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STUDIES IN LANDSCAPE DYNAMICS IN THE COOLOOLA-NOOSA RIVER AREA, QUEENSLAND. 5. Vascular plants.

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Abstract

This report presents a listing of 865 species and 5 subspecies of plants recorded in the Cooloola-Noosa River area up to 31 December 1986. All the species listed have been identified by the Queensland Herbarium and their occurrence within the area verified by one of the authors. The general distribution of plant species within the area is indicated on the species list and referenced to an accompanying map. The local distribution units used on the map are based on the physiographic features and soil landscapes previously described in the area. Also, there are short notes on the local distribution units, previous botanical surveys, local phytogeography, and alien, rare and endangered plant species.

The publication is intended to serve as a verified botanical reference for reporting soil and vegetation studies in the Cooloola sand dunes, and as a general reference to plant occurrence and distribution in the Cooloola National Park and Womalah State Forest.

INTRODUCTION

This report is one of a series that provide results and data derived from the CSIRO Division of Soils research in landscape dynamics of vegetated coastal dunes in the Cooloola-Noosa River Area, Queensland (Thompson and Moore 1984). It presents a comprehensive listing of plant species recorded in the area to 31 December 1986, plus those recorded in a small extension north and west of the mouth of Kin Kin Creek, in order to coincide with the present National Park boundary there. Also, the general distribution of plants in the area is indicated and there are short notes on the local distribution units used, previous botanical surveys, local phytogeography, alien and rare and endangered species.

The Cooloola-Noosa River Area occupies about 62 000 ha including the eastern and upper western catchments of the Noosa River and the coastal area between Noosa Heads and Inskip

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Point, some 120-180 km north of Brisbane (Thompson and Moore 1984). It comprises the Cooloola sandmass of large overlapping dune systems, the low hilly promontory of Double Island Point, strandplains and coastal plains, the sandstone hills and riverine plains of the upper Noosa River catchment and a number of freshwater and tidal lakes. The climate is coastal subtropical with hot, moist summers and mild, drier winters; mean annual rainfalls within the area probably vary between 1200 and 1600mm (Thompson and Moore 1984). A large number of plant species occur in the area in a variety of vegetation types ranging from sedgelands and heaths, through low shrubby woodlands, layered woodlands and open forests, to extremely tall forests and rainforests.

The logging of native timbers, the main commercial use, began in the 1870s with uncontrolled logging of native conifers, cabinet timbers and hardwoods on the Cooloola sandmass. In 1925, most of the area became a State Forest Reserve (S.F. 451) and logging has since been controlled by the Queensland Department of Forestry. Large parts of the sandmass and adjacent coastal plains were proclaimed as National Park in 1975, and the western catchment of the upper Noosa River has recently been added to this; only the central high dunes of the Cooloola sandmass remain as State Forest and are still logged for hardwoods. Prior to 1975, cattle and horses were run in parts of the area, on native pastures at low stocking rates. Also, part of the strandplain north of Rainbow Beach was dredged for heavy minerals (1966-72) and revegetated using a mixture of native plants dominated by *Acacia* species.

A species list for the area compiled by the senior author (AGH) forms the initial basis of this report. It was derived from records of plants in the general area prior to 1971 and verified and added to by observations and specimen collections in non-rainforest areas, on the sand dunes and coastal plains (1971-74), and in the grassy woodlands and open forests of the western catchment of the upper Noosa River and Tin Can Inlet areas (1974-75). This list has been substantially added to since 1977 from species recorded during CSIRO soil/vegetation studies at some 210 sites in the sand dunes and 40 sites elsewhere, from species recorded during vegetation mapping by Queensland National Parks and Wildlife Service (Sandercoe 1986), and from Queensland Herbarium records of plants submitted for identification.

This publication is intended to meet two needs; firstly as a verified botanical reference for reporting research in soil and vegetation relationships in the Cooloola sandmass, and secondly as a reliable, general reference to plant occurrence and distribution in the Cooloola National Park and Womalah State Forest.

PLANTS AND THE COOLOOLA SAND DUNES

Vegetation has played an important role in stabilizing and protecting the episodic accumulations of sand which comprise the Cooloola sandmass. Although the initial deposits of sand may well have begun as sandbars or spits adjacent to headlands or near-shore islands during periods of relatively high sea level, persistence of the deposits during low sea levels depended on plant cover to protect them from dissipation by wind or rain. Without such protection, strong onshore winds would have driven any bare sand further inland across the Noosa Plain into the sandstone hills.

Evidence of the presence of vegetation throughout the development of this sandmass is provided by plant remains in different stratigraphic beds at various localities. Fragments of *Banksia integrifolia, Casuarina glauca* and two mangroves (*Ceriops* sp. and *Aegiceras* sp.) were recovered from depths of 30-37 m below present high water mark during a search for oil (Ball 1924). Their presence in unconsolidated sandy sediments was interpreted by Ball as indicating an estuarine environment, which presumably had been invaded by mobile dunes. Tree-trunks and pieces of wood have also been found imbedded in sandy deposits at heights near that of present sea level. These include a mangrove (*Ceriops* sp.) and a native conifer (*Podocarpus* sp.) in a brown coal band in the intertidal zone, south of Kings Bore (Ball 1924, Coaldrake 1961), myrtaceous wood in sandrock at Rainbow Beach (Coaldrake 1961), and a log and fragments of at least twelve plant species in sands of the Noosa Plain (Thompson and Polach unpublished data). Radiocarbon dates show that all are of Pleistocene age and that the wood samples are older than 40 000 years.

Additional evidence of the presence of vegetation in the history of the sandmass is provided by the five youngest dune systems which have U- or V-shapes (parabolic forms) open to the onshore winds. Such dune forms could develop on a large scale only as sand was blown into vegetated areas or as blow-out dunes within vegetated areas. The development of such dune forms in successive periods of dune-building and their persistence to the present is clear evidence that the Cooloola dunes carried vegetation throughout the last glaciation and probably at least since the last interglacial, some 120 000 years ago (Thompson 1981, 1983, Walker *et al.* 1981). Further proof of continuing vegetation cover over much of the area throughout the late Pleistocene and Holocene is provided by the widespread persistence of giant *podzol* profiles on many of the high exposed dune ridges; without such protection these surely would have been destroyed by the wind (Thompson and Moore 1984, Picket *et al.* 1985).

The vegetation cover is no less important today and protects the sand dunes from dissipation. Wherever the vegetation cover is destroyed, the wind rapidly deflates the exposed areas forming small, elongated or scallop-shaped blow-out dunes along the coastal margin. Elsewhere, erosion rates due to raindrop splash and local wash are largely determined by the amount of cover on the soil surface provided by grasses, low herbaceous plants and litter from all species (Bridge and Ross 1983, Bridge *et al.* 1985). Also, vegetation is essential for the development of soils on the sand dunes because it provides organic substrate for microbes and soil animals, and contributes organic compounds to the developing *podzols* (Thompson 1983, Thompson and Moore 1984).

Apart from the andesites forming the headland of Double Island Point, all of the soil parent materials contain few weatherable minerals and therefore have a very low potential to provide nutrients for plant growth. Many of the plants have symbiotic relationships or specialized structures that assist the acquisition or storage of particular nutrients. These include a large number of nitrogen-fixers, such as acacias, casuarinas and macrozamias (each of these groups obtains atmospheric nitrogen through different symbiotic organisms), plants with specialized means of nutrient transfer (such as the proteoid roots of banksias or the endo- and ecto-mycorrhizal fungal associations of many other plants), and plants that have developed specialized storage organs, such as macrozamias, or allow the gradual accumulation of nutrients, such as lignotubers in eucalypts and particularly the sympodial plate-like forms in *Eucalyptus intermedia* described by Walker *et al.* (1987).

Other strategies for survival in the low-nutrient environment include occupancy of sites with the most favoured nutrient supply, e.g. rainforests in corridors or eroded dune floors. These receive nutrients washed in from higher sites and usually have a water table of "white" waters (Reeve and Fergus 1983) either issuing as springs or within rooting depth (Reeve *et al.* 1985). However, tree growth appears to be restricted or prevented where seasonal water tables containing organic acids ("black" waters) are at or near the surface for long periods during the year, e.g. a large part of the Noosa Plain. Here, trees are restricted to the banks of streams, road drains or sandy fans where the depth to water table is greater (or its duration near the surface is shorter) than on the adjacent open plain.

Along the coastal margins, both the structure and floristics of the vegetation are strongly influenced by the degree of exposure to salt-laden onshore winds or to intense fires initiated near the coast and driven upslope by onshore winds. In some areas, particularly in the high dunes of the Cooloola sandmass, timber-cutting has also changed the structure from open forests to woodlands and has markedly reduced the numbers of some commercial species in the rainforests and their margins, particularly *Agathis, Araucaria, Gmelina* and *Syncarpia*.

PREVIOUS BOTANICAL STUDIES

The Queensland Herbarium records of plants from the Cooloola-Noosa River area come from many sources and begin about 1900. F.H. Kenny, a medical superintendent at Gympie, apparently made a plant collection prior to 1907 from part of the western margin of the area and perhaps near Tin Can Bay, judging from a specimen of *Stylidium debile*, dated November 1906. J. Keys, a teacher at Norman Park State School, Brisbane, collected plants in the vicinity of Lake Cootharaba between 1909 and 1911 (Lebler 1972); of note in this collection is the type specimen of *Boronia keysii*, a rare species endemic to this locality.

During the following decade, W.D. Francis made extensive collections in the rainforests of the adjacent Kin Kin district (Francis 1929) and collected near Lake Cootharaba. C.T. White, Government Botanist, also visited the Kin Kin district (1916-1917) and Tin Can Bay (1943). Mrs. M.S. Clemens spent about seven weeks during 1946 in the Tin Can Bay-Rainbow Beach area and as far south as Lake Poona, making plant collections for various herbaria. In 1954, S.T. Blake and L.S. Smith (Queensland Herbarium) visited the areas around Lakes Cootharaba and Como with the Queensland Naturalists Club and a list of approximately 280 species was compiled.

The Cooloola-Noosa River area was included in a CSIRO Division of Tropical Pastures ecological study of the coastal lowlands of south-east Queensland (Coaldrake 1961). This increased the record of plant species in the area and provided the first information on plant and soil relationships there. The rainforests of Cooloola and Fraser Island were examined by the CSIRO Rainforest Ecology Unit (Webb 1969) and a rainforest species list published for Cooloola (Webb and Tracey 1975). Brief visits to the area that contributed to knowledge of the taxa were also made by V.K. Moriarty, CSIRO Phytochemical Survey, and L.S. Smith, S.L. Everist, and T.J. McDonald of the Queensland Herbarium.

More recently an extensive collection was made of the plants in the area and their local distribution recorded, beginning with the Cooloola sand dunes and Noosa Plain (Harrold 1971), the orchids of the area (A.H. Buzacott pers. comm. 1972), and then in the western catchment of the upper Noosa River (Harrold 1976). During this period, the vegetation of the area was also described in an assessment of localities of significance for nature conservation in the general region (Stanton 1976, 1979), and the occurrence and distribution of mangrove species in Tin Can Inlet were recorded (Dredge *et al.* 1977).

CURRENT BOTANICAL RESEARCH

Vegetation cover is an important component in the dynamics and persistence of most terrestrial landscapes. Identification of plants and reliable description of structural forms of the vegetation are therefore an essential part of research in landscape dynamics. Also, because a general relationship between the type of vegetation and depth of soil development in the coastal dunes was recorded during reconnaissance soil mapping (Thompson 1975), one of the aims of the research programme was to examine and verify this soil plant association and if possible to determine the causal factors. This required a quantified record of the structure and floristics of the vegetation and of soil profile characteristics at a number of sites on equivalent geomorphic components in each dune system. The species list compiled by Harrold (1971-76) served as a reference base for these investigations and was expanded as the work advanced.

The approach used in quantifying the vegetation of the woodlands and open forests followed the method of Walker and Hopkins (1984). For the purpose of examining plant and soil relationships across the dunes, data for structure and floristics were recorded at sample areas of 400 square metres on the various geomorphic components in each dune system. The shape of the individual sampling area was adjusted according to that of the geomorphic component. In addition to the set site sampling, the search for plants was extended along two or three traverses that crossed each geomorphic unit. Data from both types of sampling are used in this report.

Since 1976, data have been collected from some 180 sample sites under woodlands or eucalypt forests on the dunes. The number of species within the 400 square metres sample sites ranged from 4 to 50 with an average of about 25 species per site; the more wide-spread sampling usually increased species numbers by 5 to 10. About 50 of the sites were revisited between 1976 and 1984 and 2 to 5 ephemerals, not previously recorded, were found at each site. Specimens were checked against reference material held by the senior author (AGH) and doubtful identification resolved by submitting specimens to the Queensland Herbarium.

The rainforests were sampled using a multiple nearest neighbours approach, as recommended by Williams *et al.* (1973). At each site, thirty-three contiguous trees (one tree and its thirty-two nearest neighbours) were identified and their diameter at breast height (dbh) measured. Only trees of 20 cm or greater (dbh) were chosen so as to include a wide range of canopy species in the sample (samples based on ≤ 10 cm dbh tend to be dominated by the palm *Archontophoenix cunninghamiana*). Canopy height and the presence of emergents were recorded and the structure of the lower strata described. The species listing included all trees, shrubs, herbs, epiphytes and lianes observed at each site. Thirty-one sites were sampled across the sand dunes to provide data for plant/soil relationship studies. For the present report, this data has been supplemented by observations and records of plant occurrence made during the previous visits to the rainforests of the area, including those west of the Noosa River.

In the Noosa River delta, upstream of Lake Cootharaba, plant occurrence has been recorded at twenty-six sites and supplemented by observations during previous visits.

DISTRIBUTION OF PLANTS

The presence of 865 species and 5 subspecies of plants in the Cooloola-Noosa River area has been verified. Their distribution has been related to the physiographic units and soil

landscapes of the area (Thompson and Moore 1984) and indicated according to local distribution units in the accompanying tables and map. The local distribution units have been numbered 1-10 on the map and subscripted in the text to indicate particular environments within each locality (a, b, c), or as species occurring within patches of rainforest within the locality (r); the larger areas of rainforest are also shown on the map by hatching.

The map should not be regarded as a vegetation map but as a geographic reference to local areas where the species are definitely known to occur in some part. This has been deduced from our detailed vegetation records from the sand dunes and part of the Noosa River delta and from our collections and observations elsewhere. However, apart from the areas adjacent to the

Physiographic Unit	Soil Landscape	Local Distribution	Table and Map Code
Sandstone hills	Como Scarp	Escarpment	1a
	Pertaringa	Low hills	1 b
	Mullens	Stony hills	1c
Riverine and	Nilkan	Noosa Plain	2
coastal plains	Tarangau	Sandy fans and low hills	3a
		Rainforests	Зr
	Noosa River	Upper Noosa River	
		Levees and plains	4a
4 -	Dibing	Lower Noosa River	
		Levees and plains	4b
	Noosa River	Rainforests	4r
Cooloola sandmass	Mundu, Kabali,		
	Yikiman	Western and northern du	nes 5a
		Rainforests	5r
	Chalambar, Burwilla,		
	Warrawonga	Central high dunes	6a
		Rainforests	6r
	Mutyi	Coastal margin of dunes	7a
		Coastal seepage areas a	nd
		berms	7b
Promontory	Double Island Point	Rocky headland	8a
	Bula Kalim	Aeolianite hills	8b
Littoral zone	Pirri	Tin Can Inlet	9a
		Lower Noosa River	9b
Strand plains and	Inskip Point	Beach ridges and swales	10a
foredunes	Smooger Point	Sandy sheets (Tin Can	
		Inlet)	10b
	Tingiri	Foredunes (S of Teewah)	10c

Table 1.	Relationship between physiographic units, soil landscapes and plant distribution
	units recognized in the Cooloola-Noosa River area.

Cooloola sandpatch and the Noosa River downstream of Harry Spring's Hut, we have made no record of plants in the area that was previously the Cooloola Fauna Reserve. Plant distribution localities shown for this area have been arrived at through the extrapolation of soil landscape boundaries using photo-interpretation (Thompson and Moore 1984) and should be viewed with caution.

Additional search in the area is likely to add further species and will show that several are more widely distributed than we have indicated. Brief notes on each local distribution unit are given below; the soil landscape descriptions (Thompson and Moore 1984) should be consulted for greater detail.

Local distribution unit 1 includes the Como Scarp, Pertaringa and Mullens soil landscapes (1a, 1b, 1c), i.e. most of the sandstone hills in the western catchment of the upper Noosa River, upstream of Lake Cootharaba, those east of Carland Creek, and the isolated hills protruding through the coastal plain to the north and east of Lake Cooloola, along the northern shore of Lake Cootharaba and east of Lake Cooroibah. Most of the area consists of low hills with gentle or moderate sideslopes to shallow open valleys but moderate to steep slopes are associated with the higher hills, such as East Mullen and with the erosion scarp. Narrow drainage lines continuous with unit 4a are also included. Elevations are mostly 20 to 60 m with the highest hill (Mt. Elliot) reaching 168 m. Micro-climates range from droughty exposed crests to wet lower hill slopes and drainage heads.

Grassy woodlands and open grassy forests are the dominant vegetation types with some small patches of rainforest. From Tarangau north along the Como Scarp there is a transition from wet sclerophyll forests which include tallow-wood (*Eucalyptus microcorys*) through open forests with blackbutt (*Eucalyptus pilularis*) to the widespread open forests and woodlands in which scribbly gum (*Eucalyptus signata*) is common. The piccabeen palm (*Archontophoenix cunninghamiana*) has been recorded in two of the valley heads where springs issue from the base of the scarp but has not been observed elsewhere in the unit.

Local distribution unit 2 equates with the Nilkan soil landscape which is made up of the Noosa Plain and the open coastal plains to the east of Tin Can Inlet and Lakes Cootharaba and Cooroibah. These plains are flat to gently sloping with weakly defined peaty drainage lines; elevations are generally <10 m but reach 20 m along the western and northern margins of the Noosa Plain. The areas are seasonally wet with perched water tables at or near the surface for long periods following prolonged rain.

The vegetation reflects the drainage status; the greater part is treeless and carries heath <1 m tall with sedgelands along the swampy drainage lines and on mound peats. Low shrubby woodlands grow along the channels of eroded gullies and on some of the locally higher sandy banks.

Local distribution unit 3 represents an undulating area of sandy fans and low convex sandstone hills extending north-west from Lake Como to the Como Scarp, i.e. Tarangau soil landscape. Elevations range from < 20 m to about 50 m at the base of the scarp.

The vegetation varies from tall eucalypt forest (3a) to fairly dense rainforest (3r). Small areas of dense tea tree (*Melaleuca quinquenervia*) forest occur along swampy drainage lines which are narrow extensions of unit 4b.

Local distribution unit 4 comprises the levees, floodplains and effluent channels of the Noosa River and its tributaries upstream of Cooloola 050070 (Map 9545-IV, 1:50 000 series), the delta plain, low-lying eastern margins of Lakes Cootharaba and Cooroibah, and the low floodplain near the river mouth. It includes the NoosaRiver soil landscape (4a) with small patches of rainforest (4r) and the Dibing soil landscape (4b). Elevations range from <1 m to about 20 m in the upper reaches of the Noosa River and Teewah Creek. A large part of the area is swampy and subject to seasonal flooding.

The vegetation varies with the texture of the alluvium, depth to water tables, frequency of river flooding and salinity. Woodlands cover the largest part but there are patches of fringing forest along the river, dense tea tree forests in many of the swampy areas, small areas of sedgelands, and a few patches of rainforest (4r) on sandy banks. Mangroves occur as fringing vegetation as far upstream as the northern end of Lake Cootharaba.

Local distribution unit 5 includes the Mundu, Kabali and Yikiman soil landscapes which together make up the western and northern margins of the Cooloola sandmass. The area consists of strongly degraded dunes, ranging from large sandridges that form much of the western wall of the high dunes (Mundu soil landscape) to broad, whaleback sandhills (Kabali soil landscape), and low gradient sandy fans (Yikiman soil landscape). Thick colluvial aprons that have accumulated during the degradation of the dunes make up the lower and middle slopes of the sandhills. Most of the permanent creeks flowing out of the sandmass to the west or north-west begin in these dunes and derive their water from the lateral seepage of 'coloured' waters and from 'white water' springs which issue in some drainage heads (Reeve *et al.* 1985). Elevations range from 15 to 160 m. The unit includes the 'coloured' water lakes, Cooloomera and Webber Swamp and the unnamed lagoon near Cooloola 058096.

Depth of leached sand to *podzol* B horizon or to water table (coloured waters), and the presence of 'white water' springs appear to determine the type and/or height of vegetation. Shrubby woodlands occupy most of the area; these vary from dwarf forms <3 m tall, where depth of freely-drained leached sand exceeds 20 m, to tall layered woodlands (12-20 m tall), where depth to *podzol* B horizon is about 12 m (Walker *et al.* 1981, Thompson and Walker 1986). Sedgelands, that are really extensions of unit 2, occupy the broader drainage lines and grade into shrubby woodlands towards the drainage heads. Small patches of rainforest (5r) surround the 'white water' springs and extend short distances downstream from them. Small patches of open forest occur in a few areas on steep slopes where the coloured Teewah Sand equivalents (Thompson and Moore 1984) have been exposed by erosion. The development of depauperate, multi-stemmed forms of the bloodwood (*Eucalyptus intermedia*) with large plate-like lignotubers in the area of dwarf woodland is of particular interest, because it probably represents plant adaptation to the extremely low nutrient status (Walker *et al.* 1987).

Local distribution unit 6 represents the main area of high dunes in the Cooloola sandmass, i.e. the Chalambar, Burwilla and Warrawonga soil landscapes. The unit consists of three systems of large parabolic dunes varying from 1 to 6 km in length and extending to 7 km inland; elevations range 30 to 250 m and local relief <15 to >60 m between trailing arm crests and dune floors. Each parabolic dune consists of primary (aeolian) features, such as trailing arms and dune floors, and secondary (degradation) features, such as gullies and fans (Thompson 1983). Each of these features has different soil water and erosion regimes and a different stage of soil development;

collectively these influence the development of vegetation within dune systems (Walker and Thompson in prep.) and between dune systems (Walker *et al.* 1981, Thompson and Walker 1986). Also many of the dune floors, particularly in the Warrawonga soil landscape, have been eroded down close to the 'white' water table, or to pans that have restricted drainage, leading to perched 'coloured' waters at or above the surface. The dune lakes, Poona, Freshwater, and Broutha Waterhole are in this unit.

The vegetation varies with the depth of leached soil to *podzol* B horizon, the age of the dune system, the depth to 'white' or 'coloured' water tables and the permanency of the latter. Freely-drained sites carry forests, tall to extremely tall layered woodlands, grassy open forests or extremely tall open forests. Rainforests (6r) occupy the dune floors of much of the Warrawonga soil landscape where water tables are within rooting depth; small patches of rainforest also occur at a few sites on dune floors in the other two soil landscapes. Tea tree (*Melaleuca quinquenervia*) occurs around the lake margins and as thickets in a few small swampy areas.

Most of the logging in the Cooloola sandmass has been in these high dunes; it has markedly reduced the numbers of some species, e.g. satinay (*Syncarpia hillii*), white beech (*Gmelina leichhardtii*) and kauri pine (*Agathis robusta*) in the rainforests and their margins, and has probably changed the structure of open forests to layered woodlands through the removal of blackbutt (*Eucalyptus pilularis*) in some areas.

Local distribution unit 7 is provided for the coastal margin of the Cooloola sandmass and equates with the Mutyi soil landscape. This is a highly variable unit that includes the seacliffs, badland canyons, sandridge bluffs, the mobile or vegetated dunes of the youngest system (including both the Cooloola Sandpatch and Carlo mobile dune), coastal seepage areas, minor remnants of foredunes and transient berms. Most of the area is exposed to salt-laden, onshore winds and has experienced wild fires driven in from the coast.

The degree of exposure to salt-laden winds, frequency and severity of wild fires, differences in soil materials, the state of plant succession on young dunes, remnants of foredunes and berms, and the occurrence of seepage areas appear to be the main determinants of the type and height of the vegetation. Most of the area carries coastal shrubby woodlands or heath but there are sizeable patches of shrublands. Small patches of low forest occur in niches that are largely protected from wind and fire. The coastal seepage areas and remnants of foredunes and berms (7a) support fringing layered woodlands, grassy woodlands and grasslands, respectively.

Most of the trees and shrubs, other than the coast banksia (*Banksia integrifolia* var. *integrifolia*) and the horsetail oak (*Casuarina equisetifolia* var. *incana*), have been deformed by wind; wind hedging behind these two species is a common feature. Also there is much evidence of the effects of fire, such as stem scars, multi-stem development in the bloodwood (*Eucalyptus intermedia*) and brush box (*Lophostemon confertus*), an absence of old trees and dead wood, even age stands as indicated by size of tree stems, and dense patches of shrubs dominated by *Acacia* spp..

Local distribution unit 8 takes in the rocky headland, rounded hills and young low dunes that together make up the promontory at Double Island Point. This includes the Double Island Point soil landscape (8a) of the rocky headland (andesite) with in places a veneer of aeolian sands, the Bula Kalim soil landscape (8b) covering the three low hills with aeolianite outcrops on their lower slopes, and the mobile and vegetated young dunes that have advanced across the lower parts of

the promontory.

The dominant vegetation type in both 8a and 8b is woodland but the species vary with the different soil materials and degree of exposure. Small patches of grassland (*Spinifex sericeus*) and in places blady grass (*Imperata cylindrica*) have colonized some of the young dunes.

Local distribution unit 9 is provided for the littoral zone along the southern shore of Tin Can Inlet (9a) and along the lower Noosa River (9b).

Various mangrove species occur as fringing woodlands through most of the area, although there are small patches of mangrove forests and in places dense seedlings form small areas of shrubland.

Local distribution unit 10 comprises the beach ridges and swales of the strand plain north of Rainbow Beach (10a - Inskip Point soil landscape), the sandy sheets and low sandy banks along the southern margin of Tin Can Inlet (10b - Smooger Point soil landscape), and the narrow belt of foredunes between Teewah Village and the mouth of the Noosa River (10c - Tingirri soil landscape). Elevations range from <1 to about 8 m, and watertables are close to the surface at all lower sites. Parts of the Inskip Point and Tingiri soil landscapes have been dredged for heavy minerals and revegetated using native species.

The vegetation varies with the degree of coastal exposure, depth to water table, frequency and intensity of wild fires, and species used in revegetation following mining. The natural vegetation on 10a grades from woodlands at the coast to eucalypt forest about 0.5 km inland, and patches of tea-tree forest occupy the wetter areas; the revegetated mined areas carry woodlands dominated by *Acacia* spp.. Woodlands occur on 10b and have a dense understorey of *Acacia* and rainforest species in some areas. The foredunes of 10c support woodlands of coast banksia and horsetail oak; the mined areas on 10c have also been revegetated with these two species.

A number of alien species have been introduced to the mined areas. Of these, bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata*) is a potential menace in the Inskip Point area, and groundsel (*Baccharis halimifolia*) is distributed through the two mined areas and along the coastal margins generally.

PLANT SPECIES

The plant species list (Appendix) is arranged under the four main groups of vascular plants:- Pteridophytes, Gymnosperms, Dicotyledons and Monocotyledons. Within these, the families and their genera and species are listed alphabetically. The nomenclature generally conforms with that adopted for the "Flora of South-eastern Queensland" (Stanley and Ross 1983, 1986). The author abbreviations follow the "Draft Index of Author Abbreviations Compiled at the Herbarium, Royal Botanic Gardens, Kew."

PHYTOGEOGRAPHY

This section deals with some of the geographical relationships of the flora and vegetation of Cooloola-Noosa River area. The only previous published comparison of the plants and plant communities of the coastal sandmasses of southern Queensland is that of Blake (1968), but Cooloola was excluded from this discussion, presumably because of a lack of knowledge of its flora.

The affinities of the plant communities in the coastal lowland of the Moreton Region have

been reviewed (McDonald and Elsol 1984) and they may be regarded as part of a series of closely related communities which extend from the Bundaberg district to the Hunter River valley. Many species, particularly those in the heath and forest communities, occur throughout this latitudinal range.

These trends are illustrated by a consideration of the (non-rainforest) species which are at their known limits of distribution at Cooloola (Table 2). Excluding the three local species (*Boronia keysii*, *Glycine argyrea* and *Macarthuria complanata*) most are at their northerly limit (15 species), as opposed to 6 species at or near their southern limit. Of the latter, 3 have a relatively narrow geographic range extending no further north than Bundaberg. A further 40 of the species

Species	Loca Distri	l ibutic	on Unit	L ۲ (۱	in N	nit S)	Comment
Acacia leiocalyx							
subsp. herveyensis		1b,	6a			S	
Aegialitis annulata		9a		5	S		
Angophora woodsiana	1c,	5а,	6a	1	N		
Baeckea imbricata		2,	4a .	1	Ν		
Boronia keysii		За,	3r	1	N	S	Endemic to Kin Kin Creek /Lake Cootharaba area
B. rivularis		1b,	4a			S	
Brachyloma scortechinii		5a		I	Ν		
Chorizandra sphaerocephala		2		1	Ν		
Comesperma hispidulum		1b,	10b	1	Ν		
Dillwynia glaberrima		2		1	Ν		
Durringtonia paludosa		4a,	4b		Ν		
Eleocharis tetraquetra		1a			Ν		
Glycine argyrea		6a		l	N	S	Endemic to Cooloola/Noosa area
Livistona decipiens		10a	, 10b			S	
Macarthuria complanata		5a			N	(S)	Endemic to Cooloola/Noosa area
Micromyrtus leptocalyx		2,	4a	-		S	(coastal range only; also occurs in inland areas)
Osbornea octodonta		9a				S	
Oxylobium robustum		1a,	6a		Ν		
Ptilanthelium deustum		1b,	1c		Ν		
Restio complanatus	2,	4a,	4b		Ν		
Schoenus scabripes		2,	4a		Ν		
Sphaerolobium vimineum		4a			Ν		(coastal range only)
Viminaria juncea		4b			Ν		

 Table 2.
 Plant species at the limits of their range in the Cooloola-Noosa River area, excluding rainforest species (after McDonald and Elsol 1984)

recorded for Cooloola reach their northern limit on Fraser Island (McDonald and Elsol 1984).

Species checklists have been compiled for Moreton Island (Durrington 1977), North Stradbroke Island (Clifford and Specht 1979) and Fraser Island (G. Applegate, unpublished). Similarity measures, using Sorensen's Index (Mueller-Dombois and Ellenberg 1974) between these floras and that of the Cooloola sandmass (i.e. excluding those species recorded only in the western catchment of the upper Noosa River) are presented in Table 3. Because it is likely that the lists of monocotyledons (i.e. grasses, sedges and lilies) are incomplete, a second series of similarities has been calculated using only the dicotyledonous species. In fact the differences

	Fraser Island	Moreton Island	N. Stradbroke Island	Moreton Island plus N. Stradbroke Island
All species				
Totals (Cooloola total)* No. shared with Cooloola Similarity Index	618 (603) 428 70	409 (603) 295 58	450 (603) 315 60	535 (603) 370 65
Dicotyledons only				
Totals (Cooloola total) No. shared with Cooloola Similarity Index	398 (343) 259 70	239 (343) 170 58	247 (343) 175 59	299 (343) 208 65

Table 3. Comparison of noras in the major sandmass areas of south-eastern Queensian	Table 3.	Comparison of floras in the major sa	andmass areas of south-eastern Queensland
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* not including species in the western catchment of Noosa River.

between the two groups of similarities are insignificant (Table 3).

Some of the major floristic difference between Cooloola/Fraser Island and Moreton/North Stradbroke Island are indicated in Table 4.

In a floristic analysis of Australian rainforests, Webb *et al.* (1984) placed the Cooloola and Fraser Island rainforests in their A1 floristic province. The floras are very closely related with a similarity index exceeding 75%.

These rainforests have marked affinities with a series of so-called "littoral" rainforests from the Gold Coast south along the northern coast of New South Wales (Webb *et al.* 1984). Species characterising the Cooloola-Fraser Island rainforests include *Agathis robusta, Archidendron lovelliae, Arytera lautereriana, Backhousia citriodora, Canarium australasicum, Cinnamomum baileyanum, Cryptocarya* sp. aff. *C. cunninghamii, Elaeocarpus eumundi, Guioa acutifolia, Rhodamnia acuminata* and *Schizomeria ovata*. There are also structural and floristic links with the rainforests on other relatively infertile substrates (e.g. metasediments and acid volcanics) of the Blackall and Conondale Ranges (Young and McDonald 1984).

Several rainforest species which are at or near their southern limit of distribution at Cooloola are widespread in northern Queensland. They include the trees Emmenosperma cunninghamii, Guioa acutifolia, Pittosporum venulosum, Polyscias australiana, Rapanea porosa and Syzygium johnsonii, the climber Freycinetia scandens and the sedge Cyperus pedunculosus.

Species	Cooloola/ Fraser Island	Moreton/ N. Stradbroke Island	Comments
Acacia flavescens	+		
A. leiocalyx subsp.			. *
herveyensis	+		Not recorded Fraser Island
A. sophorae		+	
Boronia parviflora		· +	Not recorded Moreton Island
B. rivularis	+		
B. safrolifera		+	Not recorded Moreton Island
Carex fascicularis		+	North Stradroke Island only
Eriachne rara	+		, ,
Eriostemon australasiu	S		
subsp. australasius	· • +		
E. myoporoides			
subsp. queenslandicu	s +		Not recorded Fraser Island
Eucalyptus planchonia	na	+	
Glycine argyrea	· +		Cooloola only
Gompholobium virgatu	m	•	•
var. emarginatum	+		
Ischaemum fragile	+		
Leucopogon ericoides		+	
Macarthuria complana	ta +		Cooloola only
Macrozamia miquellii	+		
M. pauli-guilielmi			
subsp. pauli-guilielmi	i +		Not recorded Fraser Island
Melichrus adpressus		+	Moreton Island only
Olax stricta		+	
Petrophila canescens		· +	
Podocarpus spinulosus	· .	+	North Stradbroke Island only
Schoenus ericetorum		+	·
Xyris operculata		+	

Table 4. Species comparisons betwen floras of Cooloola/Fraser Island and Moreton/North Stradbroke Island sandmasses.

Species with marked disjunctions in range include *Cinnamomum baileyanum* (Cooloola/ Fraser Island to McIlwraith Range), *Tecomanthe hillii* (Cooloola/Fraser Island to Thornton Peak and Mt Finnegan, also in New Guinea) and *Cerbera manghas*. The latter species is quite common in beach scrubs from near Innisfail to Cape York and the Torres Strait islands but is represented in southern Queensland only by a small group of trees at Freshwater Creek, Cooloola.

Also of interest in the Cooloola and Fraser Island rainforests is the vine *Ripogonum* discolor which otherwise occurs at higher altitudes (>1000 m) on the McPherson Range and southward.

RARE OR THREATENED FLORA

Rare or threatened species in the Cooloola-Noosa River area are listed (Table 5) followed by brief notes on the occurrence and habitat of individual species. Table 5 has been extracted from a checklist of rare and threatened Queensland plants (Thomas and McDonald 1987). Five species previously regarded as at risk (Leigh *et al.* 1981) have been omitted, viz. *Dicksonia youngiae*, *Galeola cassythoides, Leptospermum whitei, Platycerium superbum* and *Strangea linearis*, because they are neither geographically restricted nor under severe threat.

Species .	Status Code#	Local Distribution Unit								
Acacia attenuata	3VC	1b								
A. bakeri	3VC	Зr								
Archidendron lovelliae	3VC	1a, 3r, 6r								
Arthraxon hispidus	3EC +	4a								
Boronia keysii	2VC	3a, 3r								
B. rivularis	3RC	1b, 4a								
Cinnamomum baileyanum	3RC	6r								
Cryptocarya foetida	3VC	6r								
Durringtonia paludosa	3RC	4a, 4b								
Glycine argyrea	S 2RC	6a								
Macarthuria complanata	2RC	5a								
Phaius tancarvilliae	3VC+	2, 4b								
Schoenus scabripes	3VC	2, 4a								
Symplocos sp. aff.										
S. baeuerlenii	3VC	Зr								
Syncarpia hillii	3RC	5a, 6a, 6r								
Tecomanthe hillii	3RC+	1a, 4a, 5r, 6i								
Tephrosia baueri	ЗК	8a								
Xanthostemon oppositifolius	3VC	Зr								

 Table 5.
 Rare or threatened flora of the Cooloola-Noosa River area.

The composite staus code comprises a distribution, conservation status and sometimes a supplementary code. The categories have been defined by Leigh *et al.* (1981).

Distribution - 2 = range of less than 100 km; 3 = greater than 100 km

Conservation status - E = endangered; V = vulnerable; R = rare in Australia (but not currently considered endangered or vulnerable); K = poorly known.

Supplementary code - C = species represented within a national park or other proclaimed reserve; + = species with distribution extending beyond Australian continent.

Acacia attenuata (3VC) is an inconspicuous shrub confined to coastal heaths between the Maryborough district and the Gold Coast. Much of its recorded habitat has now been destroyed (e.g. Southport to Miami and Caloundra to Beerwah). At Cooloola, it occurs below the Como Scarp just south of Mt. Elliot, in local distribution unit 1b.

Acacia bakeri (3VC) is locally common in lowland rainforest remnants between Maryborough and Brunswick Heads, New South Wales. At Cooloola, it has been recorded north of Kin Kin Creek in local distribution unit 3r.

Archidendron lovelliae (3VC) is restricted to Fraser Island and the Cooloola-Noosa River area where it occurs infrequently in the rainforests of local distribution units 3r and 6r and along springs in 1a.

Arthraxon hispidus var. hispidus (3EC+) occurs widely through the old world tropics (central and eastern Africa, Madagascar, Mauritius, southern and eastern Asia and Malesia, excluding Borneo) but in Australia has been recorded only from the central eastern coast. It favours shady gullies and creek banks as well as seepage areas in frontal dune systems. It appears to have been moderately widespread in the Nambour district, the Canungra-Beaudesert area, at Noosa and Coolum and on North Stradbroke Island but has been rarely collected in the past 30 years. It occurs along the Noosa River in local distribution unit 4a.

Boronia keysii (2VC) is restricted to several localities in the Kin Kin Creek - Banyan Creek - Lake Cootharaba area with an isolated population north of Harry Springs Hut. It occurs in fringing forests along watercourses and in gaps in the rainforest in local distribution units 3a and 3r. It was 're-discovered' in 1971, there being no record of it previously since the type collection in 1909 (Lebler 1972).

Boronia rivularis (3RC) has been recorded only on Fraser Island and in the Cooloola-Noosa River area. It occurs mainly along watercourses, such as the Noosa River and Teewah Creek, in local distribution units 1b and 4a.

Cinnamomum baileyanum (3RC) has been recorded at Cooloola, Fraser Island, near Cooktown and on the McIlwraith Range, north Queensland. At Cooloola, it is a relatively uncommon shrub or small tree in the rainforests of local distribution unit 6r.

Cryptocarya foetida (3VC) occurs along the coast between Fraser Island and Ballina in rainforests on beach ridges, high dune systems and rocky headlands, e.g. Burleigh Heads. Much of its habitat has been destroyed; it occurs in rainforests on the high dunes at Cooloola (local distribution unit 6r).

Durringtonia paludosa (3RC) is a recently described species (Henderson and Guymer 1985) that is now known to range from Cooloola to Smiths Lake on the central coast of New South Wales. It occurs in wet heaths and sedgelands, and was recorded in swamps with Melaleuca quinquenervia, Blechnum indicum and Gleichenia dicarpa on the floodplain of the lower Noosa River (local distribution unit 4b).

Glycine argyrea (2RC), another recently described species (Tindale 1984), is known only from a relatively small part of the Cooloola sandmass, south-east of Rainbow Beach and from Noosa National Park. It occurs in open forests of *Eucalyptus pilularis - Eucalyptus signata* on high dunes of Holocene age or Pleistocene dunes with a thin veneer of Holocene sands, in local distribution unit 6a.

Macarthuria complanata (2RC) is restricted to the Cooloola, Noosa and Sunshine Beach areas. It commonly occurs in heathlands with *Banksia aemula* and *Casuarina littoralis* in local distribution unit 5a.

Phaius tancarvilliae (3VC+) is widely distributed, occurring in India, China, Indonesia, New Guinea, northern Australia and down the east coast to the Richmond River, New South Wales. It is found in sedgelands and *Melaleuca* forests but at Cooloola has been recorded only

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from the eastern side of Lake Cootharaba in local distribution units 2 and 4b.

Schoenus scabripes (3VC) occurs infrequently in coastal sedgelands and sedge/heath communities between Cooloola and Kempsey, New South Wales. At Cooloola, it has been recorded near Teewah Creek in local distribution units 2 and 4a.

Symplocos sp. aff. S. baeuerlenii (3VC) was apparently widespread in the drier rainforest communities from Imbil and Kin Kin south to the Beenleigh district but most of these have now been cleared for agriculture or forestry. At Cooloola, this species has been recorded to the north of Kin Kin Creek in local distribution unit 3r.

Syncarpia hillii (3RC) is distributed mainly in the Fraser Island to Tewantin area, with small disjunct populations on Moreton and North Stradbroke Islands (McDonald and Elsol 1984). It occurs in tall open forests on high dunes of Pleistocene age (local distribution units 5a and 6a) and is often in transitional rainforest with prominent *Backhousiamyrtifolia* understorey (local distribution unit 6r). This species has been heavily logged at Cooloola and most occurrences are coppice regeneration.

Tecomanthe hillii (3RC+) has been recorded at Cooloola, Fraser Island, Thornton Peak and Mt Finnegan in North Queensland and the Morobe district in New Guinea. This showy vine grows in moist situations and is usually associated with rainforests; at Cooloola it has been found in local distribution units 1a, 4a, 5r and 6r.

Tephrosia baueri (3K) is a very poorly known species with a few isolated records between Gladstone and the Hunter Valley, New South Wales. At Cooloola, it was recorded from a cliff top at Double Island Point (local distribution unit 8a).

Xanthostemon oppositifolius (3VC) is restricted mainly to the Cooran and Kin Kin areas, with a disjunct population near Miriamvale. It is locally common in the rainforest and rainforest regeneration areas along Kin Kin Creek and near Harry Springs Hut (local distribution unit 3r).

Other species of local significance

Reference has already been made to *Cerbera manghas*, which has a very small, isolated population at Cooloola (see notes on phytogeography). Similarly, *Polyscias australiana* was recorded only as a small group of shrubs in a single locality, a moist area of a dune floor in local distribution unit for. The nearest recorded occurrence to the north is along Waterpark Creek at Byfield, north of Yeppoon.

Euodia vitiflora occurs widely in north Queensland and New Guinea, but the southern populations (Cooloola to Richmond River) are under severe threat. Apart from the present survey, recent collections have been made only at Broken Head and Brunswick Heads Nature Reserves and Minyon Falls Flora Reserve in north-eastern New South Wales.

Another species which assumes local significance is *Acacia cincinnata*. It is relatively common from Mackay north but the only area in which the southern population is secure is the Noosa River catchment. Other localities where it occurs (Bribie Island/Toorbul and Burleigh Heads/Mermaid Beach) are under pressure for residential development.

Podocarpus spinulosus has a very disjunct distribution in Queensland and has been recorded only from Blackdown Tableland, Cooloola, Beerwah and North Stradbroke Island. At Cooloola, it occurs south-west of Lake Como in local distribution unit 1b.

ALIEN PLANT SPECIES

Forty-two alien species are naturalized in the Cooloola-Noosa River area (Table 6). This

Species	Family	Local Distribution Unit
Ageratum houstonianum	ASTERACEAE	1a, 8a
Asclepias curassavica	ASCLEPIADACEAE	4a
Axonopus affinis	POACEAE	1b, 4a
Baccharis halimifolia	ASTERACEAE	1b, 1c, 4a,4b,8a,10c
Bidens bipinnata	ASTERACEAE	8a
B. pilosa	ASTERACEAE	8a
Cakile edentula subsp. edentula	BRASSICACEAE	7b
Cassia floribunda	CAESALPINIACEAE	3a
Cenchrus echinatus	POACEAE	10c
Chenopodium murale	CHENOPODIACEAE	9a
Chrysanthemoides monilifera		
subsp. rotundata	ASTERACEAE	10a
Conyza bonariensis	ASTERACEAE	1c, 6r, 10c
Crassocephalum crepidioides	ASTERACEAE	1c
Crotalaria lanceolata	FABACEAE	10c
Cyperus brevifolius	CYPERACEAE	4b
C. flavus	CYPERACEAE	6a, 7a, 10a
Digitaria eriantha		
subsp. <i>pentzii</i>	POACEAE	10c
Erechtites valerianifolia	ASTERACEAE	1c, 6r
Gaillardia pulchella	ASTERACEAE	8a
Gnaphalium americanum	ASTERACEAE	1b
Hydrocotyle bonariensis	APIACEAE	7b, 10c
Ipomoea cairica	CONVOLVULACEAE	10c
Lantana camara	VERBENACEAE	1b, 6a, 6r, 8a, 8b, 10a, 10
Melinis minutiflora	POACEAE	5a
Nymphaea capensis	NYMPHAEACEAE	4b, 10c
Oenothera affinis	ONAGRACEAE	10c
O. drummondii	ONAGRACEAE	7a, 10a, 10c
Opuntia stricta var. stricta	CACTACEAE	8a, 8b
Paspalum notatum	POACEAE	4b
P. urvillei	POACEAE	4a, 4b
Passiflora foetida	PASSIFLORACEAE	8a
P. suberosa	PASSIFLORACEAE	8a, 8b, 10a, 10b
Petrorhagia velutina	CARYOPHYLLACEAE	8a
Phyla nodiflora var. longifolia	VERBENACEAE	10c
Physalis peruviana	SOLANACEAE	3a
Pinus elliotii	PINACEAE	1 a
Richardia brasiliensis	RUBIACEAE	7a, 10c
Scoparia dulcis	SCROPHULARIACEAE	4b
Sida rhombifolia	MALVACEAE	4a
Silene gallica	CARYOPHYLLACEAE	8a
Sonchus oleraceus	ASTERACEAE	7a
Stenotaphrum secundatum	POACEAE	8a
SIGNORAPIH WILL SCOMMULANI		04

 Table 6.
 Alien plant species in the Cooloola-Noosa River area.

total may appear unusually low, but is possibly accounted for by the widespread low soil fertility, by isolation from farmlands, and by the fact that the species list has been compiled from records in natural plant communities and excludes species in the Rainbow Beach township and Tarangau grazing property. Several of the listed species, e.g. *Axonopus affinis, Bidens pilosa* and *Paspalum urvillei*, are confined to locally disturbed situations, e.g. road verges and table drains, campsites and logging areas.

Of the 42 species, 32 are dicotyledons (11 in the family Asteraceae), 9 monocotyledons (7 in Poaceae) and 1 gymnosperm (*Pinus elliotii*). Only two could be considered major weeds, viz. *Lantana camara* and *Baccharis halimifolia*, although *Chrysanthemoides monilifera* subsp. *rotundata* is a very serious potential threat. This species occurs in mined and rehabilitated areas north of Rainbow Beach and is spreading into undisturbed communities, particularly along the coastal margin.

Pinus elliotii is a local threat in the western catchment of the upper Noosa River where it is invading from the Toolara State Forest plantations to the west. *Cinnamomum camphora* and *Celtis sinensis* are common in the vicinity of Kin Kin and are spreading along Kin Kin Creek; they may eventually invade parts of the Tarangau area (3a, 3r).

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APPENDIX

Plant species in the Cooloola-Noosa River area arranged under the four main groups of plants: Pteridophytes, Gymnosperms, Dicotyledons and Monocotyledons; families, genera and species are listed alphabetically and a key to their distribution is given. * indicates alien species.

LOCAL DISTRIBUTION UNITS WHERE SPECIES WERE RECORDED																						
		1		2	2002		5114	4		5		6		7			3		9		10	
	a	b	с		a	r	a	Ъ	r	a	r	a	r	a	b	a	b	a	b	a	b	С
PTERIDOPHYTES																						
ADIANTACEAE Adiantum hispidulum Sw.			x										x	x								
ASPLENIACEAE Asplenium australasicum (J. Smith) Hook.									X				x									
BLECHNACEAE Blechnum camfieldii Tind. B. cartilagineum Sw. B. indicum N. Burman Doodia aspera R. Br. D. caudata (Cav.) R. Br. var. caudata	X X X		X			x	X X	X			x		x			x			x	x	х	
CYATHEACEAE Cyathea cooperi (Hook. ex. F. Muell.) Domin C. leichhardtiana (F. Muell.) Copel.	x					x								1			·					
DAVALLIACEAE Davallia pyxidata Cav.								• •	x				x									
DENNSTAEDTIACEAI Hypolepis muelleri Wakef. Pteridium esculentum (G. Forster) Cockayne	E X X	x				x	x	x x x		x	-	x		x		-				x	Х	X X
DICKSONIACEAE Culcita dubia (R. Br.) Maxo Dicksonia youngiae C. Moore ex Baker	n X	x		x							x											
GLEICHENIACEAE Dicranopteris linearis (N. Burman) Underw. Gleichenia dicarpa R. Br. G. mendellii (G. Schneid.) S. Andrews ms. Sticherus flabellatus (R. Br.) H. St. John			-	x			x x x x x	X X X							-						-	
HYMENOPHYLLACE Macroglena caudata (Brackenr.) Copel.	AE										x											

LOCAL DISTRIBUTION UNITS WHERE SPECIES WERE RECORDED																				
		1		2	3		4		5	5	6		1	΄.		8	9	,		10
	a	b	с		a r	a	b	r	a	r	a	r	a	b	a	b	a	D	а	bс
LINDSAEACEAE Lindsaea brachypoda (Baker) Salomon L. dimorpha Bailey L. ensifolia Sw. subsp. agatii (Brackenr.) Kramer L. ansifolia Sw.		x				x				x									x	
subsp. ensifolia L. fraseri Hook. L. incisa Prentice	х	Х	X X			x x	x													
LYCOPODIACEAE Lycopodium cernuum L. L. laterale R. Br.		x		x x		x x	x					,								
NEPHROLEPIDACEAE Arthropteris tenella (G. Forster) J. Smith ex J.D. Hook.	2											x								
OPHIOGLOSSACEAE Ophioglossum pendulum L.												x								
OSMUNDACEAE Todea barbara (L.) T. Moore						x	x			x		x		_						
POLYPODIACEAE Drynaria rigidula (Sw.) Beddome Microsorum punctatum (L.) Copel. Platycerium bifurcatum (Cav.) C. Chr. P. superbum Jonch. & Hennipman Pyrrosia rupestris (R. Br.) Ching								x x			x	x x x x x x					-			
PSILOTACEAE Psilotum nudum (L.) Beauv.								x				x								
PTERIDACEAE Acrostichum speciosum Willd. Pteris tremula R. Br.	x						x													
SCHIZAEACEAE Lygodium microphyllum (Cav.) R. Br. Schizaea bifida Willd. Schizaea dichotoma (L.) Smith	x	x x	x x	x		x x x	x x	x	x x	x	x x	x	x x			x			x x	x
SELAGINELLACEAE Selaginella uliginosa (Labill.) Spring				x		x	x							-						:

					LOCA	AL D	ISTR	BUT	ION I	JNITS	S WF	IERE	SPE	CIES	S WE	RER	ECO	RDE	D			
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	a	b	с		a	r	a	b	r	a	r	а	r	a	b	a	b	a	b	a	b	с
SINOPTERIDACEAE Cheilanthes sieberi Kunze C. tenuifolia (N. Burman) Sw.		x	x x																		. <u></u>	
Pellaea falcata (R. Br.) Fee var. nana Hook.	_												х									
THELYPTERIDACEAE Christella dentata (Forrskal) Brownsey & Jerny C. parasitica (L.) A. Leveille	x	x																				
TMESIPTERIDACEAE Tmesipteris truncata (R. Br.) Desv.	x										x											-
GYMNOSPERMS								;														
ARAUCARIACEAE Agathis robusta (C. Moore ex F. Muell.) Bailey	x				-	x	x		x		x		x									
Araucaria cunninghamii Aiton ex D. Don						x							х					-				
CUPRESSACEAE Callitris columellaris F. Muell.		X					x	x		x		x		. X				x	• •	x	X	·
*PINACEAE Pinus elliotii Engelm.	x																					
PODOCARPACEAE Podocarpus elatus R. Br. ex. Endl. P. spinulosus (Smith) R. Br. ex Pierre		x											x				_					
ZAMIACEAE Macrozamia miquelii (F. Muell.) A. DC. M. pauli-guilielmi W. Hill & F. Muell.							•			x		x	x		-							
					X					X		X		• 							•	
DICUTYLEDONS	<u> </u>			ı—-												i						
ACANTHACEAE Brunoniella australis (Cav.) Bremek. Calophanoides hygrophiloide. (F. Muell.) R.M. Barker Hygrophila angustifolia R. Br.	X s	X	x				X X											· .				
Pseuderanthemum variabile (R. Br.) Radlk. ex Lindau	1		X										x	x								

					LOC	AL D	ISTR	IBUT	ION	JNITS	S WH	IERE	SPE	CIES	SWE	RE F	ECC	RDE	D.			
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	a	b	с		a	r	a	b	r	а	r	a	r	а	b	a	ь	а	b	а	b	с
AIZOACEAE Carpobrotus glaucescens (Haw.) Schwantes Macarthuria complanata E. Ross										x				x			x			x		X
M. neocambrica F. Muell. Sesuvium portulacastrum (L.) L.										X		х 						x				
ANACARDIACEAE Euroschinus falcata J.D. Hook var. falcata													x		1							
ANNONACEAE Polyalthia nitidissima (Dunal) Benth. Rauwenhoffia leichhardtii (F. Muell.) Diels												-	x x							x		
APIACEAE Apium prostratum Labill. ex Vent. Centella asiatica (L.) Urban		x	x					x								x		-				
Hydrocotyle bondriensis Lam. H. tripartita R. Br. ex A. Rich.	•			-			x								X							х
(Sieber ex DC.) Norman		x	x	x				x		x		x										
P. lanceolala (Labiii.) Druce P. linearifolia (Cav.)	х	х	x							x		х		X						Х		
Norman Trachymene incisa Rudge Xanthosia pilosa Rudge		X X X		X X			х	x		X X X		x x										14
APOCYNACEAE Alyxia magnifolia Bailey A. ruscifolia R. Br. Cerbera manghas L.	x					x			x		x	x	x	x								
(Benth.) Domin Melodinus australis	x												v									
(F. Muell.) Pierre Parsonsia latifolia (Benth.) S.T. Blake	х					х			х				x									
P. straminea (R. Br.) F. Muell.					_	х		x	x				x							х		
ARALIACEAE Astrotricha glabra (F. Muell.) Domin A. longifolia Benth. Cephalaralia cephalobotrys (F. Muell. & C. Moore) Harms)	x					x			X X		X X	x	x								

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· · ·	a	b	с		a	r	a	b	r	a	r	a	r	a	b	a	b	a	b	a	b	с
Polyscias australiana (F. Muell.) Philipson var. australiana P. elegans													x	-								
(F. Muell. & C. Moore) Harms	x					. X					x	x	x	х						x		
ASCLEPIADACEAE *Asclepias curassavica L. Hoya australis R. Br. ex Traill Ischnostemma carnosum (R. Br.) Merr. & Rolfe	x			-			X	x				x	x			x x		x			x	
Marsdenia fraseri Benth. M. glandulifera C. White M. rostrata R. Br.	x	X X						Х	X	. X		X X	X X									
ASTERACEAE *Ageratum houstonianum Miller	v								_							x		-				
*Baccharis halimifolia L. *Bidens bipinnata L. *B. pilosa L. Blumea saxatilis Zoll.	•	X	X				x	x x								X X X						х
& Moritzi *Chrysanthemoides monilifera (L.) Norlindh	X								_						_		-					
(DC.) Norlindh *Conyza bonariensis (L.) Cronq. Crassocephalum Crepidioides (Benth) S. Moore	,		x x					x					x							X		X
Emilia sonchifolia (L.) DC. var. javanica (N. Burman) Mattf. Enydra fluctuans Lour.	x	v	x					X				x	•	x		x				x		X
Epaites australis Less. *Erechtites valerianifolia (Wolf) DC. *Gaillardia pulchella Foug.		X	х					X					x	-	_	x					•	X
Glossogyne tenutjolia (Labill.) Cass. *Gnaphalium americanum Miller G. involucratum G. Forster G. luteoalbum L. Helichrysum apiculatum (Labill.) DC. sens. lat.	x	x	X											x	x							X
H. bracteatum (Vent.) Andrews H. oxylepis F. Muell. H. ramosissimum Hook. sens. lat.			2	<u> </u>	-		-			-		x		x			x				-	
Lagenifera gracilis Steetz Picris carolorum - henricorum Lack	X		2	<pre></pre>										x		x	x	r				



					LOC	ALI	DISTE	RIBUT	ION I	UNITS	SW	IERE	SP	ECIE	S WE	RE F	RECC	RDE	D			
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Podolepis arachnoidea (Hook.) Druce														x								
ex DC. Rutidosis murchisonii E Muell		x												x			Х					х
Senecio lautus G. Forster ex Willd. subsp. dissectifolius Ali		Λ										x	-	x								-
S. lautus G. Forster ex Willo subsp. maritimus Ali Sonchus megalocarpus	ı. —													x								
(J.D. Hook.) J. Black *S. oleraceus L. Spilanthes grandiflora Turcz								x						X X						x		х
Vernonia cinerea (L.) Less. Wedelia biflora L.	x	x	х					X		x		х		X X		x	x					X X
A VICENNIACEAE Avicennia marina (Forrskal) Vierh. var. australasica (Wala Waldarka								v										v				
BAUERACEAE Bauera capitata Ser. ex DC.				x				<u></u>										<u></u>				
BIGNONIACEAE Pandoren jasminoides (Lindley) Schumann P. pandorana (Andrews)													X	-								
Steenis Tecomanthe hillii (F. Muell.) Steenis	x						x			х	x		x x									
BRASSICACEAE *Cakile edentula (Bigelow) Hok. subsp. edentula															x							
BURSERACEAE Canarium australasicum (Bailey) Leenh.											x		x									
CACTACEAE *Opuntia stricta (Haw.) Haw var. stricta																x	x					
CAESALPINIACEAE Caesalpinia scortechinii (F. Muell.) Hattink *Caesia floribunda Cay	x					x							x									
C. mimosoides L.										Х		Х		Х								
CAMPANULACEAE Lobelia alata Labill. L. membranacea R. Br. L. purpurascens R. Br.		x	x				х	X X						х	x						x	X X X

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Wahlenbergia graniticola Carolin W. stricta Sweet subsp. stricta	x												x		x	x					
CARYOPHYLLACEAE *Petrorhagia velutina (Guss.) Ball & Heywood Polycarpaea corymbosa (L.) Lam var. minor Pedley *Silene gallica L.															x x x						
CASUARINA CEAE Casuarina equisetifolia J.R. Forster & G. Forster var. incana Benth. C. glauca Sieber ex Sprengel C. littoralis Salisb. C. torulosa Aiton	X X	X X	x	÷,		x	X X		XX		X X		x x			x x	x		x x	X X	x x
CELASTRACEAE Denhamia celastroides (F. Muell.) L. Jessup				-	x			X				x									
CHENOPODIACEAE *Chenopodium murale L. Halosarcia indica (Willd.) Paul G. Wilson subsp. leiostachya (Benth.) Paul G. Wilson H.pergranulata (J. Black) Paul G. Wilson subsp. queenslandica Paul G. Wilson Sarcocornia quinqueflora (Bunge ex Ung Stemb.)				:		-		:		- -		-		· · ·			x x x				
A.J. Scott subsp. quinqueflora Suaeda australis (R. Br.) Moq.		_	-					х									x	x			
CHLOANTHACEAE Chloanthes parviflora Walp.	x	-							x		x	-	x			•				•	
CLUSIACEAE Hypericum gramineum G. Forster	x	x					x												X		
COMBRETACEAE Lumnitzera racemosa Willd. var. racemosa																	x				
CONVOLVULACEAE Evolvulus alsinoides (L.) L. var. decumbens (R. Br.) Ooststr.															x						

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	a	b	с		a	r	a	b	r	a	r	a	r	a	b	a	b	a	b	a	b	с
*Ipomoea cairica (L.) Sweet I. pescaprae (L.) Sweet subsp. brasiliensis (L.) Ooststr. Polymeria calycina R. Br.		x					x	x x						x	x	x	x		÷	x		x x
CUCURBITACEAE Diplocyclos palmatus (L.) C. Jeffrey						x																
CUNONIACEAE Schizomeria ovata D. Don						x	x	x	x		x		x									
DILLENIACEAE Hibbertia acicularis (Labill.)F. Muell. H. aspera DC. H. linearis R. Br. H. obtusifolia DC. H. salicifolia (DC.)	x	X X X	x	x x			x x x	x		x x		X X		X X							•	
F. Muell H. scandens (Willd.) Gilg H. stricta (DC.)R. Br. ex F. Muell. sens. lat. H. vestita Cunn. ex Benth.	x	X X X	x	x x		x	x	x x	x	x		x		.x x		x	x	-		X	X	x
DROSERACEAE Drosera binata Labill. D. peltata Thunb. subsp. auriculata (Backh. ex Planchon) Conn D. spatulata Labill.		X X		x x			x	x x				-								x		×
EBENACEAE Diospyros fasciculosa (F. Muell.) F. Muell. D. ferrea (Willd.) Bakh. var. geminata (R. Br.) Bakh. D. major (G. Forster) Bakh. var. ebenus (Sprengel) Bakh. D. pentamera (Woolls & F. Muell.) F. Muell.	x					x x			x	-	x		x x x x x				-		-			
ELAEOCARPACEAE Elaeocarpus eumundi Bailey E. grandis F. Muell. E. obovatus G. Don E. reticulatus Smith	X X X	x				X X X	x	X X	x x	x	x	X X	X X X X X	x	*					x	x	
EPACRIDACEAE Acrotriche aggregata R. Br.	x	x				x				x		x	-									

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8	a .	b	с	_	a	r	a	b	r	a	r	a	r	a	ь	a	Ъ	a	b	a	b	с
Brachyloma daphnoides																						
(Smith) Benth.																						
var. daphnoides					í					Х		X		х		1	х					
B. scortechinii F. Muell.										Х												
Epacris microphylla R. Br.				X			Х	Х								l						
E. obtusifolia Smith				X	ĺ											1						
E. pulchella Cav.	X	х		X			Х	х		х												
Leucopogon deformis R. Br.						1				X		x				1						
L. lanceolatus (Smith) DC.									_									-				_
var. gracilis Benth.		х			•			х		x		x		x								
L. leptospermoides R. Br.		Х		X			x	x		X		X				•						
L. margarodes R. Br.					1	1	x			x		x		x		[x	v	
L. parviflorus (Andrews)									1											Λ	л	
Lindley]									x								
L. pedicellatus C. White		x		x										-		1						
L. virgatus (Labill.) R. Br.				x	-		x									l						
Monotoca scoparia (Smith)			-				<u> </u>									+						
R. Br. var. scoparia		х	x				x	x		x		x		x		l	x			v	x	v
Sprengelia sprengelioides										**							Λ			л	Λ	Λ
(R. Br.) Druce				x	1		x			x												
Styphelia viridis Andrews							x			x		x		x								
Trochocarpa laurina														~								
(R. Br. ex Rudge) R. Br.						x			x		x	x	x			l						
Woollsia pungens (Cav.)											**		**			Ľ.						
F. Muell.										x												
					 .	_										1						
ESCALLONIACEAE																						
Abrophyllum ornans					l .											1						
(F. Muell.)					ŀ.											1						
J.D. Hook. ex Benth.	X																					
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EUPHORBIACEAE					1											[
Breynia oblongifolia																						
(Muell. Arg.) Muell. Arg.		Х	X	X							Х		Х	Х	Х]					Х	
Bridelia exaltata F. Muell.													Х									
Croton insularis Baillon					ļ								Х			1						
Drypetes australasica																						
(Muell. Arg.)				· ·	1																	
Pax & K. Hoffman													Х									
Excoecaria agallocha L.				<u> </u>														Х				
Glochidion ferdinandi				1.1										•								
(Muell. Arg.) Bailey	X	X	Х			X		X	Х	Х	х	Х	х	Х						Х		77
G. sunatranum Miq.	X	х			1	Х		х												. X		A
Macaranga tanarius (L.)																.						
Muell. Arg.					ĺ		•															Х
Omalanthus populifolius					{						•											
Graham												X	Х									
Petalostigma pubescens																						
Domin		<u>X</u>	X		1			<u> </u>				_X.		<u> </u>		·	<u> </u>	Х		Х	Χ	
<i>P. triloculare</i> Muell. Arg.	X	х			X	х	х	х	х			X										
Phyllanthus albiflorus																						
F. Muell. ex Muell. Arg.		Х		[
P. pusiliyolius S. Moore						Х															÷	
P. ienelius Koxb.			Х	ļ								X					Х]				
r. virgatus G. Forster sens.		v			l																	
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	a	b	С		а	r	a	b	r	а	r	a	r	а	b	a	b	a	b	a	b	С
Poranthera microphylla Brongn.		x	x					x		x		x		x			x			x	x	x
Pseudanthus orientalis (Baillon) F. Muell.							х	x		x												
Ricinocarpos pinifolius Desf.		x					х			x		x								x		
EUPOMATIACEAE Eupomatia bennettii F. Muell. E. laurina R. Br.	x				x	X X							x									
FABACEAE																						
Aotus ericoides (Vent.) G. Don A. lanigera Cunn. ex Benth.	X	X X	x	x x	x		x x	X X		X X		x										
Austrosteenisia blackii (F. Muell.) Geesink Bossiaea ensata Sieber	x																					
ex DC, B. heterophylla Vent,										X X		x		х								
Canavalia rosea (Sw.) DC. Chorizema parviflorum Benth.		x					x					x				Х						
*Crotalaria lanceolata E. Meyer C. medicaginea Lam														x								x
C. montana Roth Daviesia umbellulata Smith Desmodium heterocarpon (L.)	x	x	x			x	x		x		X X		x								x
DC. var. heterocarpon D. nemorosum F. Muell. ex Benth.	x x					x		x					x									
D. rhytidophyllum F. Muell ex Benth,	x	x	x					х		х		x		х						x		
D. varians Endl. Dillwynia floribunda Smith		x		x			x	x		x		x								x		
D. glaberrima Smith D. retorta (Wendl.) Druce				х																		
var. retorta Flemingia parviflora Benth	$\overline{\mathbf{x}}$		x							X		x										
Galactia tenuiflora (Willd.) Wight & Am.		x	x							x		x		x								
Glycine argyrea Tind. G. clandestina Wendl.	x	x					x	x		x		X X		x						x		
G. cyrtoloba Tind. G. tomentella Hayata										х		X X		X X						x	х	x
Gompholobium pinnatum Smith		x					x	x		x		x										
G. virgatum Sieber ex DC. var. emarginatum												v										
G. virgatum Sieber ex DC.		ъź												77								
var. virgatum Hardenbergia violacea		X		X						X				X							v	
(Schneev.) Stearn		X								Х		<u>^</u>		X							Х	

			_		LOC	AL D	ISTR	IBUT	ION L	JNITS	SWF	ERE	SPE	CIES	SWE	RE R	ECC	RDE	D			
		1		2	3	3		4		1	5	6			7	;	8		9		10	
	a	b	C		a	r	a	b ·	r	a	r	a	r	a	b	a	b	a	b	a	b	с
Hovea acutifolia Cunn																						
ex G. Don	x	x	x		x	x	x	x		x		x		x								
H. purpurea Lodd.			x			**				2		~		~						• •		
Jacksonia scoparia R. Br.	Х	х	X					х		х		x		x			х					
J. stackhousii F. Muell.				1						Х												-
Kennediarubicunda																						
(Schneev.) Vent.	Х																					
Millettia megasperma	••										_							÷				
F. Muell.	Х			_		Х			X		Х	X	Х									
(Andrews) G. Don		v		v			v	v														
Ordobium robustum		л		Λ			л	л														
I Thompson	x											v										
Phyllota phylicoides	~											л										
(Sieber ex DC.) Benth.										x		x		x								
Platylobium formosum										••												
Smith	Х	х																				
Pultenaea myrtoides Cunn.																						
ex Benth.		Х					Х	Х														
P. paleacea Willd.																						
var. paleacea				Х			х	Х														
P. paleacea willd.																						
C White																						
P. retusa Smith	x						x			-										X		
P. villosa Willd.	~	x					Λ			x		x		x						v		
Smithia sensitiva Aiton		••					x					~		~						^		
Sphaerolobium vimineum																						
Smith							Х															
Tephrosia baueri																	-				-	_
Benth. ex A. Gray																X						
<i>I. julpes</i> Benth.			Х																			
Morr																						
V verillata (L) A Rich							v							х								
Viminaria juncea (Schrader)							Λ															
Hoffmanns.								x														
Zornia dyctiocarpa DC.							х							x								
Z. muriculata Mohl.			Х											••								
FLACOURTIACEAE																						
(Vlotzach) Slove or																						۰.
(Kiotzsch) Steumer				_									X					<u> </u>				
FLINDERSIACEAE																						
Flindersia australis R. Br.						х																
F. bennettiana																						
F. Muell. ex Benth.						Х							Х									
F. schottiana F. Muell.						Х							Х									
F. xanthoxyla																						
(Cunn. ex Hook.)																						
Domm						Х																
GENTIANACEAE													•						-			
Centaurium spicatum																				1.		
(L.) Fritsch																		x				

						AL D	STR	IBUT	ON	JNITS	SWH	ERE	SPE	CIES	WE	RE F	RECC	RDE	D			
	я	1 b	c	2	3	3	я	4 b	· _	: a	5 r	6	r	7 a	b b	a	8 b	a	9. b	a	10 b	с
GOODENIACEAE Dampiera stricta (Smith) R. Br. Goodenia paniculata Smith G. rotundifolia R. Br. G. stelligera R. Br. Scaevola calendulacea (Andrews) Druce	x	x x		x x	a	1	X X X	X X X X	1	X	1	x	1	X	0	u		u		x	X X	
Velleia spathulata R. Br.		X						х												x		
HALORAGACEAE Gonocarpus chinensis (Lour. Orch. subsp. verrucosus (Maiden & Betche) Orch. G. micranthus Thunb. subsp. ramosissimus Orch. Haloragis aspera Lindley Myriophyllum gracile)	x		x			x x x	x		-										x		
Benth. M. verrucosum Lindley							х	X X														
HIPPOCRATEACEAE Hippocratea barbata F. Muell.													x									
LAMIACEAE Ajuga australis R. Br. Plectranthus parviflorus Willd. Westringia tenuicaulis C. White & Francis		x	x x				x	x				x		x			x			-	x	
LAURACEAE Beilschmiedia elliptica C. White & Francis B. obtusifolia (F. Muell. ex Meisner) F. Muell. Cassytha filiformis L. C. glabella R. Br. C. glabella R. Br. Cinnamomum baileyanum (F. Muell. ex Bailey) Francis	x	X X X		x		x x	x x	x		x x		x x	x x x	x x		x x			-	x		-
C. oliveri Bailey						х	-						X							•		
R. Baker C. glaucescens R. Br. C. obovata R. Br. C. triplinervis R. Br.	x					x	x		x		x	x	X X X X									
C. sp. aff. C. cunninghamii Meisner Endiandra discolor Benth. E. sieberi Nees	X X					X X X	x	x	X X X	x	X X	x	X X							x	x	

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				l	00	AL DI	STR	BUTI	ON Ļ	INITS	SWH	ERE	SPE	CIES	SWE	REF	ECOF	RDE	D			
	a	1 b	с	2	a	3 . r	a	4 b	r	a	5 r	6 a	r	a	7 Ъ	a	8 Ъ	a	9 Ъ	a	10 Ъ	с
Litsea leefeana (F. Muell.) Merr. L. reticulata (Meisner) F. Muell. Neolitsea australiensis Kosterm. N. dealbata (R. Br.) Merr.				-		x x x x			x		 x		x x x x x							x		
LENTIBULARIACEAE Utricularia biloba R. Br. U. caerulea L. U. gibba L. subsp. exoleta (R. Br.) P. Taylor U. lateriflora R. Br. U. uliginosa Vahl				X			x x	XX					·		x					-		
LORANTHACEAE Amyema cambagei (Blakely) Danser A. congener (Sieb. ex J.A. & J.H. Schultes Tieghem A. mackayense (Blakely) Danser			•					x x						x			• • •	x				
A. miquelii (Lehm. ex Miq.) Tieghem Amylotheca dictyophleba (F. Muell.) Tieghem Dendrophthoe vitellina (F. Muell.) Tieghem Muellerina celastroides (Sieber ex J.A. & J.H. Schultes) Tieghem	-					x	x	x		x		x x		x			X				-	
MALVACEAE Hibiscus diversifolius Jacq. H. heterophyllus Vent. subsp. heterophyllus H. tiliaceus L. subsp. tiliaceus Sida cordifolia L. *S. rhombifolia L.			x			x x	x x x	x x x			•	-	-	x								
MELASTOMATACEA Melastoma affine D. Don MELIACEAE	E X	x	x				x	x											i	x	: 2	x x
Dysoxylum rufum (A. Rich.) Benth. Synoum glandulosum (Smith) Adr. Juss.	x					X			x	-		-	x x			-						
MENISPERMACEAE Hypserpa decumbens (Benth.) Diels						X				l			x									

				l	00/	۹L D	ISTR	IBUT	ION L	JNITS	S WH	IERE	SPE	CIES	S WE	RE R	ECO	RDED			
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	a	b	ç		a	r	a	b	r	a	r	а	r	а	b	a	b	a b	a	Ъ	с
Legnephora moorei						.—							v								
(F. Muell.) Miers Pleogyne australis Benth.						х							X X								
Sarcopetalum harveyanum						v			v												
Stephania japonica						Λ			Λ												
(Thunb.) Miers																					
Var. <i>limoriensis</i> (DC.)		v						v				x		x		v	x		x		x
		Λ			<u> </u>			л				Λ		Λ			<u></u>				
MENYANTHACEAE Nymphoides exiliflora (F. Muell) Kuntze								x													
N. indica (L.) Kuntze								••													Х
Villarsia exaltata																					
G. Don				x			x	х													Х
MIMOSACEAE																					
Acacia attenuata																					
Maiden & Blakely		Х																			
A. aulacocarpa Cunn.																					
ex Benth.	v	v				v	v	v	v	v		v		v			v	x	v		x
A hakeri	Λ	л				x	^	л	Λ	^		л		^			л				Λ
A. baueri Benth.																					
subsp. baueri	Χ									Х				X						_	
A. cincinnata F. Muell.		Х				Х		Х											X	Х	
A. complanala Cunn.		x																			
A. falcata Willd.		x																			
A. flavescens Cunn.																					
ex Benth.		X					X	Х		Х		Х		X					X	Х	
A. hubbardiana Pedley		Х					X														
A. lelocalyx (Domin) Pedley subsp																					
hervevensis Pedlev		х								x		х									
A. leiocalyx (Domin)																					
Pedley subsp.	_																				
leiocalyx	Х	Х				v		X		X		х					Х		X	Х	X V
A. malaenii F. Muell, A. melanorulon						Λ		Λ													Λ
R. Br. ex Aiton	Х					Х															
A. oshanesii F. Muell.																					
& Maiden	Х			.		Х															
A. penninervis Sieber																					
longiracemosa Domin	х	х				х	x		х	x		х		x					x		
A. quadrilateralis DC.		X																			
A. sophorae (Labill.)R. Br.																			Х		Х
A. suaveolens (Smith)		••								77		77									
Willd.		х								X		х									
Court var. ulicifolia		х								x											
Archidendron grandiflorum																					
(Sol. ex Benth.)	_																				
I. Nielson	Х					Х							х								

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				L	OCA	LD	STRI	BUTI	ON U	NITS	WH	ERE	SPE	CIES	WE	RER	ECO	RDE	D		
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	a	Ų	с 		a	I	a 			a		a 		a 		.a.		a 		a 	0 0
Archidendron lovelliae (Bailey) I. Nielson	x					x							x					•			
MONIMIACEAE Wilkiea huegeliana (Tul.) A. DC. W. macrophylla (Cunn.) A. DC.						x x							x x								
MORACEAE Ficus coronata Spin F. obliqua G. Forster F. platypoda (Miq.) Cunn ex Miq. F. watkinsiana Bailey Malaisia scandens (Lour.) Planchon	x x					x				-		-	X X X X X					-			
MYOPORACEAE Myoporum acuminatum R. Br. sens. 1at.								X								x ⁱ					x
MYRSINACEAE Aegiceras corniculatum (L.) Blanco Embelia australiana (F. Muell.) Mez Rapanea porosa (F. Muell.) Mez R. subsessilis (F. Muell.) Mez R. variabilis (R. Br.) Mez	x x x		-			x x x		x	x	-	x	x	x x x x	x	x			x		x	X
MYRTACEAE Acmena hemilampra (F. Muell. ex Bailey) Merr. & Perry A. smithii (Poiret) Merr. & Perry Angophora costata (Gaertner) Britten subsp. leiocarpa L. Johnson ex G. Leach	x	x	X			x x	x	X	x x	X	X	X	X							x	
A. woodsiana Bailey Austromyrtus dulcis (C. White) L.S. Smith A. bidwillii (Benth.) Burret Backhousia citriodora F. Muell. B. myrtifolia Hook. & Harvey Baeckea imbricata (Gaertner) Druce B. linearis C. White B. stenophylla F. Muell. B. virgata (J.R. Forster & G. Forster) Andeauro	v	x	X	x		x	X X X X X X X X	x	X	x x x x	X	x x x	x x x	x			х			x	Х

* <u>************************************</u>				1	00	AL D	STR	BUTI	ONL	INITS	SWH	IERE	SPE	CIE	S WE	REF	RECC	RD	ED			
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	a	b	с		a	r	a	b	r	a	r	a	r	a	b	a	b	a	b	a	b	С
Callistemon pachyphyllus Cheel var.																						
pachyphyllus				x			x	Х														
C. pachyphyllus Cheel				x			x															
C. salignus (Smith) DC.	х					Х		Х														
Decaspermum humile (G. Don) A.J. Scott													х									
Eucalyptus acmenoides			v				v.													·		
E. bancroftii (Maiden)			<u></u> _								_											
Maiden				X			X															
E. drepanophylla F. Muell.	v	v	v																			
ex Benn. E grandis W Hill ex	л	л	л																			
Maiden					x	х																
E. gummifera (Gaertner) Hochr.		x					x															
E. intermedia R. Baker	Х	Х	Х		X	Х	X	Х	Х	Х		х		Х			Х			X	Х	
E. microcorys F. Muell.	X		<u>X</u>		<u> X</u>	X						x										
E. nigra R. Baker	X	X								v		v	•									
E. putuaris Sintin	Λ	x								x		x										
E. robusta Smith		~				х	x	х	х											x	х	
E. signata F. Muell.	х	х	х					х		х		х		Х								
E. tereticornis Smith		х	Х		Х			х				Х								X	Х	
E. tessellaris F. Muell.								х				Х		Х						X		
E. umbra R. Baker																						
subsp. umbra		х		X			х			х											Х	
Homoranthus virgatus		v		. I			v			v												
Lantosparmum attanuatum		А	_				^			Λ												
Smith		х	x				x	х		x		х								x		
L. flavescens Smith																						
sens. lat.	х	Х		X			х	Х		х		Х								X	Х	
L. juniperinum Smith				X			х	х														
L.liversidgei											'											
R. Baker & Harry Smith	L	X					х			X												
L. semibaccatum Cheel		Х					v			х												
L. speciosum Schauer		v					x														÷	
Lophostemon confertus (R		л		[^			Λ															
Br.) Peter G. Wilson &																						
J.T. Waterhouse	х	Х	Х			Х	Х		X	Х	Х	X	Х	X			X			X	X	
L. suaveolens (Sol. ex										Γ												
Gaertner) Peter G.																						
Wilson &		77		v			v	v														
J.I. Waternouse		<u>х</u>		^			N V	л												^		
Metaleuca linarujolla Sillu M. nodosa (Gaertner) Smith	L	x		x			^			x												
M. auinquenervia (Cay.)				1																		
S.T. Blake		х	Х	x		Х	x	х				x								X	х	х
M. sieberi Schauer		X		-			X	Х														
M. thymifolia Smith				X			Х	Х														
Micromyrtus leptocalyx																						
(F. Muell.) Benth.				X			Х															

	·				00/	AL DI	STR	BUT	ONL	INITS	S WH	ERE	SPĘ	CIES	WE	RER	ECO	RDE	D			_
• · · ·	я	1 b	c	2	а а	3	8	4 b	, T	a 5	r r	б а	r	7 a	Ъ	a	8 b	a	9 b	a	10 b	Ċ
01	a 				a		a 					. u	_									
Usbornea octodonta F. Muell.																		x				
Pilidiostigma glabrum																						
Burret	、												X									
r. rnyuspermum (F. Muell. Burret	.)					x							x									
Rhodamnia acuminata						~																
C. White						Х						Х	X									
R. argentea Benth. Rhodomyrtus psidioidae				1	1								A				_					
(G. Don) Benth.	х																					
Syncarpia hillii Bailey										Х		Х	Х									
Syzygium australe										,												
(wend). ex Link) B. Hyland									х													
S. johnsonii (F. Muell.)																						•
B. Hyland											х		x									
S. <i>tuehmannu</i> (F. Muell.) L. Johnson	x					x			х		х		x									
S. oleosum (F. Muell.)				İ	İ																	
B. Hyland	х					Х	X		Х		Х	X	х			ľ		1		X	Х	
(Smith) Peter G. Wilson	n																					
& J. T. Waterhouse	-					х																
Waterhousea floribunda																		1				
(F. Muell.) B. Hyland	15					Х																
Bailey	10					Х																
NYMPHAEACEAE								_														
*Nymphaea capensis								_														_
Thunb.								X														Х
OLACACEAE																						
Olax retusa F. Muell.										v												
ex. Benth.					1_									\vdash		\vdash						
OLEACEAE				ĺ																		
Notelaea longifolia Vent.		v							77				v									
1. glabra P. Green N. ovata R. Br		X X				X	X		X				л									
Olea paniculata R. Br.													х									
ONAGRACEAE				1	1									1								
Ludwigia octovalvis (Jacq.)	1																			_		
Raven							X													X		
* <i>Oenothera affinis</i> Cambess																						х
*O. drummondii Hook.														X						X		X
OXALIDACEAE				-	1											Τ	_					
Oxalis rubens Haw.								Х						X						X		X
PASSIFLORACEAE																						
Passiflora aurantia G.																						
Forster				1										1								

				L	.00	AL D	ISTR	IBUT	ION I	UNIT	SWH	IERE	SPE	CIE	S WE	RER	ECO	RDE	D			
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	a	b	с 		a 	I	a	D	r	a	r	а ——	r	a	D	a	0		0	a		с
*Passiflora foetida L. P. herbertiana Ker-Gawler subsp. herbertiana *P. suberosa L.								X X					x			x x	x			x	x	
PIPERACEAE Piper novae-hollandiae Miq.	x											x	x	x								
PITTOSPORACEAE Billardiera scandens Smith var. scandens Bursaria spinosa Cav. Citriobatus pauciflorus Cunn. ex Ettingsh. Pittosporum revolutum Aiton ex Dryander P. venulosum F. Muell.	x x	x x	x			x				X	x	X	X X	x			-					
PLUMBAGINACEAE Aegialitis annulata R. Br. Limonium australe (R. Br.) Kuntze																		x x				
POLYGALACEAE Comesperma defoliatum F. Muell. C. hispidulum Pedley Polygata linariifolia Willd. Salomonia ciliata (L.) DC.		x x		x x			x	x										-			x	
POLYGONACEAE Polygonum salicifolium Brouss. ex Willd. P. strigosum R. Br.								x														x
PORTULACACEAE Portulaca bicolor F. Muell.																x					•	
PRIMULACEAE Samolus repens (J.R. Forster & G. Forster) Pers.											-							x				
PROTEACEAE Banksia aemula R. Br. B. integrifolia L.f. var. compar (R. Br.) Bailey B. integrifolia L.f.		x x	x				x x	x x		x x		x x		x		x				x x	X	
var. integrifolia B. oblongifolia Cav. B. robur Cav. B. serrata L.f. B. spinulosa Smith var. spinulosa		X X X		x x		•	x x	X X				x		x x x		x	x			X X X	х	X

· · · · · · · · · · · · · · · · · · ·	LOCAL DISTRIBUTION UNITS WHERE SPECIES WERE RECORDED 1 2 3 4 5 6 7 8 9																					
		1		2	3	3_		4 h	_	-	5	6		. 7	7 · h		8 b		9 ト		10 h	
	a	D	C		a	r	a	D	T	a 	r	a	T	а 	0	_a		a	0	a 	0	с
Conospermum taxifolium Smith Grevillea hilliana F. Muell.		x		X		x		x		x			·									
G. leiophylla F. Muell. ex Benth. Hakea florulenta Meisner		X X	x	÷.,			x x	X , '		x												
ex Benth.		X																				
I. sp. all. H. sericed Schrader		X		<u>x</u>			X	X		X										<u>x</u>		
R. Br.	х	х	Х									х										
ex R. Br. P. tenuifolia R. Br.		X X	Х	x								X		Χ								x
P. virgata R. Br. Petrophila shirleyae Bailey		X X	X	X X			X X	х		X X		х		Х						x	•	
Stenocarpus sinuatus Endl. Strangea linearis Meisner		x		X		Х	х			X			Х									
Xylomelum sp.	_X	X					X															-
RANUNCULACEAE Clematis glycinoides DC. Ranunculus lappaceus Smit var. lappaceus	h						X						x									
RHAMNACEAE																						
(Cunn. ex Fenzl) Reisseck ex Benth. Emmenosperma cunningham	X nii	X	X			x	X.	х	x	x		x	X	X			х	x	Į.	x	X	x
Benth.					<u> </u>								<u>х</u>									
RHIZOPHORACEAE Bruguiera gymnorhiza (L.) Lam. Cerions tagal								X										x				
(Perrottet) C. Robinson var. australis C. White Rhizophora stylosa Griffith								X X										x x				
ROSACEAE Rubus moluccanus L.	x	x				x			-								_					
RUBIACEAE Canthium coprosmoides F. Muell. C. lamprophyllum F. Muell.	-									-	x		X X	x		x	x			x		x
Coetospermum paniculatum F. Muell. Durringtonia paludosa R. Henderson & Guymer Hedyotis herbacea L. Hodgkinsonia ovatiflora						х	XX	X					X									
F. Muell.				1									X									

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	a	b	с	-	a	r	a	b	r	a	r	a	r	a	ь	a	b	a	Ъ	a	b	с
Morinda jasminoides Cunn						x			x			x	x									
Opercularia diphylla						~						~	~									
Gaertner		X	Х									Х		X								
Pomax umbellata (Gaertner)																						
Sol. ex A. Rich.	Х					Х		х		X		X								X	Х	
Psychotria loniceroides	v	v				v						v	v							v		
Randia chartacea (F Muell)	Δ,	Λ				Λ						л	Λ	^								
F. Muell.	х																					
*Richardia brasiliensis																•						
(Moq.) Gomes																						X
Spermacoce multicaulis														v								
Benth.											·			X								
RUTACEAE																						
Acronychia imperforata											_											
F. Muell.					•	х			х	X	Х	X	Х							X		
A. oolongijolia																						
Endl. ex Hevnh.				x	x	x																
A. pauciflora C. White						Х																
A. wilcoxiana (F. Muell.)																						
T. Hartley						X							X									
Boronia jaicijolia Cunn.				v			x															
B. kevsii Domin				Λ	x	x	Δ															
B. rivularis C. White		Х					Х															
B. rosmarinifolia Cunn.																						
ex Endl.		х					Х			X		X										
subsp australasius	•							x		x												
E. myoporoides DC.											_											
subsp. queenslandicus																			÷.,			
(C. White) Paul G.																						
Wilson Fundia allamana E. Muell	v	Х		X			Х	v		X												
E vitiflora F Muell	Λ							л					x									
Halfordia kendack																						
(Montrouz) Guillaumin						Х	Х		Х		Х	X	Х							X		
Phebalium woombye	v					v	v			v		-72		v							v	
(Balley) Domin	Λ					Λ	л			л		<u> </u>									Λ	
(Endl.) T. Hartley																						
subsp. simplicifolia													Х									
Zieria laxiflora (Benth.)																						
Domin Ziania minutiflora (E. Muoll	、	х		X			Х			X												
Domin	x	x						x														
Z. smithii Andrews																						
sens. lat.	х					х	Х					X	Х							X		
SANTALACEAE																						
Choretrum candollei																						
F. Muell. ex Benth.										X												
Exocarpos cupressiformis		v								v		v					v			v		v
Laulli.		~										I A		I A		1	~ ~	1		i A		Δ

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						LD	STR	BUTI	ONU	NITS	WH	ERE	SPE	CIES WE	RER	ECOF	RDED			
	a	1 b	с	2	3 a	r	a	4 b	r	5 a	r	6 a	r	7 a b	_ 8 a	ь	9 a b	a	10 Ъ	c
Exocarpos latifolius R. Br. Leptomeria acida R. Br.		X X				x		x		x		,	x				-			
SAPINDACEAE												_								
(Benth.) Radlk. Aryteradivaricata F. Muell. A. lautereriana (Bailey) Radll	k.												x x	x x		x				
Cupaniopsis anacardioides (A. Rich) Radlk. Dodonaea triquetra Andrews	x	x	x			x	x	x		x		x	x	x	x			x x	x	
subsp. burmanniana (DC.)J. West															x	x				
Guioa acutifolia (F. Muell.) Radlk. Jagera pseudorhus (A. Rich.))					x			x			x	x							
Radlk. var. pseudorhus Mischocarpus pyriformis (F. Muell.) Radlk.	x																			
subsp. pyriformis Sarcopteryx stipata (F. Muell.) Radlk.	х					X x			Х		x x		x x							
Toechima tenax (Benth.0 Radlk.						x														
SAPOTACEAE Planchonella australis (R. Br.) Pierre				-		x			,											
(F. Muell. ex Benth.) H.J. Lam P. laurifolia (A. Rich.)	x								x		X		x							
Pierre	_			_		Х			X				Х							
SCROPHULARIACEA Artanema fimbriatum D. Don	E	x							v						v					
Buchnera urticifolia R. Br. Centranthera cochinensi: (Lour.) Merr. Gratiola pendunculata R. Br	X s						x		л					x						
Limnophila aromatica (Lam Merr.	.)	x																		
Lindernia crustacea (L.) F. Muell. *Scoparia dulcis Benth.								x											х	
SIMAROUBACEAE Ailanthus triphysa (Dennst.) Alston													x			_				
SOLANACEAE Duboisia myoporoides R. Br.					-							x							-	

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	a	1 b	с	2	a	3 r	a	4 b	r	a	5 r	a a	r	a	7 Ъ	a	8 Ъ	a	9 Ъ	a	10 Ъ	с
*Physalis peruviana L.					x																	
SPIGELIACEAE Mitrasacme alsinoides R. Br. M. paludosa R. Br. M. pygmaea R. Br.	x	X X	x	x		x	x x	x													X	
STACKHOUSIACEAE Stackhousia spathulata Sieber ex Sprengel S. viminea Smith				x			x	x						x						x		
STERCULIACEAE Argyrodendron trifoliolatum F. Muell. A. sp. aff. A. trifoliolatum F. Muell. Commersonia bartramia (L.) Merr. Sterculia quadrifida R. Br.						x x							x x x x x									
STYLIDIACEAE Stylidium debile F. Muell. var. debile S. graninifolium Swartz ex. Willd. S. ornatum S.T. Blake		x		x	-		x	x						-								
SYMPLOCACEAE Symplocos stawellii F. Muell. S. thwaitesii F. Muell. S. sp. aff. S. baeuerlenii R. Baker	x					x x		x					x									
TETRAGONIACEAE Tetragonia tetragonioides (Pallas) Kuntze															x							
THYMELAEACEAE Pimelea linifolia Smith subsp. linifolia Wikstroemia indica (L.) C.A. Meyer		x					x	x		x		x		x		x				x	X	x x
TILIACEAE Grewia latifolia Benth. Triumfetta rhomboidea Jacq.																x x	x					
TREMANDRACEAE Tetratheca thymifolia Smith		x					x			x												

						AL DI	STR	IBUTI	ON L	INITS	WH	IERE	SPE	CIES	S WE	RER	ECO	RDE	D			
	a	1 b	с	2	a	r r	a	4 b	r	5 a	r	6 a	r	a	7 Ъ	a	8 b	a	9 Ъ	a	10 Ъ	c
ULMACEAE Celtis paniculata (Endl.) Planchon Trema aspera (Brongn.) Blume	-	-			-		-						x x									
URTICACEAE Dendrocnide photinophylla (Kunth) Chew													X									
VERBENACEAE Clerodendrum floribundum R. Br. Gmelina leichhardtii F. Muell. *Lantana camara L. *Phyla nodiflora (L.) Greene var. longifolia Moldenke	x	x				x		X		-	X	x x	X X X	x		x	x	-	-	x	x	x
Vuex trijolia L. VIOLACEAE Hybathus enneaspermus (L. F. Muell. subsp. stellarioides (Domin) E. Bennett H. monopetalus (Roemer & J.A. Schulter Domin Viola betonicifolia Smith subsp. betonicifolia. V. hederacea Labill. subsp. hederacea V. hederacea Labill. subsp. perenniformis L. Adams	.) s)	X	X				x x x x	x		x		x	x									
VISCACEAE Notothixos incanus (Hook.) Oliver N. subaureus Oliver Viscum articulatum N. Burman					X		x	x x		x		-							•			
VITACEAE Cissus hypoglauca A. Gray C. opaca F. Muell. C. sterculiifolia (F. Muell.) Planchon		x	x			x x	x	x	x	x	x x	x	x x	x				x		:X		
WINTERACEAE Tasmannia insipida R. Br. ex DC.	X					X		1 .			x		X									

					LOC	AL D	ISTR	IBUT	ION L	JNITS	SWF	IERE	SPE	CIES	S WE	RER	ECO	RDE	D			
	_	1		2		3		4	_		5	6	_	7	/ h		8 ⊾		9 ⊾		10 b	~
	a	D	-C		a	I	a	D	r	a	r	a	r	a	D	a	D	a	D	a	0	
MONOCOTYLEDON	S																					
AGAVACEAE Cordyline rubra Huegel ex Kunth	x					x			х		x	x	x									
AMARYLLIDACEAE Crinum angustifolium R. Br. C. pedunculatum R. Br.		x						x						x								
ARACEAE Gymnostachys anceps R. Br. Pothos longipes Schott	x x		x			x																
ARECACEAE Archontophoenix cunninghamiana (H.L. Wendl.) H.L. Wendl. & Drude Calamus muelleri H.L. Wendl. Linospadix monostachya (C. Martius) H.L. Wendl. Livistona australis (R. Br.) C. Martius L. decipiens Becc.	x x	x				x x x x x		X	x		x		x x							x	x	
BURMANNIACEAE Burmannia disticha L.							x			x		_										
COMMELINACEAE Aneilema acuminatum R. Br Commelina lanceolata R. Br. Murdannia graminea (R. Br.) Brueckner	•	x	x x	x				x x	x		X		x	x							x	x x
CYPERACEAE Baumea articulata (R. Br.) S.T. Bl ka B. juncea (R. Br.) P la 1 B. muelleri (C.B. Clarke) S.T. Blake B. rubiginosa (Sprengel) Boeck. B. teretifolia (R. Br.) P all Carex neurochlamys F. Muell. C. pumila Thunb. Caustis blakei	x	a X					X X	X X X X					-		-						x x x x	x x x
Kukenthal ex S.T. Blake C. recurvata Sprengel Chorizandra cymbaria R. Br. C. sphaerocephala R. Br.		X X	X X	x x		x	X X X	x x		X X		X X		x							x	

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				I	.00	ALD	ISTR	BUTI	ONU	NITS	SWH	ERE	SPE	CIES	WEF	RER	ECO	RDE	D			
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	a	b	c	_	a	r	a	b	r	a	r	a	r	a	b	a	ь	a	b	a	b	с
Cladium procerum																						~
S.T. Blake								х														
Cyathochaeta diandra (R Br)																						-
Nees		x	\mathbf{x}				x	х														
Cyperus howmannii F Muel	1		**																			
ex Benth														х								
*C brevifolius (Rotth.)																						- 1
Hassk								x												1		
C flavidus Petz							x															
*C flows (Vahl)Nees							~					x		x						x		
C haspan I			x				x	x						•••						x		x
C lanviagtur I					<u> </u>																	- x
$C_{1acuis} \mathbf{P} \mathbf{P}_{\mathbf{r}}$		v																,				**
C. laioagulan Ponth		Λ			ĺ		-	v														
C. lelocation Bellui.					1			Λ			· .		v									
C. peaunculosus F. Muell.							v						Λ									
C. puosus vani				77	ļ .			v													v	\mathbf{v}
C. polystachyos Roub.		1 2		Х			^	Λ				l v					v			^	л	A V
C. scaber (R. Br). Boeck.		х										^					л					^
C. sphaeroideus														-								
L. Johnson & O. Evans			Х					÷.,													÷.	
C. stradbrokensis Domin								Х					Х	ļ							X	
C. subulatus R. Br.																					Х	
C. tetraphyllus R. Br.													X		_					<u> </u>		
C. trinervis R. Br.	Х						X	х							•							
C. unioloides R. Br.							X															
Eleocharis caribaea																						
(Rottb.) S.T. Blake								Х							Х							
E. equisetina C. Presl																						х
E. ochrostachys Steudel								Х														
E. sphacelata R. Br.														1								х
E. spiralis (Rottb.) Roemer																						
& J.A. &																						
J.H. Schultes								Х														
E. tetraquetra Nees	Х																					
Fimbristylis brownii Benth.			Х																			
F. cinnamometorum (Vahl)					1										_							
Kunth		х					X	Х												X		
F. depauperata R. Br.		х			1		X															
F dichotoma (L.)																						
Vahl sens lat		x	x				x	x		lх		x				·						
F ferruginea (L.) Vahl																		X	5		Х	
F furva R Br		×x																				
E nutang (Detz) Vahl		11	v	v			x	x												x	x	
F. ougta (N. Burman) Kern			v	^			1 ^	Λ												1		
E pausiflora P Dr		v	л	$ _{\mathbf{v}}$	-			v														
F. paucifiora K. DI. E. polytrichoidar (Potz.)		<u>`</u>		^	•			л														
r. polytricholaes (Retz.)					1													l v	-			
					+	_	v			-				-				1	`	+	v	
ruirena ciliaris (L.) Roxb.																					, A	
F. umbellata Rottb.							X									1						
Gahnia aspera (R. Br.)																1						
Sprengel	Х	Х				_														1.		
G. clarkei Benl				_		. 2	κį X	X	X							1						
G. sieberiana Kunth	Х	Х		X				X													X	. X
Isolepis inundata R. Br.							X	X														
I. nodosa (Rottb.) R. Br.															Х			12	٢.			Х
Lepidosperma laterale																						
R. Br.	Х	Х	Х	X				٠X				12	(1						

				L	OCA	۱LD	STR	IBUTI	ONL	INITS	S WH	ERE	SPE	CIES	WE	RER	ECO	RDE	D			
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	a	b	с		a	r	а	b	r	a	r	a	r	a	b	а	b	a	b	a	b	с
					F																-	
epidosperma longitudinale																						
Labill.							х	Х		х												
epironia articulata (Retz.)							v	v														·
Domin							л	л				^										
Tilanthelium aeustum		77	v		1																	
(R. Br.) Kukenthal		Х	X		ŀ																	
knynchospora brownii					·																	
Roemer & J.A. & J.H.			v		ļ.		37	77													v	
Schultes		Х	х				х	х													л	
C. corymbosa (L.) Britton	<u>X</u>	1/			<u> </u>		v	v			-							-				
R. rubra (Lour.) Makino		Х					л	л														
schoenoplectus mucronatus		v			1														•			
(L.) Palla ex Kerner		Х																				
S. validus (Vahl) A. Love 8	č							v						v								
D. Love								Х						^								
schoenus apogon				1																		
Roemer & J.A. & J.H.		v	v	v			v	v		v												
Schultes		<u> </u>			<u> </u>	_	A V			л								<u> </u>			v	
brevifolius R. Br.		Х		X			х	Х													л	
. calostachyus (R. Br.)				v	-			v								v						
Poiret				X				X						A		^						
melanostachys K. Br.								Х														
. ornithopodioides										37												
(Kukenthal) S.T. Blake										х												
S. pachylepis S.T. Blake				X																		
S. paludosus (R. Br.) Poire	t		X		X			Х														
s. scabripes Benth.				X	1		х															
S. turbinatus (R. Br.)																		,				
Poiret										Х												
S. vaginatus F. Muell.	••	X	X				X															
Scleria brownii Kunth	Х	X	Х		1		X															
. levis Retz.	••	Х			1		х															
. mackaviensis Boeck.	X						-															
S. sphacelata F. Muell.	Х				1																	
Trachystylis stradbrokensis																						
(Domin) Kukenthal					1					Х										∧		
					[
DIOSCOREACEAE													v									
Dioscorea transversa R. Br.	X												х								_	
																					-	
ERIOCAULACEAE							77	v														
Scriocaulon australe R. Br.		Х						A V													v	
S. scariosum Smith							X														<u></u>	
FLAGELLARIACEAE						v			37				v									
lagellaria indica L.	Х				l .	Х	•.	÷Χ	Х				л									
			-]																	
HAEMODORACEAE																						
laemodorum																						
austroqueenslandicum								77														
	X							х				^										
1. ienuijoiium Cunn.		v			1		v							`		1						
ex Benth.		<u> </u>		<u>^</u>																		
	,																					
TI DKUUTAKII AULAL Vallisnaria spiralis I	4							x														

LOCAL DISTRIBUTION UNITS WHERE SPECIES WERE RECORDED 1 2 3 4 5 6 7 8 9																						
		1		2		3.		4		5		6		7	`.	8	1 L		9		10	
		b	с 		a	r		D	r	a	r	a	I	a	D	a 	0	a 	D	a	0	C
HYPOXIDACEAE Curculigo ensifolia R. Br. Hypoxis pratensis R. Br.	x	X	X		-					•				-					-			
IRIDACEAE Patersonia fragilis (Labill.) Asch. & Graebner P. glabrata R. Br. P. sericea R. Br. ex Ker-Gawler var. sericea		x x		x x			x			x x		x		x								
JUNCACEAE Juncus continuus L. Johnson ms. J. krausii Hochst. J. polyanthemus Buchenau J. prismatocarpus R. Br.				x			x x	X X X							x			x			x	x
JUNCAGINACEAE Triglochin procera R. Br. T. striata Ruiz & Pavon					-		x								x	x						
LILIACEAE Blandfordia grandiflora R. Br. Burchardia umbellata R. Br. Caesia vittata R. Br. var. chlorantha (F. Muell.) Benth.		x		x x			x	x								x						-
C. vittata R. Br. var. vittata Dianella caerulea Sims (includes var. protensa R. Henderson and var. vannataa R. Henderson) D. congesta R. Br.	x	x x				х	x	x x	х	x		x		xx			X			x		xx
D. longifolia R. Br.								••														
var. longifolia D. revoluta R. Br		Х	X	X	$\left \right $		-	X									<u>_X</u>	-				<u>X</u>
var. revoluta Laxmannia gracilis R. Br. (includes L. compacta Contan & P. Forster)	X	x x		X x			X x	x x		x x		x		X			х			x	х	
Sowerbaea juncea Smith Thysanotus tuberosus R. B. Tricoryne elatior R. Br. T. platyptera H.G. Reichb.	r. X	x x x	x x	X X X			XXX	xx	х	x x	x	X X				x						X X
ORCHIDACEAE Acianthus fornicatus R. Br. Arthrochilus irritabilis F. Muell.		x	x							x		x								x		

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	1		12	T ^{OO}	нь L 2	31F				5 VVF 5		SFI		3 VVE 7		λECO 8	חטב	0	I	10	
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Bulbophyllum exiguum F Muell												x									
Caladenia camea R. Br.	x		x				x					••									
C. catenata (Smith) Druce	••						••		x												
Calanthe triplicata																					
(Willemet) Ames X								х		х		х									
Caleana major R. Br.		х				x															
Calochilus campestris																					
R. Br.	X												Х								
Chiloglottis reflexa																					
(Labill.) Druce	Х										X										
Corybas aconitiflorus																					
Salisb.	Х																				
C. undulatus																					
(R. Cunn.) Rupp &			1																		
Nicholls ex Rupp	Х		X																		
Cryptostylis subulata																					
(Labill.) H.G. Reichb.	Х					Х															
Cymbidium madidum Lindley	X	X				X	Х	Х													
C. suave R. Br. X	. X	Х			Х				х				X	-							
Dendrobium aemulum R. Br.						X							Х								
D. gracilicaule F. Muell.			_									X									
D. linguiforme Sw.		Х										X									
D. speciosum Smith												X									
D. tetragonun Cunn.												х									
Dipoaium namilionianum	v	v							v												
Daney	л	л							л												
R Br	v	v							v		v										
Diuris aurea Smith	л	л	x						X		^										
Diaris darea Smith									Δ												
var. alba (R. Br.)			1																		
Docker.			x				x														
D. punctata Smith																					
var. punctata									х				х								
Eriochilus cucullatus																					
(Labill.) H.G. Reichb.	Х		х																		
Galeola cassythoides																					
(Cunn.) H.G. Reichb.	Х								Х		X										
G. foliata (F. Muell.)																					
F. Muell.												Х									
Geodorum densiflorum																					
(Lam.) Schltr.	X	Х	Х																		
Glossodia minor R. Br.	X		X				Х		X												
Liparis habenarina (F. Muell.)																					
Benth.	<u>X</u>			<u> </u>																	
L. simmondsii Bailey	Х																				
Lyperanthus suaveolens																					
K. Br. Mianatia unifali -	Х							I													
Microiis unijolia			1																		
(G. Forster)	v		1	.																v	
H.G. Keichb.	Х		1																	л	
E Muell												v									
r, Much. Paristaranthus hillii			1									Λ									
(F Muell) Hunt			1									x									
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A. browniana Henrard X	A benthamii Henrard		x					x	x							-							
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A. vagans Cav. A. warburgii Mez X X Arthraxon hispidus (Thunb.) Makino yar, hispidus	A. calycina R. Br.				1						X		X		X			X				Х	хх
A. warburgii Mez X X Arthraxon hispidus (Thunb.) Makino yar, hispidus	A. vagans Cav.							X															
Arthraxon hispidus (Thunb.) Makino yar, hispidus	A. warburgii Mez		х					X															
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*Axonopus affinis Chase X X	*Axonopus affinis Chase		Х			1.		X															

LOCAL DISTRIBUTION UNITS WHERE SPECIES WERE RECORDED 1 2 3 4 5 6 7 8 9 10																						
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Bothriochloa bladhii (Retz.) S.T. Blake Capillipedium parviflorum (R. Br.) Stapf C. spicigerum S.T. Blake		x					X X															Y
*Cenchrus echinatus L. Cymbopogon refractus (R. Br.) A. Camus Dichelachne micrantha (Cav. Domin)	x	x				x	x x														x
Digitaria didactyla Willd. *D. eriantha Steudel subsp. pentzii (Stent.) Kok					-																X	x
D. leucostachya (Domin) Henrard D. orbata Hughes D. parviflora (R. Br.)		x					x					37		x								
Hughes D. ramularis (Trin.) Henrard Elionurus citreus (R. Br.) Munro ex Benth.			х	X								X				х						
Entolasia marginata (R. Br.) Hughes E. stricta (R. Br.) Hughes Eragrostis brownii	x	X				x	x	X X		x		x		x			x					x
(Kunth) Nees ex Steudel <i>E. interrupta</i> Beauv. <i>E. pubescens</i> (R. Br.)	X	x	x				x	x		x x		X X		X X		X x	x			x x		x x
<i>E. sororia</i> Domin <i>Eremochloa bimaculata</i> Hackel	X			x x				x						-		x		-				
Eriachne glabrata (Maiden) W. Hartley E. pallescens R. Br. E. rara R. Br.		x x		x			Ķ	X X		x		x x				x						
Eriochloa procera (Retz.) C.E. Hubb. Eulalia trispicata (Schultz) Henrard		x	•					x														
Hemarthria uncinata R. Br. Hyparrhenia filipendula (Hochst.) Stapf.	X							х													•	
Imperata cylindrica (L.) Beauv. Isachne globosa (Thunb.) Kuntze	x	х	x	х	х		x x	x		Х		х		X	•	х	x			x	x	x
Ischaemum australe R. Br. I. fragile R. Br. I. triticeum R. Br. Leersin herondra Sw							x	X		x				x	X					x	х	X X
Lepturus repens (J.R. Forster R. Br. *Melinis minutiflora Beauv.	r)	x					Δ			x												

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·	a	U	C		a	I	a	D	. 1	а	r		r	a 	D	a 	D		b	a	b	c
Oplismenus hirtellus (L.) P. Beauv. subsp. imbecillis (R. Br.) D. Scholz													x							-		
Ottochloa gracillima C.E. Hubb.						x		x														
O. nodosa (Kunth) Dandy						~		~	х				•									
Panicum effusum R. Br. var. effusum	x																					
P. effusum R. Br.	••																					
var. <i>simile</i> (Domin) B.K. Simon	x	x					x	x														
P. lachnophyllum Benth.		Δ			İ	-		<u> </u>	Х				-							-		· · ·
Paspalidium distans (Trin.) Hughes	x	x																				
P. gausum S.T. Blake			х										<u>.</u>									
Paspalum conjugatum Bergius					x																	
P. longifolium Roxb.					x																	
*P. notatum Fluegge P. scrobiculatum L.	x	x	x				x	X												v		v
*P. urvillei Steudel							x	x												Λ		^
(Cav.) Trin. ex Steudel							x	x														v
Pseudoraphis paradoxa											•											Λ
(R. Br.) Pilger Sacciolepis indica (L.)	-				<u> </u>										х							
Chase		Х	х	х				х											•			
(R. Br.) A. Camus		х					x							x			x	•		x		
Spinifex sericeus R. Br.														x	X					x		х
S. laxus B.K. Simon	·x																					x
S. virginicus (L.) Kunth					·													X			Х	
(Walter) Kuntze																x						
Themeda triandra Forssk.	X	х	Х	х	X		х	Х		х		x		X		X	X	v		X	х	X
					<u> </u>									^		л	Λ	^		_X		X
RESTIONACEAE																						
S.T. Blake			•							х												
Empodismaminus (ID Hook)																						
L. Johnson & D. Cutler				х			х	х														
Hypolaena fastigiata R. Br. Leptocarpus tenax (Labill.)										х							-					
R. Br.				x			х	х													_	
Lepyrodia caudata L. Johnson & O. Evans				x			x	x												-		
L. interrupta F. Muell.				x			x	x														
L. scariosa R. Br. Restio complanatus R. Br.		х		X			X X	x						·								
R. pallens R. Br.				x	1		X	X		х										х		
R. tenuiculmis S.T. Blake		х		X	1		х	Х														

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	a	1 b	C	2	3 a 1		a	4 b	r	a	5 r	6 a	r	a	b	a	З Ъ	a	у b	a	10 b	с
Restio tetraphyllus Labill. subsp. meiostachyus L. Johnson & O. Evans				x			x			x											x	X
SMILACAEAE Ripogonum album R. Br. R. discolor F. Muell. Smilax australis R. Br. S. glycophylla Smith	x x	x	x x			X I	X X		X X	X X		X X	x x	x						x x	X X	
TYPHACEAE Typha orientalis C. Presl.																						x
XANTHORRHOEACEA Lomandra confertifolia (Bailey) Fahn subsp. pallida A. Lee L. elongata (Benth.) Ewert	E									x		x x										
L. filiformis (Thunb.) Britten subsp. filiformis L. laxa (R. Br.) A Lee L. longifolia Labill. subsp. hystrix (R. Br.)			-					x	X	x x		X X		x			x					
A. Lee L. longifolia Labill, susbp. longifolia L. multiflora (R. Br.) Britten	x	x x	X	x		x x	x	x x x	x	x x		x x		x x		x x	x x			x x	x	
Xanthorrhoea fulva (A. Lee) Bedford X. johnsonii		x		x			X	x		x		v		v								
A. Lee X. latifolia (A. Lee) Bedford subsp. latifolia X. macronema F. Muell.	x	x X	x				x X	X X		X		X X		X							x	
ex Benth. XYRIDACEAE Xyris complanata R. Br. X. juncea R. Br.	x	x		x		X	x x	x x x		x	-	Х		X						x	x	x x
ZINGIBERACEAE Alpinia arundelliana (Bailey) Schumann A. caerulea (R. Br.) Benth.	x x					x																

