRICA

Pest species	Order/phylum: family	Ghana	Kenya	Malawi	Mauritius	Morocco	South Africa	Sudan
<b>Insects</b>								
<i>Amyna punctum</i>	Lepidoptera: Noctuidae		D N C					
<i>Anacidum melanorhodon</i>	Orthoptera: Acrididae							D N B
<i>Analeptes trifasciata</i>	Coleoptera: Cerambycidae	D N B						
<i>Anaphe panda</i>	Lepidoptera: Thaumetopoeidae			D N B				
<i>Anaphe venata</i>	Lepidoptera: Notodontidae	D N B						
<i>Ancistrotermes latinotus</i>	Isoptera: Termitidae			D N B				
<i>Apate indistincta</i>	Coleoptera: Bostrichidae		D P B					
<i>Apate monachus</i>	Coleoptera: Bostrichidae	D P B	D P B					
<i>Apate terebrans</i>	Coleoptera: Bostrichidae	D P B						
<i>Bruchidius uberatus</i>	Coleoptera: Bruchidae							D P B
<i>Buzura abruptaria</i>	Lepidoptera: Geometridae			D N C				
<i>Caryedon serratus</i>	Coleoptera: Bruchidae							D P B
<i>Chrysobothris dorsata</i>	Coleoptera: Buprestidae							T P B
<i>Cinara cronartii</i>	Hemiptera: Aphididae						T P C	
<i>Cinara cupressivora</i>	Hemiptera: Aphididae		T P C	T P C	T P C			
<i>Cinara pinivora</i>	Hemiptera: Aphididae		T P C					
<i>Cisseis rufobasalis</i>	Coleoptera: Buprestidae				D N B			
<i>Coryphodema tristis</i>	Lepidoptera: Cossidae						D P B	

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Pest species	Order/phylum: family	Ghana	Kenya	Malawi	Mauritius	Morocco	South Africa	Sudan
<i>Cubitermes</i> spp.	Isoptera: Termitidae			D N B				
<i>Diclidophlebia eastopi</i>	Hemiptera: Psyllidae	D P B						
<i>Distantiella theobroma</i>	Hemiptera: Miridae	D P B						
<i>Dysmicoccus brevipes</i>	Hemiptera: Pseudococcidae		D P B					
<i>Ellimenistes laescollis</i>	Coleoptera: Curculionidae						D P B	
<i>Epicerura pulverulenta</i>	Lepidoptera: Notodontidae	D P B						
<i>Eulachnus rileyi</i>	Hemiptera: Aphididae		T P C	T P C				
<i>Euproctis terminalis</i>	Lepidoptera: Lymantriidae						D P C	
<i>Gonipterus scutellatus</i>	Coleoptera: Curculionidae		T P B		T P B		T P B	
<i>Gonometa podocarp</i>	Lepidoptera: Lasiocampidae		D N C					
<i>Helopeltis lalandei</i>	Hemiptera: Miridae	D P B						
<i>Heteropsylla cubana</i>	Hemiptera: Psyllidae		T P B	T P B	T P B			T P B
<i>Hodotermes mossambicus</i>	Isoptera: Hodotermitidae			D N B				
<i>Hylastes angustatus</i>	Coleoptera: Curculionidae						T P C	
<i>Hylurgus ligniperda</i>	Coleoptera: Scolytidae						T P C	
<i>Hypsipyla grandella</i>	Lepidoptera: Pyalidae				T P B			
<i>Hypsipyla robusta</i>	Lepidoptera: Pyalidae	T P B			T P B			
<i>Imbrasia cytherea</i>	Lepidoptera: Saturnidae						D P C	
<i>Kotochalia junodi</i>	Lepidoptera: Psychidae						D P B	
<i>Lamprosema laterialis</i>	Lepidoptera: Pyalidae	D N B						
<i>Leptocybe invasa</i>	Hymenoptera: Eulophidae		T P B			T P B	T P B	
<i>Lygidolon laevigatum</i>	Hemiptera: Miridae						D P B	
<i>Lymantria dispar</i>	Lepidoptera: Lymantriidae					D N B		
<i>Macrotermes falciger</i>	Isoptera: Termitidae			D N B				
<i>Mesoplatys cincta</i>	Coleoptera: Chrysomelidae	D P B						

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<i>Microtermes</i> spp.	Isoptera: Termitidae			D N B				
<i>Nezara robusta</i>	Hemiptera: Pentatomidae			D N B				
<i>Odontotermes spiniger</i>	Isoptera: Termitidae			D N B				
<i>Oemida gahani</i>	Coleoptera: Cerambycidae		D N C					
<i>Orthotomicus erosus</i>	Coleoptera: Scolytidae					D P C		
<i>Pachypasa capensis</i>	Lepidoptera: Lasiocampidae						D P B/C	
<i>Phoracantha recurva</i>	Coleoptera: Cerambycidae			T P B		T P B	T P B	
<i>Phoracantha semipunctata</i>	Coleoptera: Cerambycidae			T P B		T P B	T P B	
<i>Phytolyma fusca</i>	Hemiptera: Psyllidae	D P B						
<i>Phytolyma lata</i>	Hemiptera: Psyllidae	D P B						
<i>Pineus pini</i>	Hemiptera: Adelgidae		T P C	T P C			T P C	
<i>Pissodes nemorensis</i>	Coleoptera: Curculionidae						T P C	
<i>Plagotriptus pinivorus</i>	Orthoptera: Eumasticidae			D N C				
<i>Pseudocanthotermes militaris</i>	Isoptera: Termitidae			D N B				
<i>Sahlbergella singularis</i>	Hemiptera: Miridae	D P B						
<i>Salagena discata</i>	Lepidoptera: Cossidae		D N B					
<i>Scolytus kirschii</i>	Coleoptera: Scolytidae						T P B	
<i>Sirex noctilio</i>	Hymenoptera: Siricidae						T P C	
<i>Sphenoptera chalcichroa arenosa</i>	Coleoptera: Buprestidae							D N/P B
<i>Sphenoptera fulgens</i>	Coleoptera: Buprestidae							D N/P B
<i>Strepsicrates routhia</i>	Lepidoptera: Tortricidae	D P B						
<i>Thaumastocoris peregrinus</i>	Hemiptera: Thaumastocoridae						T P B	
<i>Thaumetopoea bonjeani</i>	Lepidoptera: Notodontidae					D N C		
<i>Thaumetopoea libanotica</i>	Lepidoptera: Thaumetopoeidae					D N C		
<i>Thaumetopoea pityocampa</i>	Lepidoptera: Notodontidae					D P C		

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<i>Trachyostus ghanaensis</i>	Coleoptera: Platypodidae	D N B						
<i>Tridesmodes ramiculata</i>	Lepidoptera: Thyrididae	D P B						
<i>Xasinthisa tarsispina</i>	Lepidoptera: Geometridae			D N C				
<i>Zonocerus elegans</i>	Orthoptera: Pyrgomorphidae			D N B/C				
<b>Diseases</b>								
<i>Armillaria fuscipes</i>	Basidiomycota: Marasmiaceae						D N/P B/C	
<i>Armillaria heimii</i>	Basidiomycota: Marasmiaceae		T P B/C					
<i>Armillaria mellea</i>	Basidiomycota: Marasmiaceae		T P B/C	T N B/C				T P B
<i>Armillaria</i> spp.	Basidiomycota: Marasmiaceae		D N B		D P C			
<i>Botryosphaeria dothidea</i>	Ascomycota: Botryosphaeriaceae						T P B	
<i>Botryosphaeria eucalypticola</i>	Ascomycota: Botryosphaeriaceae						T P B	
<i>Botryosphaeria eucalyptorum</i>	Ascomycota: Botryosphaeriaceae						T P B	
<i>Botryosphaeria</i> spp.	Ascomycota: Incertae sedis		T P B	T N B/C				
<i>Botrytis cinerea</i>	Ascomycota: Sclerotiniaceae			T N C				
<i>Ceratocystis albofundus</i>	Ascomycota: Ceratocystidaceae						T N/P B	
<i>Ceratocystis</i> spp.	Ascomycota: Ceratocystidaceae		T P B					
<i>Chrysosporthe austroafricana</i>	Ascomycota: Incertae sedis						D N/P B	
<i>Fusarium</i> spp.	Ascomycetes: Nectriaceae			T N B/C				
<i>Gibberella circinata</i>	Ascomycota: Nectriaceae						T P C	
<i>Holocryphia eucalypti</i>	Ascomycota: Valsaceae						T P B	
<i>Lepteutypa cupressi</i>	Ascomycota: Amphisphaeriaceae		D P C				D P C	
<i>Mycosphaerella pini</i>	Ascomycota: Mycosphaerellaceae		T P C				T P C	
<i>Natrassia mangiferae</i>	Ascomycota: Incertae sedis							T P B
<i>Nectria rigidiuscula</i>	Ascomycota: Nectriaceae	T P B						
<i>Phanerochaete salmonicolor</i>	Basidiomycota: Phanerochaetaceae						T N/P B	

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<i>Phytophthora cinnamomi</i>	Oomycota: Pythiaceae						T N/P B	
<i>Phytophthora nicotianae</i>	Oomycota: Pythiaceae						T P B	
<i>Rhizina undulata</i>	Ascomycota: Rhizinaceae						T P C	
<i>Sphaeropsis sapinea</i>	Ascomycota: Incertae sedis		T P C				T P C	
<i>Subramanianospora vesiculosa</i>	Ascomycota: Incertae sedis				T P B			
<i>Xanthomonas axonopodis</i> p.v. <i>khayae</i>	Xanthomonadales: Xanthomonadaceae							D N B
<b>Other pests</b>								
<i>Macaca sylvana</i>	Primates: Cercopithecidae						D N/P C	

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## ASIA AND THE PACIFIC

Pest species	Order/phylum: family	China	India	Indonesia	Mongolia	Thailand
<b>Insects</b>						
<i>Acalolepta cervina</i>	Coleoptera: Cerambycidae					D P B
<i>Achaea janata</i>	Lepidoptera: Noctuidae			D N B		
<i>Achaea serva</i>	Lepidoptera: Noctuidae			D N B		
<i>Agrilus kalshoveni</i>	Coleoptera: Buprestidae			D N B		
<i>Alcidodes frenatus</i>	Coleoptera: Curculionidae					D P B
<i>Alcidodes ludificator</i>	Coleoptera: Curculionidae					D P B
<i>Anoplophora glabripennis</i>	Coleoptera: Cerambycidae	D P B				
<i>Apoderus notatus</i>	Coleoptera: Curculionidae					D P B
<i>Apriona cinerea</i>	Coleoptera: Cerambycidae		D P B			
<i>Archips micaceana</i>	Lepidoptera: Tortricidae					D P B
<i>Aristobia approximata</i>	Coleoptera: Cerambycidae					D P B
<i>Aristobia horridula</i>	Coleoptera: Cerambycidae					D P B
<i>Asphondylia tectonae</i>	Diptera: Cecidomyiidae		D N B			
<i>Aulacaspis marina</i>	Hemiptera: Diaspididae			D P B		
<i>Batocera rubus</i>	Coleoptera: Cerambycidae					D P B
<i>Brontispa longissima</i>	Coleoptera: Chrysomelidae	T P B		D P B		T P B
<i>Calliteara cerigoides</i>	Lepidoptera: Lymantriidae			D P B		
<i>Calocheilus leayana</i>	Coleoptera: Chrysomelidae		D P B			D P B
<i>Catopsilia crocale crocale</i>	Lepidoptera: Pieridae					D P B
<i>Catopsilia pomona pomona</i>	Lepidoptera: Pieridae					D P B
<i>Catopsilia pyranthe pyranthe</i>	Lepidoptera: Pieridae					D P B
<i>Celosterna pollinosa sulphurea</i>	Coleoptera: Cerambycidae					D P B
<i>Chrysomela populi</i>	Coleoptera: Chrysomelidae		D P B			

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<i>Clostera cupreata</i>	Lepidoptera: Notodontidae		D P B			
<i>Clostera fulgurita</i>	Lepidoptera: Notodontidae		D P B			
<i>Conogethes punctiferalis</i>	Lepidoptera: Pyrilidae	D P B				
<i>Coptotermes curvignathus</i>	Isoptera: Rhinotermitidae			D P B/C		D P B/C
<i>Coptotermes gestroi</i>	Isoptera: Rhinotermitidae					D P B
<i>Craspedonta mouhoti</i>	Coleoptera: Chrysomelidae					D P B
<i>Cryptothelia cramerii</i>	Lepidoptera: Psychidae		D N C			
<i>Curculio davidi</i>	Coleoptera: Curculionidae	D P B				
<i>Cydia splendana</i>	Lepidoptera: Tortricidae	D P B				
<i>Cyrtotrachelus dichrous</i>	Coleoptera: Curculionidae					D P B
<i>Cyrtotrachelus longimanus</i>	Coleoptera: Curculionidae					D P B
<i>Dasychira mendosa</i>	Lepidoptera: Lymantriidae					D P B
<i>Dendroctonus valens</i>	Coleoptera: Scolytidae	T P C				
<i>Dendrolimus punctatus</i>	Lepidoptera: Lasiocampidae	D P C				
<i>Dendrolimus sibiricus</i>	Lepidoptera: Lasiocampidae	D N C			D N/P C	
<i>Dendrolimus tabulaeformis</i>	Lepidoptera: Lasiocampidae	D N C				
<i>Dichocrocis punctiferalis</i>	Lepidoptera: Pyrilidae					D P B
<i>Dioryctria rubella</i>	Lepidoptera: Pyrilidae			D P C		
<i>Ectropis deodarae</i>	Lepidoptera: Geometridae		D N C			
<i>Erannis jacobsoni</i>	Lepidoptera: Geometridae				D N/P C	
<i>Eucosma hypsiryas</i>	Lepidoptera: Tortricidae		D N C			
<i>Eumeta variegata</i>	Lepidoptera: Psychidae			D N B/C		
<i>Eurema blanda</i>	Lepidoptera: Pieridae			D P B		
<i>Eutectona machaeralis</i>	Lepidoptera: Pyrilidae		D N/P B			D N/P B
<i>Euwallacea destruens</i>	Coleoptera: Scolytidae			D P B		

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<i>Euwallacea fornicatus</i>	Coleoptera: Scolytidae			D P B		
<i>Glena indiana</i>	Coleoptera: Cerambycidae					D P B
<i>Helopeltis theivora</i>	Hemiptera: Miridae			D P B		
<i>Hemiberlesia pitysophila</i>	Hemiptera: Diaspidae	T P C				
<i>Heteropsylla cubana</i>	Hemiptera: Psyllidae		T P B	T P B		T P B
<i>Holotrichia sp. near longicarinata</i>	Coleoptera: Scarabaeidae					D P B
<i>Hoplocerambyx spinicornis</i>	Coleoptera: Cerambycidae		D N B			
<i>Hyblaea puera</i>	Lepidoptera: Hyblaeidae		D P B	D P B		D N B
<i>Hyphantria cunea</i>	Lepidoptera: Arctiidae	T N B				
<i>Hypomeces squamosus</i>	Coleoptera: Curculionidae					D P B
<i>Hypsipyla robusta</i>	Lepidoptera: Pyrilidae		D P B	D P B		D P B
<i>Icerya purchasi</i>	Hemiptera: Margarodidae		T P B			
<i>Indarbela quadrinotata</i>	Lepidoptera: Cossidae			D P B		
<i>Indarbela spp.</i>	Lepidoptera, Metarbelidae					D P B
<i>Ips sexdentatus</i>	Coleoptera: Scolytidae				D N/P C	D P C
<i>Ips subelongatus</i>	Coleoptera: Scolytidae				D N/P B/C	
<i>Leptocentrus spp.</i>	Hemiptera: Membracidae					D P B
<i>Leptocybe invasa</i>	Hymenoptera: Eulophidae		T P B			
<i>Leucoma salicis</i>	Lepidoptera: Lymantriidae				D N/P B	
<i>Lymantria dispar</i>	Lepidoptera: Lymantriidae	D N B/C			D N/P B/C	
<i>Lymantria lepcha</i>	Lepidoptera: Lymantriidae			D N B		
<i>Lymantria mathura</i>	Lepidoptera: Pyrilidae		D P B			
<i>Lymantria obfuscat</i>	Lepidoptera: Lymantriidae		D P B			
<i>Machaerota elegans</i>	Hemiptera: Cercopidae					D P B
<i>Melanophila cyanea</i>	Coleoptera: Buprestidae				D N/P C	

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<i>Micropistus</i> sp.	Coleoptera: Buprestidae					D P B
<i>Milionia basalis</i>	Lepidoptera: Geometridae			D N/P B/C		
<i>Mylabris phalerata</i>	Coleoptera: Meloidae					D P B
<i>Neotermes tectonae</i>	Isoptera: Kalotermitidae			D P B		
<i>Niphades castanea</i>	Coleoptera: Curculionidae	D P B				
<i>Oracella acuta</i>	Hemiptera: Pseudococcidae	T P C				
<i>Orgyia antiqua</i>	Lepidoptera: Lymantriidae				D N/P B/C	
<i>Orthotomicus suturalis</i>	Coleoptera: Scolytidae				D N/P C	
<i>Pagyda salvalis</i>	Lepidoptera: Pyralidae					D P B
<i>Paliga damastesalis</i>	Lepidoptera: Pyralidae					D P B
<i>Phassus signifer</i>	Lepidoptera: Hepialidae					D P B
<i>Physomerus grossipes</i>	Coleoptera: Coreidae					D P B
<i>Pineus pini</i>	Hemiptera: Adelgidae		T P C			
<i>Pionea aureolalis</i>	Lepidoptera: Pyralidae					D P B
<i>Prioptera</i> spp.	Lepidoptera: Pyralidae					D P B
<i>Pseudoregma</i> sp.	Hemiptera: Pemphigidae					D P B
<i>Psilogramma menephron</i>	Lepidoptera: Sphingidae					D P B
<i>Pteroma plagiophleps</i>	Lepidoptera: Psychidae			D P B		
<i>Quadraspidotus perniciosus</i>	Hemiptera: Coccidae		T P B			
<i>Sagra femorata</i>	Coleoptera: Chrysomelidae					D P B
<i>Scolytus morawitzi</i>	Coleoptera: Scolytidae				D N/P C	
<i>Sinoxylon anale</i>	Coleoptera: Bostrychidae					D P B
<i>Sternocera</i> spp.	Coleoptera: Buprestidae					D P B
<i>Tetropium gracilicorne</i>	Coleoptera: Cerambycidae				D N/P C	
<i>Tingis beesoni</i>	Hemiptera: Tingidae					D P B

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<i>Tomicus minor</i>	Coleoptera: Scolytidae				D N/P C	
<i>Tomicus</i> n.sp.	Coleoptera: Scolytidae	T P C				
<i>Tomicus piniperda</i>	Coleoptera: Scolytidae				D N/P C	
<i>Valanga nigricornis</i>	Orthoptera: Acrididae			D P B		
<i>Voracia casuariniphaga</i>	Lepidoptera: Lasiocampidae			D N B/C		
<i>Xyleborus dispar</i>	Coleoptera: Scolytidae				D N/P B	
<i>Xyleutes ceramica</i>	Lepidoptera: Cossidae			D P B		D N/P B
<i>Xylosandrus compactus</i>	Coleoptera: Scolytidae					D P B
<i>Xylosandrus morigerus</i>	Coleoptera: Scolytidae			D P B		
<i>Xystrocera festiva</i>	Coleoptera: Cerambycidae			D P B		
<i>Zeuzera coffeae</i>	Lepidoptera: Cossidae			D P B		D N/P B
<b>Diseases</b>						
<i>Agrobacterium tumefaciens</i>	Rhizobiales: Rhizobiaceae	D P B		D P B		
<i>Balansia linearis</i>	Ascomycota: Clavicipitaceae		D P B			
<i>Botryosphaeria dothidea</i>	Ascomycota: Botryosphaeriaceae					D P B
<i>Chondroplea populea</i>	Ascomycota: Valsaceae	D P B				
<i>Chrysosporthe cubensis</i>	Ascomycota: Valsaceae					T P B
<i>Coniothyrium zuluense</i>	Ascomycetes: Leptosphaeriaceae					T P B
<i>Corticium salmonicolor</i>	Basidiomycota: Corticaceae			D P B		
<i>Coryneum populinum</i>	Ascomycota: Melanconidaceae	D P B				
<i>Cryptosporiopsis eucalypti</i>	Ascomycota: Dermateaceae					D P B
<i>Cylindrocladium quinqueseptatum</i>	Ascomycota: Nectriaceae					D P B
<i>Dothiorella gregaria</i>	Ascomycota: Botryosphaeriaceae	D P B				
<i>Dothiorella gregaria</i>	Ascomycota: Botryosphaeriaceae	D P C				
<i>Drepanopeziza punctiformis</i>	Ascomycota: Leotiales	D P B				

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<i>Endoraecium digitatum</i>	Basidiomycota: Raveneliaceae			T P B		
<i>Entoleuca mammata</i>	Ascomycota: Xylariaceae			D P B		
<i>Fusarium solani</i> f. <i>dalbergiae</i>	Ascomycota: Nectriaceae		D P B			
<i>Ganoderma philippii</i>	Basidiomycota: Ganodermataceae			D P B		
<i>Melampsora laricis-populina</i>	Basidiomycota: Melampsoraceae	D P B				
<i>Mycosphaerella populi</i>	Ascomycota: Mycosphaerellaceae	D P B				
<i>Natrassia mangiferae</i>	Ascomycota: Incertae sedis					D P B
<i>Paulownia witches broom</i>	Phytoplasma	D P B				
<i>Phellinus noxius</i>	Basidiomycota: Hymenochaetaceae			D P B		
<i>Phytophthora palmivora</i>	Oomycota: Pythiaceae			D P B		
<i>Poria hypobrunnea</i>	Basidiomycota: Polyporaceae			D P B		
<i>Subramanianospora vesiculosa</i>	Ascomycota: Incertae sedis		D P B			D P B
<i>Tinctoporellus epimiltinus</i>	Basidiomycota: Polyporaceae			D P B		
<i>Valsa sordida</i>	Ascomycota: Valsaceae	D P B				
<i>Venturia populina</i>	Ascomycota: Venturiaceae	D P B				
<b>Other pests</b>						
<i>Apodemus</i> spp.	Rodentia: Muridae	D P B/C				
<i>Bursaphelenchus xylophilus</i>	Tylenchida: Aphelenchoididae	T N/P C				

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## EUROPE

Pest species	Order/phylum: family	Moldova	Romania	Russian Federation
<b>Insects</b>				
<i>Apethymus filiformis</i>	Hymenoptera: Tenthredinidae		D N B	
<i>Archips crataegana</i>	Lepidoptera: Tortricidae	D N B		
<i>Archips xylosteana</i>	Lepidoptera: Tortricidae	D N B		
<i>Bupalus piniarius</i>	Lepidoptera: Geometridae			D N/P C
<i>Cameraria ohridella</i>	Lepidoptera: Gracillariidae	T N B		
<i>Choristoneura murinana</i>	Lepidoptera: Tortricidae			D N/P B/C
<i>Curculio</i> spp.	Coleoptera: Curculionidae		D N B	
<i>Cydia</i> spp.	Lepidoptera: Tortricidae		D N B	
<i>Dendrolimus sibiricus</i>	Lepidoptera: Lasiocampidae			D N/P C
<i>Diprion pini</i>	Hymenoptera: Diprionidae		D P C	
<i>Erannis defoliaria</i>	Lepidoptera: Geometridae	D N B	D N B	
<i>Euproctis chrysorrhoea</i>	Lepidoptera: Lymantriidae		D N B	
<i>Hylobius abietis</i>	Coleoptera: Curculionidae		D N C	
<i>Hyphantria cunea</i>	Lepidoptera: Arctiidae	T N B	T N B	
<i>Ips acuminatus</i>	Coleoptera: Scolytidae		D N C	
<i>Ips amitinus</i>	Coleoptera: Scolytidae		D N C	
<i>Ips cembrae</i>	Coleoptera: Scolytidae		D N C	D N/P C
<i>Ips sexdentatus</i>	Coleoptera: Scolytidae		D N C	D N/P C
<i>Ips typographus</i>	Coleoptera: Scolytidae		D N C	D N/P C
<i>Lymantria dispar</i>	Lepidoptera: Lymantriidae	D N B/C	D N/P B/C	D N/P B/C
<i>Lymantria monacha</i>	Lepidoptera: Lymantriidae		D N B/C	D N/P B/C
<i>Malacosoma neustria</i>	Lepidoptera: Lasiocampidae		D N B	
<i>Monochamus urusovi</i>	Coleoptera: Cerambycidae			D N C

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Pest species	Order/phylum: family	Moldova	Romania	Russian Federation
<i>Monochamus urussovi</i>	Coleoptera: Cerambycidae			D P C
<i>Neodiprion sertifier</i>	Hymenoptera: Diprionidae		D P C	
<i>Operophtera brumata</i>	Lepidoptera: Geometridae	D N B	D N B	
<i>Orthosia cruda</i>	Lepidoptera: Noctuidae		D N B	
<i>Pandemis cerasana</i>	Lepidoptera: Tortricidae	D N B		
<i>Pityogenes chalcographus</i>	Coleoptera: Scolytidae		D N C	
<i>Semasia rufimitrana</i>	Lepidoptera: Tortricidae		D N C	
<i>Stereonychus fraxini</i>	Coleoptera: Curculionidae	D N B	D N B	
<i>Tetropium castaneum</i>	Coleoptera: Cerambycidae			D N/P C
<i>Thaumetopoea processionea</i>	Lepidoptera: Notodontidae		D N B	
<i>Tomicus minor</i>	Coleoptera: Scolytidae		D N C	
<i>Tomicus piniperda</i>	Coleoptera: Scolytidae		D N C	D N/P C
<i>Tortrix viridana</i>	Lepidoptera: Tortricidae	D N B	D N B	
<i>Xylotrechus altaicus</i>	Coleoptera: Cerambycidae			D N/P C
<i>Yponomeuta rorellus</i>	Lepidoptera: Yponomeutoidea		D N B	
<i>Zeiraphera diniana</i>	Lepidoptera: Tortricidae			D N/P C
<b>Diseases</b>				
<i>Gremmeniella abietina</i>	Ascomycota: Helotiaceae			D N/P C
<i>Microsphaera abbreviata</i>	Ascomycota: Erysiphaceae	D N B	D N/P B	
<i>Nectria</i> spp.	Ascomycota: Nectriaceae		D N B	
<b>Other pests</b>				
<i>Cervus nippon</i>	Artiodactyla: Cervidae	T N B		
<i>Dama dama</i>	Artiodactyla: Cervidae	T N B		
<i>Nyctereutes procyonoides</i>	Carnivora: Canidae	T N B		

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## LATIN AMERICAN AND THE CARIBBEAN

Pest species	Order/phylum: family	Argentina	Belize	Brazil	Chile	Colombia	Honduras	Mexico	Uruguay
<b>Insects</b>									
<i>Acrospila gastralis</i>	Lepidoptera: Pyrilidae					D P B			
<i>Adelges cooleyi</i>	Hemiptera: Adelgidae							T P C	
<i>Amitermes foreli</i>	Isoptera: Termitidae					D P B			
<i>Amphicerus cornutus</i>	Coleoptera: Bostrichidae					D P B			
<i>Anomala pyropyga</i>	Coleoptera: Scarabaeidae					D P B/C			
<i>Anomis illita</i>	Lepidoptera: Noctuidae					D P B			
<i>Buprestis novemmaculata</i>	Coleoptera: Buprestidae				T P C				
<i>Cargolia arana</i>	Lepidoptera: Geometridae					D P B/C			
<i>Ceroys quadrispinosus</i>	Orthoptera: Phasmidae					D P C			
<i>Chilecomadia valdiviana</i>	Lepidoptera: Cossidae				D N B				
<i>Chionaspis pinifoliae</i>	Hemiptera: Diaspidae							T P C	
<i>Chrysobothris yucatanensis</i>	Coleoptera: Buprestidae							D P B	
<i>Cinara acutirostris</i>	Hemiptera: Aphididae	T P C							
<i>Cinara atlantica</i>	Hemiptera: Aphididae			T P C					
<i>Cinara cedri</i>	Hemiptera: Aphididae	T P C							
<i>Cinara costata</i>	Hemiptera: Aphididae	T P C							
<i>Cinara cupressi</i>	Hemiptera: Aphididae				T N C				
<i>Cinara cupressivora</i>	Hemiptera: Aphididae				T N C	T P C			
<i>Cinara fresai</i>	Hemiptera: Aphididae	T P C		T P C	T N C				
<i>Cinara juniperi</i>	Hemiptera: Aphididae	T P C							
<i>Cinara maghrebica</i>	Hemiptera: Aphididae	T P C							
<i>Cinara maritimae</i>	Hemiptera: Aphididae	T P C		T P C	T P C				
<i>Cinara piceae</i>	Hemiptera: Aphididae	T P C							

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<i>Cinara pilicornis</i>	Hemiptera: Aphididae	T P C							
<i>Cinara piniformosana</i>	Hemiptera: Aphididae			T P C					
<i>Cinara pinivora</i>	Hemiptera: Aphididae	T P C		T P C					
<i>Cinara tujafilina</i>	Hemiptera: Aphididae	T P C		T P C	T N C				
<i>Coptotermes gestroi</i>	Isoptera: Rhinotermitidae							T P B	
<i>Ctenarytaina eucalypti</i>	Hemiptera: Psyllidae				T P B				T P B
<i>Ctenarytaina spatulata</i>	Hemiptera: Psyllidae								T P B
<i>Dendroctonus adjunctus</i>	Coleoptera: Scolytidae							D N C	
<i>Dendroctonus frontalis</i>	Coleoptera: Scolytidae		D N C				D N C	D N C	
<i>Dendroctonus mexicanus</i>	Coleoptera: Scolytidae							D N C	
<i>Dendroctonus pseudotsugae</i>	Coleoptera: Scolytidae							D N C	
<i>Dictyla monotropidia</i>	Hemiptera: Tingidae					D P B			
<i>Dirphia araucariae</i>	Lepidoptera: Saturnidae			D N C					
<i>Dynaspidiotus californicus</i>	Hemiptera: Diaspidae							T P C	
<i>Elatobium abietinum</i>	Hemiptera: Aphididae	T P C							
<i>Eulachnus rileyi</i>	Hemiptera: Aphididae	T P C			T P C	T N/P C			
<i>Eulachnus tauricus</i>	Hemiptera: Aphididae	T P C							
<i>Euryscopa cingulata</i>	Coleoptera: Chrysomelidae					D P B			
<i>Glena bisulca</i>	Lepidoptera: Geometridae					D P B/C			
<i>Glycaspis brimblecombei</i>	Hemiptera: Psyllidae			T P B	T P B			T P B	
<i>Gonipterus scutellatus</i>	Coleoptera: Curculionidae				T P B				
<i>Hedypathes betulinus</i>	Coleoptera: Cerambycidae			D N B					
<i>Heliothrips haemorrhoidalis</i>	Thysanoptera: Thripidae					D P B			
<i>Hemeroplanes parce</i>	Lepidoptera: Sphingidae					D P B			
<i>Holopterus chilensis</i>	Coleoptera: Cerambycidae				D N B				

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Pest species	Order/phylum: family	Argentina	Belize	Brazil	Chile	Colombia	Honduras	Mexico	Uruguay
<i>Hornius grandis</i>	Coleoptera: Chrysomelidae				D N B				
<i>Hylamorpha elegans</i>	Coleoptera: Scarabaeidae				D N B				
<i>Hylamorpha elegans</i>	Coleoptera: Scarabaeidae				D N C				
<i>Hylurgus ligniperda</i>	Coleoptera: Scolytidae				D N C				
<i>Hypsipyla grandella</i>	Lepidoptera: Pyrilidae	D P B	D P B	D P B		D P B		D P B	D P B
<i>Ips calligraphus</i>	Coleoptera: Scolytidae		D N C						
<i>Ips confusus</i>	Coleoptera: Scolytidae							D N C	
<i>Ips grandicollis</i>	Coleoptera: Scolytidae		D N C						
<i>Ips pini</i>	Coleoptera: Scolytidae							D N C	
<i>Ips apache</i>	Coleoptera: Scolytidae		D N C						
<i>Lagynopteryx botulata</i>	Lepidoptera: Geometridae				D N B				
<i>Megalopyge orsilochus</i>	Lepidoptera: Megalopygidae					D P B			
<i>Megaplatypus mutatus</i>	Coleoptera: Platypodidae	D P B		D P B					D N/P B
<i>Melanolophia commotaria</i>	Lepidoptera: Geometridae					D P C			
<i>Minthea rugicollis</i>	Coleoptera: Bostrichidae							T P B	
<i>Nematus desantisi</i>	Hymenoptera: Tenthredinidae	T P B			T P B				
<i>Neuromelia albinearia</i>	Lepidoptera: Geometridae					D P C			
<i>Oncideres dejeani</i>	Coleoptera: Cerambycidae			D N B					
<i>Oncideres impluviata</i>	Coleoptera: Cerambycidae			D N B					
<i>Oncideres tessellata</i>	Coleoptera: Cerambycidae					D P B			
<i>Ormiscodes cinnamomea</i>	Lepidoptera: Saturniidae				D P B/C				
<i>Oxydia olivata</i>	Lepidoptera: Geometridae					D P B			
<i>Oxydia trychiata</i>	Lepidoptera: Geometridae					D P C			
<i>Paranthrene dollii</i>	Lepidoptera: Sesiidae							T P B	
<i>Phoracantha recurva</i>	Coleoptera: Cerambycidae								T P B

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Pest species	Order/phylum: family	Argentina	Belize	Brazil	Chile	Colombia	Honduras	Mexico	Uruguay
<i>Phoracantha semipunctata</i>	Coleoptera: Cerambycidae				T P B				
<i>Planudes cortex</i>	Orthoptera: Phasmidae					D P C			
<i>Pseudohylesinus variegatus</i>	Coleoptera: Scolytidae							D N C	
<i>Reticulitermes lucifugus</i>	Isoptera: Rhinotermitidae								T N/P B/C
<i>Rhyacionia buoliana</i>	Lepidoptera: Tortricidae	T P C			T P C				
<i>Rugitermes</i> sp.	Isoptera: Kalotermitidae								T N/P B/C
<i>Sarsina violascens</i>	Lepidoptera: Lymantriidae	D P B		D P B				D P B	
<i>Scolytus multistriatus</i>	Coleoptera: Scolytidae							T P B	
<i>Sirex noctilio</i>	Hymenoptera: Siricidae	T P C		T P C	T P C				T P C
<i>Steirastoma histrionicum</i>	Coleoptera: Cerambycidae					D P B			
<i>Thyrinteina arnobia</i>	Lepidoptera: Geometridae			D P B					
<i>Tremex fuscicornis</i>	Hymenoptera: Siricidae				T P B				
<i>Urocerus gigas</i>	Hymenoptera: Siricidae	T P C			T P C				
<i>Warrenaria</i> sp.	Lepidoptera: Geometridae				D N B				
<i>Xylosandrus morigerus</i>	Coleoptera: Scolytidae							T P B	
<b>Diseases</b>									
<i>Armillaria</i> spp.	Basidiomycota: Marasmiaceae			D P C					
<i>Botryosphaeria dothidea</i>	Ascomycota: Botryosphaeriaceae								T P B
<i>Botryosphaeria ribis</i>	Ascomycota: Botryosphaeriaceae				T P B/C				
<i>Ceratocystis fimbriata</i>	Ascomycota: Ceratocystidaceae			T P B					T P B
<i>Chrysosporthe cubensis</i>	Ascomycota: Incertae sedis			T P B		T P B			
<i>Coniothyrium zuluense</i>	Ascomycota: Incertae sedis								T P B
<i>Fusarium subglutinans</i> f. sp. <i>pini</i>	Ascomycota: Nectriaceae							T P C	
<i>Melampsora medusae</i>	Basidiomycota: Melampsoraceae			T P B					
<i>Mycosphaerella pini</i>	Ascomycota: Mycosphaerellaceae				T P C				

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Pest species	Order/phylum: family	Argentina	Belize	Brazil	Chile	Colombia	Honduras	Mexico	Uruguay
<i>Mycosphaerella</i> sp.	Ascomycota: Mycosphaerellaceae								T P B
<i>Phanerochaete salmonicolor</i>	Basidiomycota: Phanerochaetaceae			T P B					
<i>Puccinia psidii</i>	Basidiomycota: Pucciniaceae			D P B					D P B
<i>Sphaeropsis sapinea</i>	Ascomycota: Incertae sedis				T P C				
<b>Other pests</b>									
<i>Arceuthobium</i> spp.	Santalales: Visaceae							D N C	
<i>Capra hircus</i>	Artiodactyla: Bovidae				T N B				
<i>Castor canadensis</i>	Rodentia: Castoridae	T N B			T N B				
<i>Cebus paella</i>	Primata: Cebidae			D P C					
<i>Cervus elaphus</i>	Artiodactyla: Cervidae				T N B/C				
<i>Lama guanicoe</i>	Artiodactyla: Camelidae				D N B				
<i>Lepus capensis</i>	Lagomorpha: Leporidae				T N B/C				
<i>Misodendrum</i> spp.	Santalales: Misodendraceae				D N B/C				
<i>Oryctolagus cuniculus</i>	Lagomorpha: Leporidae				T P B/C				
<i>Phoradendron</i> spp.	Santalales: Visaceae							D N B	
<i>Psittacanthus</i> spp.	Santalales: Loranthaceae						D N C	D N B/C	
<i>Subanguina chilensis</i>	Tylenchida: Tylenchidae				D N B				
<i>Tetranychus desertorum</i>	Acarina: Tetranychidae					D P B			

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## NEAR EAST

Pest species	Order/phylum: family	Cyprus	Kyrgyzstan
<b>Insects</b>			
<i>Adelges japonicus</i>	Hemiptera: Adelgidae		D P C
<i>Aeolesthes sarta</i>	Coleoptera: Cerambycidae		T N/P B
<i>Agonoscena viridis</i>	Hemiptera: Aphalaridae		D P B
<i>Anthaxia bicolor</i>	Coleoptera: Buprestidae		D P C
<i>Anthaxia conradti</i>	Coleoptera: Buprestidae		D N C
<i>Anthaxia turkestanica</i>	Coleoptera: Buprestidae		D P C
<i>Aonidia isfarenis</i>	Hemiptera: Diaspididae		D N C
<i>Argyrestia praecocella</i>	Lepidoptera: Argyresthiidae		D N C
<i>Caliroa cerasi</i>	Hymenoptera: Tenthredinidae		D N/P B
<i>Capnodis sexmaculata</i>	Coleoptera: Buprestidae		D N B
<i>Capnodis tenebricosa</i>	Coleoptera: Buprestidae		D N B
<i>Carphoborus persicus</i>	Coleoptera: Scolytidae		D N B
<i>Carpocapsa pomonella</i>	Lepidoptera: Tortricidae		D N B
<i>Cinara grossa</i>	Hemiptera: Lachnidae		D P C
<i>Contarinia</i> spp.	Diptera: Cecidomyiidae		D N C
<i>Erannis defoliaria</i>	Lepidoptera: Geometridae		D N B
<i>Erschoviella musculana</i>	Lepidoptera: Noctuidae		D N B
<i>Eurytoma plotnikovi</i>	Hymenoptera: Eurytomidae		D N B
<i>Hylastes substriatus</i>	Coleoptera: Curculionidae		D P C
<i>Hylesinus prytenkyi</i>	Coleoptera: Scolytidae		D N B
<i>Hylesinus tupolevi</i>	Coleoptera: Scolytidae		D N B
<i>Hyphantria cunea</i>	Lepidoptera: Arctiidae		T P B
<i>Ips hauseri</i>	Coleoptera: Scolytidae		D P C
<i>Labidostomis stenostoma</i>	Coleoptera: Chrysomelidae		D P B
<i>Lymantria dispar</i>	Lepidoptera: Lymantriidae	D N/P B	D N/P B
<i>Malacosoma parallela</i>	Lepidoptera: Lasiocampidae		D N/P B
<i>Megastigmus certus</i>	Hymenoptera: Torymidae		D N C
<i>Megastigmus juniperi</i>	Hymenoptera: Torymidae		D N C
<i>Megastigmus validus</i>	Hymenoptera: Torymidae		D N C
<i>Melanophila cuspidata</i>	Coleoptera: Buprestidae		D N B

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Pest species	Order/phylum: family	Cyprus	Kyrgyzstan
<i>Melasoma populi</i>	Coleoptera: Chrysomelidae		D P B
<i>Molorchus kiesewetteri</i>	Coleoptera: Cerambycidae		D P C
<i>Molorchus pallidipennis</i>	Coleoptera: Cerambycidae		D P B/C
<i>Tomicus destruens</i>	Coleoptera: Scolytidae	D N/P C	
<i>Orthotomicus erosus</i>	Coleoptera: Scolytidae	D N/P C	
<i>Panaphis juglandis</i>	Hemiptera: Drepanosiphidae		D N B
<i>Phloeosinus armatus</i>	Coleoptera: Scolytidae	D N/P C	
<i>Phloeosinus turkestanicus</i>	Coleoptera: Scolytidae		D N/P C
<i>Pineus pini</i>	Hemiptera: Adelgidae		D P C
<i>Pityogenes spessivtsevi</i>	Coleoptera: Scolytidae		D P C
<i>Pityophthorus parfentjevi</i>	Coleoptera: Scolytidae		D P C
<i>Pityophthorus schrenkianus</i>	Coleoptera: Scolytidae		D P C
<i>Prionus turkestanicus</i>	Coleoptera: Cerambycidae		D N B
<i>Pseudococcus comstocki</i>	Hemiptera: Pseudococcidae		T N B
<i>Quadraspidiotus perniciosus</i>	Hemiptera: Diaspididae		T N B
<i>Recurvaria pistaciicola</i>	Lepidoptera: Gelechiidae		D N B
<i>Rhopalopus nadari</i>	Coleoptera: Buprestidae		D N B
<i>Scolytus mali</i>	Coleoptera: Scolytidae		D N B
<i>Sphaerolecanium prunastri</i>	Hemiptera: Coccidae		T N/P B
<i>Tetropium staudingeri</i>	Coleoptera: Cerambycidae		D P B/C
<i>Thaumetopoea wilkinsoni</i>	Lepidoptera: Thaumetopoeidae	D N/P C	
<i>Tomicus minor</i>	Coleoptera: Scolytidae	D N/P C	
<i>Xyleborus saxeni</i>	Coleoptera: Scolytidae		D N B
<i>Xylotrechus namanganensis</i>	Coleoptera: Cerambycidae		D N B
<i>Yponomeuta malinellus</i>	Lepidoptera: Yponomeutoidea		D N B
<i>Yponomeuta padellus</i>	Lepidoptera: Yponomeutoidea		D N B
<i>Tomicus piniperda</i>	Coleoptera: Scolytidae	D N/P C	
<b>Diseases</b>			
<i>Armillaria mellea</i>	Basidiomycota: Marasmiaceae		D P C
<i>Biscogniauxia mediterranea</i> var. <i>mediterranea</i>	Ascomycota: Xylariaceae		D N B
<i>Cenangium ferruginosum</i>	Ascomycota: Helotiaceae		D P C
<i>Fomes fomentarius</i>	Basidiomycota: Polyporaceae		D N B

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Pest species	Order/phylum: family	Cyprus	Kyrgyzstan
<i>Fomitopsis pinicola</i>	Basidiomycota: Fomitopsidaceae		D P C
<i>Ganoderma applanatum</i>	Basidiomycota: Ganodermataceae		D N B
<i>Gymnosporangium</i> spp.	Basidiomycota: Pucciniaceae		D N C
<i>Heterobasidion annosum</i>	Basidiomycota: Bondarzewiaceae		D P C
<i>Inonotus hispidus</i>	Basidiomycota: Hymenochaetaceae		D N/P B
<i>Laetiporus sulphureus</i>	Basidiomycota: Polyporaceae		D N/P B
<i>Phellinus chrysoloma</i>	Basidiomycota: Hymenochaetaceae		D P C
<i>Pyrofomes demidoffii</i>	Basidiomycota: Polyporaceae		D N C
<b>Other pests</b>			
<i>Aceria erinoea</i>	Acarina: Eriophyidae		D N B
<i>Aceria</i> sp.	Acarina: Eriophyidae		D P B
<i>Aceria tristriatus</i>	Acarina: Eriophyidae		D N B
<i>Arceuthobium oxycedri</i>	Santalales: Viscaceae		D N C
<i>Eriophyes dispar</i>	Acarina: Eriophyidae		D P B
<i>Eriophyes mali</i>	Acarina: Eriophyidae		D N B
<i>Eriophyes parapopuli</i>	Acarina: Eriophyidae		D P B
<i>Eriophyes phloeocoptes</i>	Acarina: Eriophyidae		D N B
<i>Eriophyes pyri</i>	Acarina: Eriophyidae		D N B
<i>Eriophyes tarbinskii</i>	Acarina: Eriophyidae		D N B
<i>Phyllocoptes aegerenus</i>	Acarina: Eriophyidae		D P B
<i>Trisetacus kirghisorum</i>	Acarina: Eriophyidae		D N C

T= Introduced pest  
D= Indigenous pest

P= Planted forest  
N= Naturally regenerated forest

B= Broadleaf trees  
C= Coniferous trees



## Annex 2

# Pest species mentioned in Part III

Pest species	Order/phylum: family
<b>Insects</b>	
<i>Acanthococcus danzigae</i> Miller & Gimpel	Hemiptera: Eriococcidae
<i>Achaea lienardi</i> Boisduval	Lepidoptera: Noctuidae
<i>Acherontia lachesis</i> (Fabricius)	Lepidoptera: Sphingidae
<i>Acrobasis demotella</i> Grote	Lepidoptera: Pyralidae
<i>Acromyrmex</i> spp.	Hymenoptera: Formicidae
<i>Adelges piceae</i> (Ratzeberg)	Hemiptera: Adelgidae
<i>Agriolima agrestis</i>	Coleoptera: Elateridae
<i>Agrotis segetum</i> Denis & Schiffermuller	Lepidoptera: Noctuidae
<i>Alcidodes ludificator</i> (=gmelinae)	Coleoptera: Curculionidae
<i>Anoplognathus</i> sp.	Coleoptera: Scarabaeidae
<i>Apate monachus</i> Fabricius	Coleoptera: Bostrichidae
<i>Apophyllia nigricollis</i>	Coleoptera: Chrysomelidae
<i>Arion</i> spp.	Coleoptera: Elateridae
<i>Artipus floridanus</i> Horn	Coleoptera: Curculionidae
<i>Atta insularis</i> Guérin-Ménéville	Hymenoptera: Formicidae
<i>Atta</i> spp.	Hymenoptera: Formicidae
<i>Attacus</i> spp.	Lepidoptera: Saturniidae
<i>Calopepla leayana</i> (Latreille)	Coleoptera: Chrysomelidae
<i>Camporatus</i> sp.	Hymenoptera: Formicidae
<i>Cardiaspina</i> sp.	Hemiptera: Psyllidae
<i>Catopyla dysorphaea</i> Bradley	Lepidoptera: Pyralidae
<i>Choristoneura fumiferana</i> (Clemens)	Lepidoptera: Tortricidae
<i>Choristoneura occidentalis</i> Freeman	Lepidoptera: Tortricidae
<i>Chrysodeixis chalcites</i> (Esper)	Lepidoptera: Noctuidae
<i>Chrysomela populi</i> Linnaeus	Coleoptera: Chrysomelidae
<i>Chrysophtharta</i> spp.	Coleoptera: Chrysomelidae
<i>Chrysoteuchia topiaria</i> (Zeller)	Lepidoptera: Pyralidae
<i>Clastoptera undulata</i> (Uhl.)	Hemiptera: Cercopidae
<i>Cledus obesus</i> Hustache	Coleoptera: Curculionidae
<i>Clostera</i> spp.	Lepidoptera: Notodontidae
<i>Colaspis favosa</i> Say	Coleoptera: Chrysomelidae
<i>Conotrachelus retentus</i> (Say)	Coleoptera: Curculionidae

Pest species	Order/phylum: family
<i>Contarinia fagi</i> (Hartig)	Diptera: Cecidomyiidae
<i>Contarinia oregonensis</i> Foote	Diptera: Cecidomyiidae
<i>Contarinia washingtonensis</i> Johnson	Diptera: Cecidomyiidae
<i>Coptotermes curvignathus</i> Holmgren	Isoptera: Rhinotermitidae
<i>Coptotermes formosanus</i> (Shiraki)	Isoptera: Rhinotermitidae
<i>Coptotermes</i> sp.	Isoptera: Rhinotermitidae
<i>Cossula</i> spp.	Lepidoptera: Cossidae
<i>Cossus cadambae</i> Moore	Lepidoptera: Cossidae
<i>Cossus cossus</i> Linnaeus	Lepidoptera: Cossidae
<i>Crossotarsus externedentatus</i> Fairmaire	Coleoptera: Platypodidae
<i>Cryptococcus fagisuga</i> Lindinger	Hemiptera: Eriococcidae
<i>Cryptorhynchus lapathi</i> Linnaeus	Coleoptera: Curculionidae
<i>Cydia fagiglandana</i> (Zeller)	Lepidoptera: Tortricidae
<i>Dasychira pudibunda</i> (Linnaeus)	Lepidoptera: Lymantriidae
<i>Dasyneura fagicola</i> Barnes	Diptera: Cecidomyiidae
<i>Datana integerrima</i> Grote & Robinson	Lepidoptera: Notodontidae
<i>Dendroctonus frontalis</i> Zimmermann	Coleoptera: Scolytidae
<i>Dendroctonus mexicanus</i> Hopkins	Coleoptera: Scolytidae
<i>Dendroctonus pseudotsugae</i> Hopkins	Coleoptera: Scolytidae
<i>Dihammus cervinus</i> (Hope)	Coleoptera: Cerambycidae
<i>Diorcytria abietivorella</i> Grote	Lepidoptera: Pyralidae
<i>Dryocoetes confuses</i> Swaine	Coleoptera: Scolytidae
<i>Duomitus ceramicus</i> Walker	Lepidoptera: Cossidae
<i>Earomyia</i> spp.	Diptera: Lonchaeidae
<i>Elatobium abietinum</i> (Walker)	Hemiptera: Aphididae
<i>Endoxyla</i> spp.	Lepidoptera: Cossidae
<i>Ennomos quercinaria</i> (Hufnagel)	Lepidoptera: Geometridae
<i>Epithora dorsalis</i> McL.	Coleoptera: Cerambycidae
<i>Eriococcus coriaceus</i> Maskell	Hemiptera: Eriococcidae
<i>Eumeta variegata</i> (Snellen)	Lepidoptera: Psychidae
<i>Eurymela</i> sp.	Hemiptera: Eurymelinae
<i>Eurymeloides</i> sp.	Hemiptera: Eurymelinae
<i>Exophthalmus</i> spp.	Coleoptera: Curculionidae
<i>Gilletteella cooleyi</i> Gillette	Hemiptera: Adelgidae
<i>Gonipterus gibberus</i> Boisduval	Coleoptera: Curculionidae
<i>Gonipterus scutellatus</i> Gyllenhal, 1833	Coleoptera: Curculionidae
<i>Gonipterus</i> spp.	Coleoptera: Curculionidae
<i>Gypsonoma aceriana</i> Duponchel	Lepidoptera: Tortricidae
<i>Gyroptera robertsi</i> Bradley	Lepidoptera: Pyralidae



Pest species	Order/phylum: family
<i>Halymorpha picus</i> (Fabricius)	Hemiptera: Pentatomidae
<i>Holotrichia</i> spp.	Coleoptera: Scarabaeidae
<i>Hyblaea puera</i> (Cramer)	Lepidoptera: Hyblaeidae
<i>Hylecoetus dermestoides</i> Linnaeus	Coleoptera: Lymexylidae
<i>Hyphantria cunea</i> Drury	Lepidoptera: Arctiidae
<i>Hypsipyla grandella</i> (Zeller)	Lepidoptera: Pyralidae
<i>Hypsipyla robusta</i> (Moore)	Lepidoptera: Pyralidae
<i>Icerya purchasi</i> Maskell	Hemiptera: Margarodidae
<i>Imbrasia cytherea</i> Fabricius	Lepidoptera: Saturniidae
<i>Ips grandicollis</i> Eichhoff	Coleoptera: Scolytidae
<i>Leucoma salicis</i> Linnaeus	Lepidoptera: Lymantriidae
<i>Leucoptera sinuella</i> (Ruetti)	Lepidoptera: Lyonetiidae
<i>Lyctus</i> spp.	Coleoptera: Lyctidae
<i>Lymantria dispar</i> Linnaeus	Lepidoptera: Lymantriidae
<i>Megastigmus spermotrophus</i> Wachtl	Hymenoptera: Torymidae
<i>Mnesampela privata</i> (Guenée)	Lepidoptera: Geometridae
<i>Oncideres cingulata</i> (Say)	Coleoptera: Cerambycidae
<i>Operophtera brumata</i> Linnaeus	Lepidoptera: Geometridae
<i>Operophtera fagata</i> (Scharfenberg)	Lepidoptera: Geometridae
<i>Orgyia pseudotsugata</i> McDunnough	Lepidoptera: Lymantriidae
<i>Otiorhynchus ovatus</i> (Linnaeus)	Coleoptera: Curculionidae
<i>Oxyops</i> spp.	Coleoptera: Curculionidae
<i>Ozola minor</i> (Moore)	Lepidoptera: Geometridae
<i>Paliga damastesalis</i> Walker	Lepidoptera: Pyralidae
<i>Paliga machoeralis</i> (Walker)	Lepidoptera: Pyralidae
<i>Paranthrene dollii</i> (Neumogen)	Lepidoptera: Sesiidae
<i>Paranthrene tabaniformis</i> Rottemburg	Lepidoptera: Sesiidae
<i>Paropsis</i> spp.	Coleoptera: Chrysomelidae
<i>Phassus excrescens</i> (Butler)	Lepidoptera: Hepialidae
<i>Phloeomyzus passerinii</i> (Signoret)	Hemiptera: Aphididae
<i>Phoracantha acanthocera</i> (Macleay)	Coleoptera: Cerambycidae
<i>Phoracantha semipunctata</i> (Fabricius)	Coleoptera: Cerambycidae
<i>Phoracantha</i> spp.	Coleoptera: Cerambycidae
<i>Phylacteophaga froggatti</i> Riek	Hymenoptera: Pergidae
<i>Pineus pini</i> Gmelin	Hemiptera: Adelgidae
<i>Pissodes</i> spp.	Coleoptera: Curculionidae
<i>Pissodes strobi</i> (Peck)	Coleoptera: Curculionidae
<i>Platypus gerstaeckeri</i> Chapuis	Coleoptera: Platypodidae
<i>Platypus</i> spp.	Coleoptera: Platypodidae

Pest species	Order/phylum: family
<i>Pseudophacopteron zimmerani</i>	Hemiptera: Psyllidae
<i>Rhyacionia buoliana</i> Denis & Schiffermüller	Lepidoptera: Tortricidae
<i>Rhyacionia</i> spp.	Lepidoptera: Tortricidae
<i>Rhynchaenus fagi</i> (Linnaeus)	Coleoptera: Curculionidae
<i>Sahyadrassus malabaricus</i> (Moore)	Lepidoptera: Hepialidae
<i>Saperda carcharias</i> Linnaeus	Coleoptera: Cerambycidae
<i>Scolytus</i> spp.	Coleoptera: Scolytidae
<i>Scolytus ventralis</i> Leconte	Coleoptera: Scolytidae
<i>Sinoxylon anale</i> Lesne	Coleoptera: Bostrichidae
<i>Sinoxylon</i> sp.	Coleoptera: Bostrichidae
<i>Sirex noctilio</i> Fabricius	Hymenoptera: Siricidae
<i>Thaumetopoea pityocampa</i> Denis & Schiffermüller	Lepidoptera: Thaumetopoeidae
<i>Tingis beesoni</i> (Drake)	Hemiptera: Tingidae
<i>Udinia faraquarsoni</i> (Newest)	Hemiptera: Diaspididae
<i>Umbonia crassicornis</i> (Amyot & Serville)	Hemiptera: Membracidae
<i>Xyleborus crassiusculus</i> (Motschulsky)	Coleoptera: Scolytidae
<i>Xyleborus perforans</i> (Wollatson)	Coleoptera: Scolytidae
<i>Xyleborus semiopacus</i> (Motschulsky)	Coleoptera: Scolytidae
<i>Xyleborus sharpi</i> Blandford	Coleoptera: Scolytidae
<i>Xyleborus</i> sp.	Coleoptera: Scolytidae
<i>Xyleutes ceramicus</i> Walker	Lepidoptera: Cossidae
<i>Xylosandrus compactus</i> (Eichhoff)	Coleoptera: Scolytidae
<i>Xylosandrus germanus</i> (Blandford)	Coleoptera: Scolytidae
<i>Xyloterus domesticus</i> (Linnaeus)	Coleoptera: Scolytidae
<i>Xystocera</i> sp.	Coleoptera: Cerambycidae
<i>Zeuzera coffeae</i> Nietner	Lepidoptera: Cossidae
<i>Zonocerus variegatus</i> (Linnaeus)	Orthoptera: Pyrgomorphidae
<b>Diseases</b>	
<i>Agrobacterium tumefaciens</i> Smith & Townsend	Rhizobiales: Rhizobiaceae
<i>Armillaria mellea</i> (Vahl) P. Kumm	Basidiomycota: Marasmiaceae
<i>Armillaria</i> spp.	Basidiomycota: Marasmiaceae
<i>Endoraecium digitatum</i> (G. Winter) M. Scholler & Aime	Basidiomycota: Pileolariaceae
<i>Botryosphaeria ribis</i> Grossenb. & Duggar	Ascomycota: Botryosphaeriaceae
<i>Ceratocystis fimbriata</i> Ellis & Halsted	Ascomycota: Ceratocystidaceae
<i>Chaetophoma</i> sp.	Ascomycota: Incertae sedis
<i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc.	Ascomycota: Glomerellaceae
<i>Coriopsis sanguinaria</i> (Klotzsch) Teng	Basidiomycota: Polyporaceae
<i>Corticium rolfsii</i> Curzi	Basidiomycota: Corticiaceae
<i>Corticium salmonicolor</i> Berk. & Broome	Basidiomycota: Corticiaceae

Pest species	Order/phylum: family
<i>Cryptodiaporthe populea</i> (Sacc.) Butin ex Butin 1958	Ascomycota: Valsaceae
<i>Cylindrocladium ovatum</i> sp. novus	Ascomycota: Nectriaceae
<i>Cylindrocladium quinqueseptatum</i> Figueiredo & Namekata	Ascomycota: Nectriaceae
<i>Cylindrocladium scoparium</i> Morgan	Ascomycota: Nectriaceae
<i>Cylindrocladium</i> spp.	Ascomycota: Nectriaceae
<i>Echinodontium tinctorium</i> Ellis & Everh.	Basidiomycota: Echinodontiaceae
<i>Endocronartium harknessii</i> Moore	Basidiomycota: Cronartiaceae
<i>Fomes fomentarius</i> (L.) Kickx	Basidiomycota: Polyporaceae
<i>Fomes</i> sp.	Basidiomycota: Polyporaceae
<i>Fomitopsis cajanderi</i> (P. Karst.) Kotl. & Pouzar	Basidiomycota: Fomitopsidaceae
<i>Fomitopsis officinalis</i> (Vill.) Bondartsev & Singer	Basidiomycota: Fomitopsidaceae
<i>Fomitopsis pinicola</i> (Sw.) P. Karst.	Basidiomycota: Fomitopsidaceae
<i>Fusarium solani</i> (Mart.) Sacc.	Ascomycota: Nectriaceae
<i>Fusarium</i> spp.	Ascomycota: Nectriaceae
<i>Ganoderma</i> sp.	Basidiomycota: Ganodermataceae
<i>Gibberella circinata</i> Nirenberg & O'Donnell	Ascomycota: Nectriaceae
<i>Gibberella fujikuroi</i> (Sawada) Wollenw.	Ascomycota: Nectriaceae
<i>Gnomonia leptostyla</i> (Fr.) Ces. & de Not.	Ascomycota: Valsaceae
<i>Gnomonia</i> sp.	Ascomycota: Valsaceae
<i>Harknessia hawaiiensis</i> F. Stevens & E. Young	Ascomycota: Incertae sedis
<i>Apoharknessia insueta</i> (B. Sutton) Crous & S.J. Lee	Ascomycota: Incertae sedis
<i>Heterobasidion annosum</i> (Fr.) Bref.	Basidiomycota: Bondarzewiaceae
<i>Phellinus weirii</i> (Murrill) Gilb.	Basidiomycota: Hymenochaetaceae
<i>Maravalia achroa</i> (Syd.) Arthur & Cummins	Basidiomycota: Chaconiaceae
<i>Maravalia pterocarp</i> (Thirum.) Thirum.	Basidiomycota: Chaconiaceae
<i>Drepanopeziza populorum</i> (Desm.) Höhn.	Ascomycota: Dermateaceae
<i>Melampsora laricis-populina</i> Kleb.	Basidiomycota: Melampsoraceae
<i>Meliola</i> sp.	Ascomycota: Meliolaceae
<i>Mycosphaerella pini</i> Rostrup	Ascomycota: Mycosphaerellaceae
<i>Davidiella populorum</i> (G.E. Thomps.) Aptroot	Ascomycota: Mycosphaerellaceae
<i>Mycosphaerella</i> sp.	Ascomycota: Mycosphaerellaceae
<i>Naemacyclus minor</i> Butin	Ascomycota: Incertae sedis
<i>Nectria coccinea</i> (Pers.) Fr.	Ascomycota: Nectriaceae
<i>Neonectria galligena</i> (Bres.) Rossman & Samuels	Ascomycota: Nectriaceae
<i>Olivea</i> spp.	Basidiomycota: Chaconiaceae
<i>Olivea tectonae</i> (T.S. Ramakr. & K. Ramakr.) Thirum.	Basidiomycota: Chaconiaceae
<i>Phaeocryptopus gaemannii</i> (T. Rohde) Petr.	Ascomycota: Incertae sedis
<i>Phaeolus schweinitzii</i> (Fr.) Pat.	Basidiomycota: Fomitopsidaceae
<i>Phellinus gilvus</i> (Schwein.) Pat.	Basidiomycota: Hymenochaetaceae

Pest species	Order/phylum: family
<i>Phellinus noxius</i> (Corner) G. Cunn	Basidiomycota: Hymenochaetaceae
<i>Porodaedalea pini</i> (Brot.) Murrill	Basidiomycota: Hymenochaetaceae
<i>Phellinus</i> spp.	Basidiomycota: Hymenochaetaceae
<i>Pleurostomophora richardsiae</i> (Nannf.) L. Mostert, W. Gams & Crous	Ascomycota: Pleurostomataceae
<i>Phomopsis casuarinae</i> (Tassi) Died.	Ascomycota: Diaporthaceae
<i>Phomopsis</i> spp.	Ascomycota: Diaporthaceae
<i>Phomopsis tectonae</i> D.P. Tiwari, R.C. Rajak & Nikhra	Ascomycota: Diaporthaceae
<i>Phyllactinia guttata</i> (Wallr.) Lév.	Ascomycota: Erysiphaceae
<i>Pythium debaryanum</i> R. Hesse	Oomycota: Pythiaceae
<i>Pythium ultimum</i> Trow	Oomycota: Pythiaceae
<i>Phytophthora cactorum</i> (Lebert & Cohn) J. Schröt.	Oomycota: Pythiaceae
<i>Phytophthora cinnamomi</i> Rands	Oomycota: Pythiaceae
<i>Phytophthora</i> spp.	Oomycota: Pythiaceae
<i>Polyporus</i> spp.	Basidiomycota: Polyporaceae
<i>Poria</i> sp.	Basidiomycota: Polyporaceae
<i>Ralstonia solanacearum</i> (Smith 1896) Yabuuchi <i>et al.</i>	Burkholderiales: Ralstoniaceae
<i>Pseudomonas</i> spp.	Pseudomonadales: Pseudomonadaceae
<i>Pseudomonas tectonae</i> Roldan & Andres	Pseudomonadales: Pseudomonadaceae
<i>Pythium</i> spp.	Oomycota: Pythiaceae
<i>Readeriella mirabilis</i> Syd. & P. Syd.	Ascomycota: Teratosphaeriaceae
<i>Rhabdocline pseudotsugae</i> Sydow	Ascomycota: Hemiphaciaceae
<i>Rhizina undulata</i> Fr.	Ascomycota: Rhizinaceae
<i>Thanatephorus cucumeris</i> (A.B. Frank) Donk	Basidiomycota: Ceratobasidiaceae
<i>Rhizoctonia</i> spp.	Basidiomycota: Ceratobasidiaceae
<i>Athelia rolfsii</i> (Curzi) C.C. Tu & Kimbr.	Basidiomycota: Typhulaceae
<i>Sphaceloma tsugii</i> Hara	Ascomycota: Elsinoaceae
<i>Sphaeropsis camarosporium</i>	Ascomycota: Incertae sedis
<i>Sphaeropsis sapinea</i> (Fr.) Dyko & B.Sutton	Ascomycota: Incertae sedis
<i>Subramaniospora vesiculosa</i> (Butler) Narayanan, Sharma & Minter	Ascomycota: Incertae sedis
<i>Thanatephorus cucumeris</i> (Frank) Donk	Basidiomycota: Ceratobasidiaceae
<i>Uredo sissoo</i> Syd., Syd. & Butler	Basidiomycota: Incertae sedis
<i>Uredo tesoensis</i> Wakef.	Basidiomycota: Incertae sedis
<i>Venturia populina</i> (Vuill.) Fabricius	Ascomycota: Venturiaceae
<i>Xanthomonas arboricola</i> pv. <i>juglandis</i> (Pierce) Vauterin, Hoste, Kersters & Swings	Xanthomonadales: Xanthomonadaceae
<b>Other pests</b>	
<i>Arceuthobium douglasii</i> Engelmann	Santalales: Viscaceae
<i>Dendrophthoe falcata</i> (Lf) Ettingsh.	Santalales: Loranthaceae
<i>Meloidogyne marioni</i> (Cornu)	Tylenchida: Meloidogynidae

## Annex 3

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## FOREST HEALTH AND BIOSECURITY WORKING PAPERS

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- Kueffer, C. & Mauremootoo, J. 2004. *Case studies on the status of invasive woody plant species in the Western Indian Ocean: 3. Mauritius (Islands of Mauritius and Rodrigues)*. FBS/4-3E.
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- Weilun, Y. & Wen, L. 2005. *Review of tree selection and afforestation for control of Asian longhorned beetle in North China*. FBS/7E.

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- Diekmann, M., Sutherland, J.R., Nowell, D.C., Morales, F.J. & Allard, G. (eds). 2002.. *Pinus spp.* No. 21.

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- FAO. 1993. *Recent introductions of forest insects and their effects: a global overview*. By Ciesla, W.M. In: *FAO Plant Protection Bulletin*: 41(1): 3–13.
- FAO. 1994. *Assessment of forest diseases in Kenya with specific emphasis on cedar decline*. By Anderson, R.L., FAO, Rome (Italy). Forestry Department, Ministry of Environment and Natural Resources, Nairobi (Kenya).
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## Global review of forest pests and diseases

Forests are complex ecosystems that provide valuable products and services, have important aesthetic, social and cultural value and contribute to the livelihoods of rural communities. It is therefore critical to protect these resources from disturbances by insects and other pests and diseases. Pests and diseases can adversely affect tree growth, vigour and survival, the yield and quality of wood and non-wood products, wildlife habitat, recreation and the aesthetic appeal and cultural value of forests. They may also impede forest plantation programmes and make it necessary to abandon certain tree species or to clear cut large areas dominated by infested trees. Effective pest management requires reliable information about the biology, ecology and distribution of the pests, their impacts on forest ecosystems and possible methods of control; it also often requires international cooperation. This publication represents a rare effort to address forest pests and diseases comprehensively at the global level. Part I summarizes the results of a thematic study reviewing forest pests in 25 countries. Part II presents profiles of some globally important forest pest species, and Part III discusses select forest trees species and their associated pests. The information provided in this publication will assist forest health specialists, forest managers and policy-makers worldwide to make informed decisions.

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