

A Checklist of Sexual System of Angiosperm Species and Genera in the Japanese Flora I

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ABSTRACT : The sex expression of all angiospermous species known to Japan, including the Ryukyu and the Bonin Islands, was surveyed by scrutinizing literature and/or field observation. A part of the results, from Myricaceae to Apiaceae, is shown.

Key words : Angiosperms, Japanese flora, Sexual system.

Botanists or horticulturists have paid much attention on sexual system of flowering plants for a long time. Recently sexual system of flowering plants has been studied empirically or theoretically from a variety of viewpoints; ecological, genetical, physiological and systematic (*e.g.* Policansky 1982 ; Wilson 1983 ; Lloyd and Bawa 1984 ; Lovett Doust and Lovett Doust 1988 ; Wyatt 1992). Although new ideas or different viewpoints from the traditional thinking have stimulated studies on the evolution of sexual system, the most comprehensive investigation so far conducted seems to be Yampolsky and Yampolsky's one (1922). Thus a new comprehensive investigation, capable of answering the examination based on the new ideas, will be necessary.

In this checklist, sexual type of all angiosperm species in the Japanese flora is recorded. It will offer a part of fundamental data for the study of evolution of sexual system in plant.

Method

The sex expression of all angiosperm species known to Japan, including the Ryukyu and the Bonin Islands, were surveyed by scrutinizing literature (Kitamura *et al.* 1957, 1963, 1964, 1971, 1979 ; Ohwi 1965 ; Hatusima 1971 ; Satake *et al.*, eds. 1981, 1982, 1989) and field observation.

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Sexual type was classified into the following eight categories. The abbreviation is shown in parenthesis :

Cosexuality

Hermaphroditism (CH) ; Monoecism (CM) ; Andromonoecism (CA) ;

Gynomonoecism (CG) ;

Dioecy

Dioecism (DD) ; Androdioecism (DA) ; Gynodioecism (DG) ;

Polygamy

Polygamomonoecism, Polygamodioecism and other miscellaneous sexual types (PG).

In the table, **A** indicates there is no disagreement for sexual type among literature ; **B**, disagreement among literature ; **C**, sexual type was determined by direct field observations ; *, no information. When no difference is recognized in a genus, then only the number of species is written, for convenience' sake, after the genus name (for example, Myrica 2 spp.).

The checklist includes only native plants and recently naturalized species were excluded. The families are arranged according to Engler's system (Melchior 1964), and genera and species in alphabetical order.

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	CH	CM	CA	CG	DD	DA	DG	PM
Myricaceae								
<i>Myrica</i> 2spp.						A		
Juglandaceae								
<i>Juglans</i> 1sp.			A					
<i>Platycarya</i> 2spp.			A					
<i>Pterocarya</i> 1sp.			A					
Salicaceae								
<i>Chosenia</i> 1sp.						A		
<i>Populus</i> 3spp.						A		
<i>Salix</i> 36spp.						A		
<i>Toisusu</i> 1sp.						A		
Betulaceae								
<i>Alnus</i> 11spp.			A					
<i>Betula</i> 11spp.			A					
<i>Carpinus</i> 5spp.			A					
<i>Corylus</i> 2spp.			A					
<i>Ostrya</i> 1sp.			A					
Fagaceae								
<i>Castanea</i> 1sp.			A					
<i>Castanopsis</i> 2spp.			A					
<i>Fagus</i> 2spp.			A					
<i>Lithocarpus</i> 2spp.			A					
<i>Quercus</i> 14spp.			A					
Ulmaceae								
<i>Aphananthe</i> 1sp.			A					
<i>Celtis boninensis</i> Koidz.								B
<i>Celtis jessoensis</i> Koidz.								B
<i>Celtis biordii</i> Pampan.								B
<i>Celtis sinensis</i> Pers. var. <i>japonica</i> (Planch.) Nakai								B
<i>Trema cannabina</i> Lour.								B
<i>Trema orientalis</i> (L.) Bl.								B
<i>Ulmus</i> 3spp.			A					
<i>Zelkova serrata</i> (Thunb.) Makino								B
Moraceae								
<i>Broussonetia kaempferi</i> Sieb.								B
<i>Broussonetia kazinoki</i> Sieb.			A					
<i>Fatoua</i> 1sp.			A					
<i>Ficus ampelas</i> Burm. fil.						A		

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Ficus bengutensis</i> Marrill				A				
<i>Ficus boninsimae</i> Koidz.				A				
<i>Ficus caulocarpa</i> (Miq.) Miq.							B	
<i>Ficus erecta</i> Thunb.							B	
<i>Ficus iidaiana</i> Rehd. et Wils.					A			
<i>Ficus irisana</i> Elmer					A			
<i>Ficus microcarpa</i> L. fil.	A							
<i>Ficus nipponica</i> Franch. et Savat.							B	
<i>Ficus pumila</i> L.							B	
<i>Ficus septica</i> Burm. fil.				A				
<i>Ficus superba</i> (Miq.) Miq. var. <i>japonica</i> Miq.	A							
<i>Ficus thunbergii</i> Maxim.							B	
<i>Ficus variegata</i> Bl. var. <i>sycomoides</i> (Miq.) Corner				A				
<i>Ficus virgata</i> Reinw.				A				
<i>Humulus</i> 2spp.				A				
<i>Maclura</i> 1sp.				A				
<i>Morus australis</i> Poir.							B	
<i>Morus boninensis</i> Koidz.				A				
<i>Morus cathayana</i> Hemsley							B	
<i>Morus kagayamae</i> Koidz.				A				
Urticaceae								
<i>Boehmeria</i> 14spp.	A							
<i>Boehmeria gracilis</i> C. H. Wright	*							
<i>Debregeasia</i> 1sp.					A			
<i>Elatostema densiflorum</i> Franch. et Savat.		A						
<i>Elatostema edule</i> C. B. Robinson		A						
<i>Elatostema laetevirens</i> Makino							B	
<i>Elatostema oshimensis</i> (Hatus.) Yamazaki		A						
<i>Elatostema suzukii</i> Yamazaki		A						
<i>Elatostema umbellatum</i> Bl. var. <i>majus</i> Maxim.					A			
<i>Elatostema yakushimense</i> Hatus.		A						
<i>Elatostema yonakuniense</i> Hatus.							A	
<i>Gonostegia</i> 1sp.		A						
<i>Laportea</i> 2spp.		A						
<i>Nanocnide</i> 1sp.		A						
<i>Oreocnide</i> 2spp.					A			
<i>Parietaria</i> 1sp.							A	
<i>Pellionia brevifolia</i> Benth.					A			

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Pellionia japonica Hatus.	*							
Pellionia minima Makino						A		
Pellionia radicans (Sieb. et Zucc.) Wedd.								B
Pellionia scabra Benth.		A						
Pellionia yosiei (Hara) Hara		A						
Pilea angulata (Bl.) Bl. ssp. petiolaris (Sieb. et Zucc.) C. J. Chen		A						
Pilea brevicornuta Hayata		A						
Pilea hamaoi Makino		A						
Pilea japonica (Maxim.) Hand.-Mazz.		A						
Pilea kiotensis Ohwi		A						
Pilea mongolica Wedd.		A						
Pilea peploides (Gaudich.) Hook. et Arn.		A						
Pilea pseudopetiolaris Hatus.						A		
Pilea sohayakiensis Kitam.		A						
Pipturus 1sp.						A		
Pouzolzia 1sp.		A						
Procris laevigata Bl.	*							
Urtica angustifolia Fischer								B
Urtica laetevirens Maxim.		A						
Urtica platyphylla Wedd.								B
Urtica thunbergiana Sieb. et Zucc.		A						
Proteaceae								
Helicia 1sp.	A							
Olacaceae								
Schoepfia jasminodora Sieb. et Zucc.								B
Santalaceae								
Buckleya 1sp.						A		
Santalum 1sp.	A							
Thesium 2spp.	A							
Loranthaceae								
Hyphear 1sp.	A							
Korthalsella 1sp.		A						
Scurrula 2spp.	A							
Taxillus 1sp.	A							
Viscum 1sp.						C		
Balanophoraceae								
Balanophora japonica Makino						A		
Balanophora kiusiana Ohwi						A		

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Balanophora kuroiwai Makino		A						
Balanophora nipponica Makino						A		
Balanophora tobiracola Makino			A					
Balanophora yakushimensis Hatus. et Masamune	*							
Polygonaceae								
Antenorion lsp.		A						
Antenorion neo-filiforme (Nakai) Hara	*							
Bistorta 5spp.		A						
Fallopia dentato-alatum (Fr. Schm.) Holub	*							
Oxyria lsp.		A						
Persicaria aestiva Ohki		A						
Persicaria amphibia (L.) S. F. Gray		A						
Persicaria breviochreata (Makino) Ohwi	*							
Persicaria chinensis (L.) Nakai		A						
Persicaria conspicua (Nakai) Nakai						A		
Persicaria debilis (Meisn.) H. Gross		A						
Persicaria dichotoma (Bl.) Masamune		A						
Persicaria erecto-minor (Makino) Nakai		A						
Persicaria foliosa (H. Lindb.) Kitagawa var. paludicola (Makino) Hara		A						
Persicaria hastato-auriculata (Makino) Nakai		A						
Persicaria hastato-sagittata (Makino) Nakai		A						
Persicaria hydropiper (L.) Spach		A						
Persicaria japonica (Meisn.) H. Gross						A		
Persicaria lapathifolia (L.) S. F. Gray		A						
Persicaria longiseta (De Bruyn) Kitagawa		A						
Persicaria maackiana (Regel) Nakai		A						
Persicaria makinoi (Nakai) Nakai		A						
Persicaria nepalensis (Meisn.) H. Gross		A						
Persicaria nipponensis (Makino) H. Gross		A						
Persicaria perfoliata (L.) H. Gross		A						
Persicaria pubescens (Bl.) Hara		A						
Persicaria scabra (Moench) Mold.		A						
Persicaria senticosa (Franch. et Savat.) H. Gross		A						
Persicaria sieboldii (Meisn.) Ohki		A						
Persicaria taquetii (Lév.) Koidz.		A						
Persicaria thunbergii (Sieb. et Zucc.) H. Gross		A						
Persicaria trigonocarpa (Makino) Nakai	*							

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<i>Persicaria viscofera</i> (Makino) H. Gross	A							
<i>Persicaria viscosa</i> (Hamilt.) H. Gross	A							
<i>Persicaria yokusaina</i> (Makino) Nakaii	A							
<i>Persicaria vulgaris</i> Webb. et Moq.	A							
<i>Pleuropteropyrum ajanense</i> (Regel et Tiling) Nakai	A							
<i>Pleuropteropyrum nakaii</i> Hara	A							
<i>Pleuropteropyrum weyrichii</i> (Fr. Schm.) H. Gross						A		
<i>Polygonum</i> 2spp.		A						
<i>Polygonum polyneuron</i> Franch. et Savat.	*							
<i>Polygonum ramuliflorum</i> Kitagawa	*							
<i>Polygonum tatewakianum</i> Ko. Ito	*							
<i>Reynoutria</i> 2spp.						A		
<i>Rumex acetosa</i> L.						A		
<i>Rumex aquaticus</i> L.		A						
<i>Rumex arifolius</i> All.						A		
<i>Rumex gmelinii</i> Turcz.		A						
<i>Rumex japonicus</i> Houtt.		A						
<i>Rumex longifolius</i> DC.		A						
<i>Rumex madaio</i> Makino		A						
<i>Rumex maritimus</i> L.		A						
<i>Rumex nepalensis</i> Spreng.		A						
<i>Rumex nipponicus</i> Franch. et Savat.		A						
<i>Rumex obtusifolius</i> L.		A						
Phytolaccaceae								
<i>Phytolacca</i> 1sp.			A					
Nyctaginaceae								
<i>Boerhaavia diffusa</i> L.	*							
<i>Pasonia</i> 3spp.						A		
Molluginaceae								
<i>Mollugo</i> 1sp.		A						
Aizoaceae								
<i>Tetragonia</i> 1sp.		A						
Portulacaceae								
<i>Montia</i> 1sp.		A						
<i>Portulaca</i> 2spp.		A						
Caryophyllaceae								
<i>Arenaria</i> 2spp.		A						
<i>Cerastium</i> 5spp.		A						

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Cucubalus 1sp.	A							
Dianthus 4spp.	A							
Honkenya 1sp.						A		
Lychnis 6spp.	A							
Minuartia 3spp.	A							
Moehringia lateriflora (L.) Fenzl								B
Moehringia trinervia (L.) Clairv.								B
Myosoton 1sp.	A							
Pseudostellaria 5spp.	A							
Sagina 3spp.	A							
Silene 9spp.	A							
Spergularia 1sp.	A							
Stellaria 17spp.	A							
Chenopodiaceae								
Atriplex 2spp.			A					
Chenopodium 5spp.		A						
Kochia 1sp.					A			
Salicornia 1sp.				A				
Salsola 1sp.	A							
Suaeda 1sp.			A					
Suaeda glauca (Bunge) Bunge	*							
Suaeda malacosperma Hara	*							
Suaeda maritima (L.) Dumort.	*							
Amaranthaceae								
Achyranthes 2spp.			A					
Deeringia polysperma (Roxb.) Miq.	*							
Philocerous 1sp.			A					
Magnoliaceae								
Magnolia 6spp.			A					
Michelia 1sp.			A					
Annonaceae								
Cananga odorata (Lam.) Hook. fil. et Thoms.	*							
Polyalthia liukiuensis Hatus.	*							
Schisandraceae								
Kadsura 1sp.						A		
Schisandra 2spp.						A		
Illiciaceae								
Illicium 1sp.			A					

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Lauraceae								
<i>Beilschmiedia</i> 1sp.	A							
<i>Cassytha</i> 2spp.	A							
<i>Cinnamomum</i> 5spp.	A							
<i>Cryptocarya</i> 1sp.	A							
<i>Lindera</i> 9spp.						A		
<i>Litsea</i> 4spp.						A		
<i>Machilus</i> 4spp.	A							
<i>Neolitsea</i> 4spp.						A		
Hernandiaceae								
<i>Hernandia</i> 1sp.			A					
<i>Illigera</i> 1sp.		A						
Trochodendraceae								
<i>Trochodendron aralioides</i> Sieb. et Zucc.							B	
Eupteleaceae								
<i>Euptelea polyandra</i> Sieb. et Zucc.							B	
Cercidiphyllaceae								
<i>Cercidiphyllum</i> 2spp.						A		
Ranunculaceae								
<i>Aconitum</i> 31spp.		A						
<i>Actaea</i> 2spp.		A						
<i>Adonis</i> 1sp.		A						
<i>Anemone</i> 12spp.		A						
<i>Anemonopsis</i> 1sp.		A						
<i>Aquilegia</i> 2spp.		A						
<i>Callianthemum</i> 2spp.		A						
<i>Caltha</i> 1sp.		A						
<i>Cimicifuga acerina</i> (Sieb. et Zucc.) C. Tanaka		A						
<i>Cimicifuga japonica</i> (Thunb.) Sprengel		A						
<i>Cimicifuga simplex</i> Wormsk.							B	
<i>Clematis alsomitrifolia</i> Hayata		A						
<i>Clematis apiifolia</i> DC.		A						
<i>Clematis chinensis</i> Osbeck		A						
<i>Clematis crassifolia</i> Benth.		A						
<i>Clematis fujisanensis</i> Hisauti et Hara		A						
<i>Clematis fusca</i> Turcz.		A						
<i>Clematis grata</i> Wall. var. <i>ryukyuensis</i> Tamura		A						
<i>Clematis japonica</i> Thunb.		A						

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<i>Clematis lasiandra</i> Maxim.	A							
<i>Clematis leschenaultiana</i> DC.	A							
<i>Clematis meyeniana</i> Walpers	A							
<i>Clematis ochotensis</i> (Pall.) Poiret	A							
<i>Clematis obvallata</i> (Ohwi) Tamura	A							
<i>Clematis ovatifolia</i> T. Ito	A							
<i>Clematis patens</i> Morren et Decaisne	A							
<i>Clematis pierotii</i> Miq.	A							
<i>Clematis serratifolia</i> Rehd.	A							
<i>Clematis speciosa</i> (Makino) Makino							B	
<i>Clematis stans</i> Sieb. et Zucc.							B	
<i>Clematis tashiroi</i> Maxim.	A							
<i>Clematis terniflora</i> DC.	A							
<i>Clematis tosaensis</i> Makino	A							
<i>Clematis williamsii</i> A. Gray	A							
<i>Coptis japonica</i> (Thunb.) Makino							B	
<i>Coptis lutescens</i> Tamura	A							
<i>Coptis quinquefolia</i> Miq.	A							
<i>Coptis ramosa</i> (Makino) Tamura	*							
<i>Coptis trifolia</i> (L.) Salisb.	A							
<i>Coptis trifoliolata</i> (Makino) Makino	A							
<i>Dichocarpum</i> 8spp.	A							
<i>Enemion</i> 1sp.	A							
<i>Halerpestes</i> 1sp.	A							
<i>Hepatica</i> 1sp.	A							
<i>Pulsatilla</i> 2spp.	A							
<i>Ranunculus</i> 24spp.	A							
<i>Semiaquilegia</i> 1sp.	A							
<i>Shibateranthis</i> 1sp.	A							
<i>Thalictrum</i> 16spp.	A							
<i>Trautvetteria</i> 1sp.	A							
<i>Trollius</i> 4spp.	A							
Glaucidiaceae								
<i>Glaucidium</i> 1sp.	A							
Berberidaceae								
<i>Achlys</i> 1sp.	A							
<i>Berberis</i> 4spp.	A							
<i>Caulophyllum</i> 1sp.	A							

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Diphylliea 1sp.	A							
Epimedium 5spp.	A							
Nandina 1sp.	A							
Ranzania 1sp.	A							
Lardizabalaceae								
Akebia quinata (Thunb.) Decaisne							B	
Akebia trifoliata (Thunb.) Koidz.							B	
Stauntonia hexaphylla (Thunb.) Decaisne							B	
Menispermaceae								
Cocculus 2spp.						A		
Menispernum 1sp.						A		
Paracyclea 1sp.						A		
Pericampylus 1sp.						A		
Sinomenium 1sp.						A		
Stephania 1sp.						A		
Nymphaeaceae								
Brasenia 1sp.			A					
Euryale 1sp.			A					
Nuphar 4spp.			A					
Nymphaea 1sp.			A					
Ceratophyllaceae								
Ceratophyllum demersum L.							A	
Saururaceae								
Houttuynia 1sp.			A					
Saururus 1sp.			A					
Piperaceae								
Peperomia 2sp			A					
Piper 3spp.						A		
Chloranthaceae								
Chloranthus 3spp.			A					
Sarcandra 1sp.			A					
Aristolochiaceae								
Aristolochia 6spp.			A					
Asarum 2spp.			A					
Asiasarum 3spp.			A					
Heterotropa 37spp.			A					
Rafflesiacaceae								
Mitrastemon 1sp.			A					

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Paeoniaceae								
Paeonia 2spp.	A							
Actinidiaceae								
Actinidia arguta (Sieb. et Zucc.) Planch.								A
Actinidia kolomikta (Rupr. et Maxim.) Ma								B
Actinidia polygama (Sieb. et Zucc.) Planch.								B
Actinidia rufa (Sieb. et Zucc.) Planch.								A
Saurauia 1sp.	A							
Theaceae								
Adinandra 2spp.	A							
Camellia 3spp.	A							
Cleyera 1sp.	A							
Eurya emarginata (Thunb.) Makino								B
Eurya japonica Thunb.								C
Eurya osimensis Masamune								B
Eurya sakishimensis Hatus.								B
Eurya yaeyamensis Masamune						A		
Eurya yakushimensis (Makino) Makino								B
Eurya zigzag Masamune								B
Schima 1sp.	A							
Stuartia 3spp.	A							
Ternstroemia gymnanthera (Wight et Arn.) Bedd								B
Tutcheria 1sp.	A							
Hypericaceae								
Calophyllum 1sp.	A							
Garcinia subelliptica Merr.								A
Hypericum 21spp.	A							
Hypericum hyugamontanum Y. Kimura	*							
Hypericum miyabei Y. Kimura	*							
Sarothra 2spp.	A							
Triadenum 1sp.	A							
Droseraceae								
Aldrovanda 1sp.	A							
Drosera 5spp.	A							
Papaveraceae								
Chelidonium 2spp.	A							
Corydalis 13spp.	A							
Dicentra 1sp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Macleaya 1sp.	A							
Papaver 1sp.	A							
Pteridophyllum 1sp.	A							
Capparidaceae								
Crataeva 1sp.	A							
Brassicaceae								
Arabidopsis 1sp.	A							
Arabis 9spp.	A							
Barbarea 1sp.	A							
Berteroella 1sp.	A							
Capsella 1sp.	A							
Cardamine 14spp.	A							
Cochlearia 1sp.	A							
Dontostemon 1sp.	A							
Draba 11spp.	A							
Erysimum 1sp.	A							
Isatis 1sp.	A							
Macropodium 1sp.	A							
Rorippa 5spp.	A							
Sisymbrium 1sp.	A							
Thlaspi 1sp.	A							
Turritis 1sp.	A							
Wasabia 2spp.	A							
Hamamelidaceae								
Corylopsis 4spp.	A							
Disanthus 1sp.	A							
Distylium racemosum Sieb. et Zucc.								A
Distylium lepidotum Nakai								B
Hamamelis 1sp.	A							
Loropetalum 1sp.	A							
Crassulaceae								
Hylotelephium 9spp.	A							
Kalanchoe 1sp.	A							
Meterostachys 1sp.	A							
Orostachys 3spp.	A							
Rhodiola 2spp.							A	
Sedum 17spp.	A							
Tillaea 1sp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Saxifragaceae								
<i>Astilbe japonica</i> (Morr. et Decne.) A. Gray	A							
<i>Astilbe microphylla</i> Knoll	A							
<i>Astilbe platyphylla</i> H. Boiss.							B	
<i>Astilbe rubra</i> Hook. fil. et Thoms.	A							
<i>Astilbe simplicifolia</i> Makino	A							
<i>Astilbe thunbergii</i> (Sieb. et Zucc.) Miq.	A							
<i>Boykinia</i> 1sp.	A							
<i>Cardiandra</i> 3spp.	A							
<i>Chrysosplenium</i> 14spp.	A							
<i>Deinanthe</i> 1sp.	A							
<i>Deutzia</i> 7spp.	A							
<i>Hydrangea</i> 13spp.	A							
<i>Itea</i> 2spp.	A							
<i>Kirengeshoma</i> 1sp.	A							
<i>Mitella</i> 11spp.	A							
<i>Parnassia</i> 3spp.	A							
<i>Peltoboykinia</i> 2spp.	A							
<i>Penthorum</i> 1sp.	A							
<i>Philadelphus</i> 1sp.	A							
<i>Pileostegia</i> 1sp.	A							
<i>Platycrater</i> 1sp.	A							
<i>Ribes ambiguum</i> Maxim.							B	
<i>Ribes fasciculatum</i> Sieb. et Zucc.						A		
<i>Ribes horridum</i> Rupr.	A							
<i>Ribes japonicum</i> Maxim.	A							
<i>Ribes latifolium</i> Jancz.	A							
<i>Ribes maximowiczianum</i> Komar.						A		
<i>Ribes sachalinense</i> (Fr. Schm.) Nakai	A							
<i>Ribes sinanense</i> F. Maekawa	A							
<i>Ribes triste</i> Pall.	A							
<i>Rodgersia</i> 1sp.	A							
<i>Saxifraga</i> 17spp.	A							
<i>Schizophragma</i> 1sp.	A							
<i>Tanakaea</i> 1sp.						A		
<i>Tiarella</i> 1sp.					A			
Pittosporaceae								
<i>Pittosporum</i> 2spp.						A		

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Pittosporum boninense</i> Koidz.	*							
<i>Pittosporum parvifolium</i> Hayata	*							
Rosaceae								
<i>Agrimonia</i> 3spp.		A						
<i>Alchemilla</i> 1sp.		A						
<i>Amelanchier</i> 1sp.		A						
<i>Aruncus</i> 1sp.					A			
<i>Chaenomeles japonica</i> (Thunb.) Spach							B	
<i>Crataegus</i> 2spp.		A						
<i>Dryas</i> 1sp.		A						
<i>Duchesnea</i> 2spp.		A						
<i>Filipendula auriculata</i> (Ohwi) Kitam.		A						
<i>Filipendula kamtschatica</i> (Pall.) Maxim.		A						
<i>Filipendula multiflora</i> Maxim.		A						
<i>Filipendula tsuguwoi</i> Ohwi						A		
<i>Filipendula yezoensis</i> Hara		A						
<i>Fragaria</i> 3spp.		A						
<i>Geum</i> 5spp.		A						
<i>Kerria</i> 1sp.		A						
<i>Malus</i> 4spp.		A						
<i>Osteomeles</i> 1sp.		A						
<i>Osteomeles schwerinae</i> S.K. Schn.	*							
<i>Photinia</i> 3spp.		A						
<i>Potentilla</i> 22spp.		A						
<i>Polygonatum</i> 1sp.		A						
<i>Prunus</i> 16spp.		A						
<i>Pyrus</i> 3spp.		A						
<i>Rhaphiolepis</i> 1sp.		A						
<i>Rhodotypos</i> 1sp.		A						
<i>Rosa</i> 14spp.		A						
<i>Rubus amamianus</i> Hatus. et Ohwi		A						
<i>Rubus buergeri</i> Miq.		A						
<i>Rubus chamaemorus</i> L.						A		
<i>Rubus chingii</i> Hu		A						
<i>Rubus corchorifolius</i> L. fil.		A						
<i>Rubus crataegifolius</i> Bunge		A						
<i>Rubus croceacanthus</i> Lév.		A						
<i>Rubus grayanus</i> Maxim.		A						

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Rubus hakonensis</i> Franch. et Savat.	A							
<i>Rubus hatsushima</i> Koidz.	A							
<i>Rubus hirsutus</i> Thunb.	A							
<i>Rubus ikenoensis</i> Lév. et Van.	A							
<i>Rubus illecebrosus</i> Focke	A							
<i>Rubus koehneanus</i> Focke	A							
<i>Rubus lambertianus</i> Seringe	A							
<i>Rubus matsumuranus</i> Lév. et Van.	A							
<i>Rubus mesogaeus</i> Focke	A							
<i>Rubus microphyllus</i> L. fil.	A							
<i>Rubus minusculus</i> Lév. et Van.	A							
<i>Rubus palmatus</i> Thunb.	A							
<i>Rubus parvifolius</i> L.	A							
<i>Rubus pectinellus</i> Maxim.	A							
<i>Rubus pedatus</i> Smith	A							
<i>Rubus peltatus</i> Maxim.	A							
<i>Rubus phoenicolasius</i> Maxim.	A							
<i>Rubus pseudo-acer</i> Makino	A							
<i>Rubus pseudo-japonicus</i> Koidz.	A							
<i>Rubus pseudo-sieboldii</i> Makino	A							
<i>Rubus pugens</i> Cambessedes var. <i>oldhamii</i> (Miq.) Maxim.	A							
<i>Rubus ribisoideus</i> Matsum.	A							
<i>Rubus sieboldii</i> Bl.	A							
<i>Rubus sumatranus</i> Miq.	A							
<i>Rubus swinhoei</i> Hance	A							
<i>Rubus trifidus</i> Thunb.	A							
<i>Rubus tuyamae</i> Hatus.	A							
<i>Rubus vernus</i> Focke	A							
<i>Rubus yabei</i> Lév. et Van.	A							
<i>Rubus yoshinoi</i> Koidz.	A							
<i>Sanguisorba</i> 7spp.	A							
<i>Sibbaldia</i> 1sp.	A							
<i>Sorbaria</i> 1sp.	A							
<i>Sorbus</i> 6spp.	A							
<i>Spiraea</i> 10spp.	A							
<i>Stephanandra</i> 2spp.	A							
<i>Waldsteinia</i> 1sp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Fabaceae								
<i>Aeschynomene</i> 1sp.	A							
<i>Albizia</i> 3spp.	A							
<i>Alysicarpus</i> 1sp.	A							
<i>Amphicarpa</i> 1sp.	A							
<i>Apios</i> 1sp.	A							
<i>Archidendron lucidum</i> (Benth.) I. Nielsen	*							
<i>Astragalus</i> 8spp.	A							
<i>Atylosia</i> 1sp.	A							
<i>Bauhinia</i> 1sp.	A							
<i>Caesalpinia</i> 4spp.	A							
<i>Canavalia</i> 3spp.	A							
<i>Cassia</i> 1sp.	A							
<i>Christia</i> 1sp.	A							
<i>Cladrastis</i> 2spp.	A							
<i>Crotalaria</i> 3spp.	A							
<i>Dalbergia</i> 1sp.	A							
<i>Dendrolobium</i> 1sp.	A							
<i>Derris</i> 1sp.	A							
<i>Desmodium</i> 9spp.	A							
<i>Dumasia</i> 1sp.	A							
<i>Dunbaria</i> 2spp.	A							
<i>Entada phaseoloides</i> (L.) Merr.								A
<i>Euchresta</i> 2spp.	A							
<i>Flemingia prostrata</i> Roxb.	*							
<i>Flemingia strobilifera</i> (L.) Ait.	*							
<i>Galactia</i> 1sp.	A							
<i>Gleditsia japonica</i> Miq.								B
<i>Glycine</i> 3spp.	A							
<i>Hedysarum</i> 2spp.	A							
<i>Indigofera</i> 5spp.	A							
<i>Intsia</i> 1sp.	A							
<i>Lathyrus</i> 4spp.	A							
<i>Lespedeza</i> 13spp.	A							
<i>Lotus</i> 2spp.	A							
<i>Maackia</i> 3spp.	A							
<i>Millettia</i> 1sp.	A							
<i>Mucuna</i> 4spp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Ornocarpum 1sp.	A							
Oxytropis 5spp.	A							
Phyllodium pulchellum (L.) Benth.	*							
Pongamia 1sp.	A							
Pterocarpus 1sp.	A							
Pueraria 2spp.	A							
Pycnospora 1sp.	A							
Rhynchosia 2spp.	A							
Rhynchosia minima (L.) DC.	*							
Smithia 1sp.	A							
Sophora 3spp.	A							
Tadehagi triquetrum (L.) Ohashi	*							
Thermopsis 2spp.	A							
Trifolium 1sp.	A							
Uraria 3spp.	A							
Vicia 13spp.	A							
Vigna 8spp.	A							
Wisteria 2spp.	A							
Zornia 1sp.	A							
Podostemaceae								
Cladopus 3spp.	A							
Hydrobryum 3spp.	A							
Oxalidaceae								
Oxalis 6spp.	A							
Geraniaceae								
Geranium 12spp.	A							
Zygophyllaceae								
Tribulus 1sp.	A							
Linaceae								
Linum 1sp.	A							
Euphorbiaceae								
Acalypha 2spp.			A					
Alchornea 1sp.						A		
Antidesma 2spp.						A		
Bischofia 1sp.						A		
Breynia 2spp.			A					
Bridelia 1sp.			A					
Claoxylon 1sp.						A		

	CH	CM	CA	CG	DD	DA	DG	PM
Croton 1sp.		A						
Discocladion 1sp.						A		
Drypetes 2spp.						A		
Euphorbia 17spp.		A						
Excoecaria agallocha L.						A		
Excoecaria formosana Hayata var. daitoinsularis (Hatus.) Hatus.		A						
Glochidion acuminatum Muell. Arg.		A						
Glochidion lanceolatum Hayata	*							
Glochidion obovatum Sieb. et Zucc.							B	
Glochidion puberum Hutchinson	*							
Glochidion rubrum Bl.	*							
Glochidion zeylanicum (Gaertn.) A. Juss.		A						
Macaranga 1sp.						A		
Mallotus japonicus (Thunb.) Muell.-Arg.						A		
Mallotus paniculatus Muell.-Arg.		A						
Mallotus philippensis Muell.-Arg.						A		
Margaritaria 1sp.		A						
Melanolepis multiglandulosa Reichb. et Zoll.	*							
Mercurialis leiocarpa Sieb. et Zucc.							C	
Phyllanthus flexuosus (Sieb. et Zucc.) Muell.							B	
Phyllanthus leptoclados Benth.	A							
Phyllanthus matsumurae Hayata	A							
Phyllanthus urinaria L.	A							
Phyllanthus virgatus Forst. fil.	A							
Sapium 1sp.	A							
Securinega 1sp.						A		
Daphniphyllaceae								
Daphniphyllum 2spp.						A		
Rutaceae								
Boenninghausenia 1sp.	A							
Boninia 2spp.	A							
Citrus 2spp.	A							
Euodia 1sp.						A		
Euodia nishimurae Koidz.	*							
Glycosmis 1sp.	A							
Melicope triphylla (Lam.) Merr.	*							
Murraya 1sp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Orixa 1sp.					A			
Phellodendron 1sp.					A			
Skimmia japonica Thunb.							B	
Toddalia 1sp.					A			
Zanthoxylum ailanthoides Sieb. et Zucc.							B	
Zanthoxylum amamiense Ohwi					A			
Zanthoxylum armatum Roxb. var. subtrifoliatum DC.					A			
Zanthoxylum beecheyanum K. Koch					A			
Zanthoxylum nitidum (Roxb.) DC.					A			
Zanthoxylum piperitum (L.) DC.					A			
Zanthoxylum scandens Bl.					A			
Zanthoxylum schinifolium Sieb. et Zucc.							B	
Zanthoxylum yakumontanum (Sugimoto) Nagamasu					A			
Simaroubaceae								
Picrasma 1sp.					A			
Meliaceae								
Melia 1sp.					A			
Malpighiaceae								
Hiptage 1sp.					A			
Rysopterys 1sp.						A		
Tristellateia 1sp.					A			
Polygalaceae								
Polygala 5spp.					A			
Salomonia 1sp.					A			
Coriariaceae								
Coriaria 1sp.						A		
Anacardiaceae								
Choerospondias 1sp.						A		
Rhus 5spp.						A		
Aceraceae								
Acer argutum Maxim.						A		
Acer anoenum Carr.					A			
Acer australe Momotani						A		
Acer capillipes Maxim.						A		
Acer carpinifolium Sieb. et Zucc.						A		
Acer cissifolium (Sieb. et Zucc.) K. Koch						A		
Acer crataegifolium Sieb. et Zucc.						A		
Acer diabolicum Bl. ex K. Koch						A		

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Ilex buergeri</i> Miq.					A			
<i>Ilex chinensis</i> Sims							B	
<i>Ilex crenata</i> Thunb.					A			
<i>Ilex dimorphophylla</i> Koidz.					A			
<i>Ilex geniculata</i> Maxim.					A			
<i>Ilex goshiensis</i> Hayata					A			
<i>Ilex integra</i> Thunb.					A			
<i>Ilex kusanoi</i> Hayata					A			
<i>Ilex latifolia</i> Thunb.					A			
<i>Ilex leucoclada</i> (Maxim.) Makino					A			
<i>Ilex liukiuensis</i> Loes.					A			
<i>Ilex macrocarpa</i> Oliver					A			
<i>Ilex macropoda</i> Miq.					A			
<i>Ilex matanoana</i> Makino					A			
<i>Ilex maximowicziana</i> Koidz.					A			
<i>Ilex mertensii</i> Maxim.					A			
<i>Ilex micrococca</i> Maxim.					A			
<i>Ilex nipponica</i> Makino					A			
<i>Ilex pedunculosa</i> Miq.					A			
<i>Ilex rotunda</i> Thunb.					A			
<i>Ilex rugosa</i> Fr. Schm. var. <i>hondensis</i> Yamazaki					A			
<i>Ilex serrata</i> Thunb.					A			
<i>Ilex sugerokii</i> Maxim. var. <i>brevipedunculata</i> (Maxim.) S. Y. Hu					A			
<i>Ilex warburgii</i> Loesn.					A			
Celastraceae								
<i>Celastrus flagellaris</i> Rupr.								B
<i>Celastrus kusanoi</i> Hayata					A			
<i>Celastrus orbiculatus</i> Thunb.								B
<i>Celastrus punctatus</i> Thunb.					A			
<i>Celastrus stephanotifolius</i> (Makino) Makino								B
<i>Euonymus alatus</i> (Thunb.) Sieb.	A							
<i>Euonymus boninensis</i> Koidz.	A							
<i>Euonymus chibai</i> Makino	A							
<i>Euonymus fortunei</i> (Turcz.) Hand.-Mazz.	A							
<i>Euonymus japonicus</i> Thunb.	A							
<i>Euonymus lanceolatus</i> Yatabe	A							
<i>Euonymus lutchuensis</i> T. Ito								B
<i>Euonymus macropterus</i> Rupr.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Euonymus melananthus</i> Franch. et Savat.	A							
<i>Euonymus oligospermus</i> Ohwi	A							
<i>Euonymus oxyphyllus</i> Miq.	A							
<i>Euonymus planipes</i> (Koehne) Koehne	A							
<i>Euonymus sieboldianus</i> Bl.	A							
<i>Euonymus tanakae</i> Maxim.	A							
<i>Euonymus tashiroi</i> Masam.	A							
<i>Euonymus tricarpus</i> Koidz.	A							
<i>Euonymus trichocarpus</i> Hayata	A							
<i>Euonymus yakushimensis</i> Makino	A							
<i>Maytenus</i> 1sp.	A							
<i>Microtropis</i> 1sp.					A			
<i>Tripterygium doianum</i> Ohwi							B	
<i>Tripterygium regelii</i> Sprague et Takeda							B	
Staphyleaceae								
<i>Euscaphis</i> 1sp.	A							
<i>Staphylea</i> 1sp.	A							
<i>Turpinia</i> 1sp.	A							
Buxaceae								
<i>Buxus liukiuensis</i> Makino			A					
<i>Buxus microphylla</i> Sieb. et Zucc.							B	
<i>Pachysandra</i> 1sp.			A					
Icacinaceae								
<i>Hosiea japonica</i> (Makino) Makino							B	
<i>Nothapodytes</i> 1sp.			A					
Rhamnaceae								
<i>Berchemia</i> 5spp.			A					
<i>Berchemiella</i> 1sp.			A					
<i>Colubria</i> 1sp.			A					
<i>Hovenia</i> 2spp.			A					
<i>Paliurus</i> 1sp.			A					
<i>Rhamnella</i> 1sp.			A					
<i>Rhamnus calicicola</i> Hatus.	*							
<i>Rhamnus chugokuensis</i> Hatus.	*							
<i>Rhamnus costata</i> Maxim.						A		
<i>Rhamnus crenata</i> (Sieb. et Zucc.) Miq.			A					
<i>Rhamnus davurica</i> Pall. var. <i>nipponica</i> Makino						A		
<i>Rhamnus ishidiae</i> Miyabe et Kudo						A		

	CH	CM	CA	CG	DD	DA	DG	PM
Sonneratia alba J. Smith								B
Lecythidaceae								
Barringtonia 2spp.	A							
Melastomataceae								
Blastus 1sp.	A							
Bredia 3spp.	A							
Melastoma 2spp.	A							
Osbeckia 1sp.	A							
Rhizophoraceae								
Bruguiera 1sp.	A							
Kandelia 1sp.	A							
Rhizophora 1sp.	A							
Combretaceae								
Lumnitzera racemosa (Willd.) Willd.	*							
Terminalia catappa L.								A
Terminalia nitens Presl.	*							
Onagraceae								
Chamaenerion 1sp.	A							
Circaeaa 5spp.	A							
Epilobium 13spp.	A							
Ludwigia 5spp.	A							
Haloragaceae								
Haloragis 1sp.	A							
Haloragis walkeri Ohwi	*							
Myriophyllum oguraense Miki		A						
Myriophyllum spicatum L.		A						
Myriophyllum ussuriense (Regel) Maxim.						A		
Myriophyllum verticillatum L.		A						
Theligonaceae								
Theligonum 1sp.		A						
Hippuridaceae								
Hippuris 1sp.	A							
Alangiaceae								
Alangium 2spp.		A						
Cornaceae								
Aucuba 1sp.						A		
Benthamidia 1sp.		A						
Chamaepericlymenum 2spp.		A						

	CH	CM	CA	CG	DD	DA	DG	PM
<i>Helwingia</i> 1sp.					A			
<i>Swida</i> 2spp.	A							
Araliaceae								
<i>Acanthopanax divaricatus</i> (Sieb. et Zucc.) See.							B	
<i>Acanthopanax hypoleucus</i> Makino							A	
<i>Acanthopanax japonicus</i> Franch. et Savat.							B	
<i>Acanthopanax sciadophylloides</i> Franch. et Savat.							A	
<i>Acanthopanax senticosus</i> (Rupr. et Maxim.) Harms							B	
<i>Acanthopanax spinosus</i> (L. fil.) Miq.							B	
<i>Acanthopanax trichodon</i> Franch. et Savat.							B	
<i>Aralia bipinnata</i> Blanco	A							
<i>Aralia cordata</i> Thunb.							B	
<i>Aralia elata</i> (Miq.) Seemann							B	
<i>Aralia glabra</i> Matsum.							A	
<i>Dendropanax trifidus</i> (Thunb.) Makino							A	
<i>Evodiopanax innovans</i> (Sieb. et Zucc.) Nakai							B	
<i>Fatsia japonica</i> (Thunb.) Decne. et Planch.							B	
<i>Fatsia oligocarpela</i> Koidz.	*							
<i>Hedera</i> 1sp.	A							
<i>Kalopanax</i> 1sp.	A							
<i>Oplopanax japonicus</i> (Nakai) Nakai							B	
<i>Panax</i> 1sp.	C							
<i>Schefflera</i> 1sp.	A							
Apiaceae								
<i>Aegopodium</i> 1sp.	A							
<i>Angelica</i> 22spp.	A							
<i>Anthriscus</i> 1sp.			C					
<i>Apodicarpum</i> 1sp.	A							
<i>Bupleurum</i> 4spp.	A							
<i>Centella</i> 1sp.	A							
<i>Chamaele</i> 1sp.	A							
<i>Cicuta</i> 1sp.	A							
<i>Cnidium</i> 1sp.	A							
<i>Coelopleurum</i> 2spp.	A							
<i>Conioselinum</i> 2spp.	A							
<i>Cryptotaenia</i> 1sp.	A							
<i>Dystaenia</i> 1sp.	A							
<i>Glehnia</i> 1sp.	A							

	CH	CM	CA	CG	DD	DA	DG	PM
Heracleum 3spp.			C					
Hydrocotyle 7spp.	A							
Ligusticum 1sp.	A							
Oenanthe javanica (Bl.) DC.							B	
Osmorhiza 1sp.			C					
Ostericum 2spp.	A							
Peucedanum 3spp.	A							
Pimpinella 3spp.	A							
Pleurospermum 1sp.	A							
Pternopetalum 1sp.	A							
Pterygopleurum 1sp.	A							
Sanicula chinensis Bunge							B	
Sanicula kaiensis Makino et Hisauchi							B	
Sanicula lamelligera Hance							B	
Sanicula rubriflora Fr. Schm.							B	
Sanicula tuberculata Maxim.							B	
Seseli 1sp.	A							
Sium 3spp.	A							
Spuriopimpinella 2spp.	A							
Tilingia 3spp.	A							
Torilis 2spp.			C					