

H5: ElTe	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> low open woodland over <i>Triodia epactia</i> open hummock grassland
Distribution and Comments	This vegetation occurred in large areas on the steep south-facing slopes of the tall range of hills in the eastern half of the study area, and was also recorded from other hill slopes throughout the study area. <i>Triodia epactia</i> was the dominant spinifex but small amounts of <i>T. wiseana</i> or <i>T. brizoides</i> were recorded in places. Some records of the Priority 1 <i>Hibiscus</i> sp. Mt Brockman (E. Thoma ET 1354) and Priority 2 <i>Hibiscus</i> sp. Gurinbiddy Range (M.E. Trudgen MET 15708) were made in rocky areas within this vegetation type.
Other Associated Species	<u>Trees:</u> <i>Acacia pruinocarpa</i> , <i>Hakea lorea</i> subsp. <i>lorea</i> . <u>Tall Shrubs:</u> <i>Acacia kempeana</i> . <u>Shrubs:</u> <i>Acacia exigua</i> , <i>A. maitlandii</i> , <i>A. pyrifolia</i> var. <i>pyrifolia</i> , <i>Senna ferraria</i> , <i>S. glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> . <u>Low Shrubs:</u> <i>Indigofera monophylla</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus calostachyus</i> , <i>P. obovatus</i> var. <i>obovatus</i> , <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> (typical form), <i>Paraneurachne muelleri</i> . <u>Herbs:</u> <i>Cucumis variabilis</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia cusackiana</i> , <i>G. microptera</i> , <i>Polycarpaea holtzei</i> , <i>Ptilotus auriculifolius</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>P. polystachyus</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrat BNVR02 (initially sampled as BNV02 by Biota 2014a), BNV09 (Biota 2014a) and BMF22.



H5: quadrat BMF22.



H5: quadrat BNVR02.

H6: ElAciAprTe	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Acacia pruinocarpa</i>, <i>A. citrinoviridis</i> tall open shrubland over <i>Triodia epactia</i> open hummock grassland
Distribution and Comments	This vegetation type was recorded from only a few patches on the south-facing slopes of the range of hills in the eastern section of the study area. Scattered tall shrubs of <i>Grevillea berryana</i> were also typically present, along with occasional <i>Eremophila latrobei</i> subsp. <i>latrobei</i> shrubs and <i>Sida</i> sp. Shovelanna Hill (S. van Leeuwen 3842) low shrubs. <i>Triodia epactia</i> was the dominant spinifex however scattered <i>T. wiseana</i> and <i>T. brizoides</i> hummocks were sometimes recorded, intruding from surrounding vegetation types.
Other Associated Species	<u>Tall Shrubs:</u> <i>Acacia aptaneura</i> , <i>A. atkinsiana</i> , <i>A. pyrifolia</i> var. <i>pyrifolia</i> . <u>Shrubs:</u> <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>S. ferraria</i> , <i>S. glutinosa</i> subsp. <i>glutinosa</i> . <u>Low Shrubs:</u> <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Eremophila exilifolia</i> , <i>Keraudrenia nephrosperma</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Senna notabilis</i> , <i>Solanum diversiflorum</i> , <i>S. horridum</i> , <i>S. lasiophyllum</i> , <i>Tribulus suberosus</i> . <u>Grasses:</u> <i>Cymbopogon ambiguus</i> , <i>Eriachne mucronata</i> (typical form), <i>E. pulchella</i> , <i>Paspalidium clementii</i> . <u>Herbs:</u> <i>Cheilanthes brownii</i> , <i>Cucumis variabilis</i> , <i>Duperreya commixta</i> , <i>Dysphania rhadinostachya</i> , <i>Gomphrena canescens</i> subsp. <i>canescens</i> , <i>Goodenia cusackiana</i> , <i>G. microptera</i> , <i>Haloragis gossei</i> , <i>Hybanthus aurantiacus</i> , <i>Oldenlandia crouchiana</i> , <i>Phyllanthus erwinii</i> , <i>Polycarpha holtzei</i> , <i>P. longiflora</i> , <i>Pterocaulon sphacelatum</i> , <i>Ptilotus auriculifolius</i> , <i>P. clementii</i> , <i>P. fusiformis</i> , <i>P. polystachyus</i> , <i>Streptoglossa bubakii</i> , <i>S. decurrens</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> .
Vegetation Condition	Excellent to Very Good: occasional records of <i>*Sigesbeckia orientalis</i> and <i>*Vachellia farnesiana</i> .
Sites in the Study Area	Quadrat BMF17; mapping notes. Insufficient area to establish additional sampling sites within the study area.



H6: quadrat BMF17



H6: mapping note MM-MN58.

H7: ElTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Triodia wiseana</i> open hummock grassland
Distribution and Comments	This vegetation occurred generally over stony hills throughout the study area, and was applied to areas that did not have a prominent shrub component. Despite the lack of cover, several shrub species were commonly recorded, including <i>Acacia maitlandii</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> and <i>Tribulus suberosus</i> . The hummock grassland was dominated by <i>Triodia wiseana</i> , with scattered <i>T. epactia</i> occurring around drainage lines and in low-lying areas.
Other Associated Species	<u>Trees</u> : <i>Corymbia deserticola</i> subsp. <i>deserticola</i> , <i>Hakea chordophylla</i> . <u>Shrubs</u> : <i>Acacia bivenosa</i> , <i>A. exigua</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> . <u>Low Shrubs</u> : <i>Dampiera candidans</i> , <i>Goodenia stobbsiana</i> , <i>Keraudrenia nephrosperma</i> , <i>Solanum lasiophyllum</i> . <u>Grasses</u> : <i>Amphipogon sericeus</i> , <i>Aristida contorta</i> , <i>A. holathera</i> var. <i>holathera</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne mucronata</i> (typical form), <i>E. pulchella</i> , <i>Paraneurachne muelleri</i> , <i>Paspalidium clementii</i> , <i>Schizachyrium fragile</i> . <u>Herbs</u> : <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpha holtzei</i> , <i>Polygala glaucifolia</i> , <i>Ptilotus nobilis</i> subsp. <i>nobilis</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats BNV06, BNV10, BNV11 (Biota 2014a), BRO44 (Biota 2005), MMFR05 (initially sampled as MMF05 by Biota 2013a) and BMF23.



H7: quadrat BNV10.



H7: quadrat BMF23.

H8: ElTwTbt	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Triodia wiseana</i>, (<i>T. basitricha</i>) open hummock grassland
Distribution and Comments	This vegetation occurred on the lower colluvial hills at the southern edge of the tall range in the eastern half of the study area. This unit was generated primarily to identify areas of known or prospective habitat for the Priority 3 spinifex species <i>Triodia basitricha</i> ; it was otherwise not substantially different to vegetation type H7 (ElTw). <i>Triodia wiseana</i> was the dominant spinifex in this vegetation type, but small to large patches of <i>Triodia basitricha</i> were recorded at various locations and should be considered to occur more widely throughout this unit.
Other Associated Species	<u>Trees:</u> <i>Corymbia deserticola</i> subsp. <i>deserticola</i> , <i>C. hamersleyana</i> . <u>Tall Shrubs:</u> <i>Acacia marramamba</i> . <u>Shrubs:</u> <i>Acacia atkinsiana</i> , <i>A. bivenosa</i> , <i>A. maitlandii</i> , <i>Senna glutinosa</i> subsp. <i>pruinosa</i> . <u>Low Shrubs:</u> <i>Goodenia stobbsiana</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> , <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Amphipogon sericeus</i> , <i>Aristida contorta</i> , <i>A. holathera</i> var. <i>holathera</i> , <i>Eriachne aristidea</i> , <i>E. pulchella</i> , <i>Paraneurachne muelleri</i> . <u>Herbs:</u> <i>Dysphania rhadinostachya</i> , <i>Euphorbia australis</i> var. <i>subtomentosa</i> , <i>Gomphrena cunninghamii</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpaea holtzei</i> , <i>Ptilotus auriculifolius</i> , <i>P. fusiformis</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats BNV08 (Biota 2014a) and MMFR07 (initially sampled as MMF07 by Biota 2013a).



H8: quadrat BNV08.



H8: quadrat MMFR07.

H9: ElAbTbr	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Acacia bivenosa</i> open shrubland over <i>Triodia brizoides</i> hummock grassland
Distribution and Comments	This vegetation occurred on the slopes of moderate-sized hills in the central section of the study area. It was similar to vegetation type P2, but due to its location on hill slopes it lacked a number of the species found in the latter vegetation on the flats. The spinifex hummock grassland was strongly dominated by <i>T. brizoides</i> ; although patches of <i>T. epactia</i> did occur in places, these largely formed a separate vegetation type (H5: ElTe), and only scattered individuals of <i>T. wiseana</i> were sometimes recorded.
Other Associated Species	<u>Tall Shrubs:</u> <i>Acacia synchronicia</i> . <u>Shrubs:</u> <i>Acacia maitlandii</i> , <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>S. glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>x luerssenii</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> . <u>Low Shrubs:</u> <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Aristida contorta</i> , <i>Enneapogon polyphyllus</i> , <i>Eriachne mucronata</i> (typical form), <i>E. pulchella</i> , <i>Iseilema dolichotrichum</i> , <i>Paspalidium clementii</i> . <u>Herbs:</u> <i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Gomphrena cunninghamii</i> , <i>Goodenia muelleriana</i> , <i>Lepidium pholidogynum</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpha holtzei</i> , <i>P. longiflora</i> , <i>Polygala glaucifolia</i> , <i>Ptilotus auriculifolius</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Rhynchosia minima</i> , <i>Streptoglossa decurrens</i> , <i>Swainsona maccullochiana</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats BMF24 and BMF35; relevé BMFRSPF.



H9: quadrat BMF24.



H9: relevé BMFRSPF.

H10: AiTbr	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia brizoides</i> hummock grassland
Distribution and Comments	This vegetation occurred only on a series of stony hills in the southernmost part of the study area. Scattered shrubs of <i>Acacia maitlandii</i> were found in some places. The minor flowlines within this vegetation type were observed to support a tall shrubland of <i>Acacia ancistrocarpa</i> over a hummock grassland of <i>Triodia brizoides</i>. One small section of creekline, which adjoined vegetation type C2, was found to support an <i>Acacia citrinoviridis</i> low open forest over a <i>Triodia brizoides</i> open hummock grassland (as sampled by relevé BMF-RMA). This small area was not mapped separately.
Other Associated Species	<u>Shrubs:</u> <i>Abutilon lepidum</i>, <i>Eremophila forrestii</i> subsp. <i>forrestii</i>, <i>Ptilotus rotundifolius</i>, <i>Senna artemisioides</i> subsp. <i>oligophylla</i>, <i>S. glutinosa</i> subsp. <i>pruinosa</i>. <u>Low Shrubs:</u> <i>Indigofera monophylla</i>, <i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90), <i>Solanum diversiflorum</i>, <i>S. horridum</i>. <u>Grasses:</u> <i>Aristida contorta</i>, <i>Enneapogon caerulescens</i>, <i>Paspalidium clementii</i>, <i>Sporobolus australasicus</i>. <u>Herbs:</u> <i>Euphorbia boophthona</i>, <i>Goodenia muelleriana</i>, <i>Hybanthus aurantiacus</i>, <i>Oldenlandia crouchiana</i>, <i>Polygala glaucifolia</i>, <i>Ptilotus auriculifolius</i>, <i>P. nobilis</i> subsp. <i>nobilis</i>, <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>.
Vegetation Condition	Typically Excellent; ranked as Good in some places where scattered individuals of <i>*Cenchrus ciliaris</i> were recorded.
Sites in the Study Area	Quadrats BMF01 and BMF03; relevé BMF-RME.



H10: quadrat BMF01.



H10: quadrat BMF03.

H11: ElAmAatAexTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Acacia maitlandii</i>, <i>A. atkinsiana</i>, <i>A. exigua</i> open shrubland over <i>Triodia wiseana</i> hummock grassland
Distribution and Comments	This vegetation type occurred broadly over moderate-sized stony hills throughout the study area, in the northern section of the western half and the southern section of the eastern half. The open shrubland to tall open shrubland stratum was variously dominated by the three wattle species listed above, and scattered shrubs of <i>Acacia marramamba</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> and <i>S. glutinosa</i> subsp. <i>pruinosa</i> were also commonly recorded. The sparse low shrub stratum usually included <i>Indigofera monophylla</i> and <i>Ptilotus calostachyus</i> .
Other Associated Species	<u>Trees:</u> <i>Hakea chordophylla</i> . <u>Tall Shrubs:</u> <i>Codonocarpus cotinifolius</i> . <u>Shrubs:</u> <i>Acacia bivenosa</i> . <u>Low Shrubs:</u> <i>Goodenia stobbsiana</i> , <i>Solanum lasiophyllum</i> , <i>Tribulus suberosus</i> . <u>Grasses:</u> <i>Amphipogon sericeus</i> , <i>Eriachne mucronata</i> (typical form), <i>E. pulchella</i> , <i>Schizachyrium fragile</i> . <u>Herbs:</u> <i>Dysphania kalpari</i> , <i>D. rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpaea holtzei</i> , <i>Polygala glaucifolia</i> , <i>Ptilotus auriculifolius</i> , <i>P. clementii</i> , <i>P. fusiformis</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats WQR01 (Biota 2007a), MMF15 (Biota 2013a), MMFR17 (initially sampled as MMF17 by Biota 2013a), BMF20, BMF27, BMF28, BMF32 and BMF37.



H11: quadrat BMF27.



H11: quadrat BMF32.

H12: EIAiTw	<i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> scattered low trees over <i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia wiseana</i> hummock grassland
Distribution and Comments	This vegetation occurred broadly over the low stony hills in the central and easternmost sections of the study area. <i>Corymbia hamersleyana</i> occurred with or replaced <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> in some places, and some areas lacked trees entirely, particularly in the central section of the study area. The single record of the Priority 2 shrub <i>Pentalepis trichodesmoides</i> subsp. <i>hispida</i> was from this vegetation type.
Other Associated Species	<u>Shrubs</u> : <i>Abutilon lepidum</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>S. glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> . <u>Low Shrubs</u> : <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> , <i>Hibiscus sturtii</i> var. <i>campylochlamys</i> , <i>Indigofera monophylla</i> , <i>Ptilotus calostachyus</i> , <i>P. rotundifolius</i> . <u>Grasses</u> : <i>Aristida contorta</i> , <i>A. holathera</i> var. <i>holathera</i> , <i>Enneapogon caerulescens</i> , <i>E. polyphyllus</i> , <i>Eriachne pulchella</i> , <i>Paspalidium clementii</i> , <i>Sporobolus australasicus</i> . <u>Herbs</u> : <i>Cleome viscosa</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Euphorbia australis</i> var. <i>subtomentosa</i> , <i>Gomphrena cunninghamii</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpaea holtzei</i> , <i>Ptilotus auriculifolius</i> , <i>P. helipteroides</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Stackhousia muricata</i> subsp. <i>annual</i> (W.R. Barker 2172), <i>Streptoglossa bubakii</i> , <i>Swainsona maccullochiana</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Tribulus hirsutus</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats BRO07 (Biota 2005), MMF14 (Biota 2013a), MMFR02 (initially sampled as MMF02 by Biota 2013a), BMF18 and BMF30; relevé BMF-RMT.



H12: quadrat BMF18.



H12: relevé BMF-RMT.

H13: AciAbTw	<i>Acacia citrinoviridis</i> tall open shrubland over <i>A. bivenosa</i> open shrubland over <i>Triodia wiseana</i> very open hummock grassland
Distribution and Comments	This vegetation occurred only on some low stony hills with a calcareous substrate in the southernmost section of the study area. While <i>Acacia bivenosa</i> was the dominant species in the middle stratum, scattered shrubs of <i>Senna artemisioides</i> subsp. <i>helmsii</i> , <i>S. artemisioides</i> subsp. <i>oligophylla</i> , <i>S. glutinosa</i> subsp. <i>x luerssenii</i> and <i>S. glutinosa</i> subsp. <i>x luerssenii</i> <i>x S. stricta</i> were also typically present. The ground layer typically included an open annual grassland of <i>Enneapogon caeruleus</i> .
Other Associated Species	<u>Trees:</u> <i>Grevillea berryana</i> . <u>Shrubs:</u> <i>Abutilon lepidum</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> . <u>Low Shrubs:</u> <i>Melhania oblongifolia</i> , <i>Ptilotus obovatus</i> var. <i>obovatus</i> , <i>Sida</i> sp. spiciform panicles (E. Leyland s.n. 14/8/90), <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Digitaria ctenantha</i> , <i>Enneapogon polyphyllus</i> , <i>Paspalidium clementii</i> , <i>Sporobolus australasicus</i> . <u>Herbs:</u> <i>Duperreya commixta</i> , <i>Euphorbia australis</i> var. <i>subtomentosa</i> , <i>E. tannensis</i> subsp. <i>eremophila</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Glycine canescens</i> , <i>Goodenia tenuiloba</i> , <i>Notoleptopus decaisnei</i> , <i>Oldenlandia crouchiana</i> , <i>Ptilotus clementii</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Streptoglossa bubakii</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> .
Vegetation Condition	Very Good; scattered individuals of * <i>Flaveria trinervia</i> recorded.
Sites in the Study Area	Quadrats BMF02 and BMF04.



H13: quadrat BMF02.



H13: quadrat BMF04.

H14: AbAexAaTw	<i>Acacia bivenosa</i>, <i>A. exigua</i>, <i>A. ancistrocarpa</i> tall open shrubland over <i>Triodia wiseana</i> hummock grassland
Distribution and Comments	This vegetation occurred broadly over low stony hills and stony undulating plains throughout the study area except in the easternmost section. <i>Acacia bivenosa</i> was consistently present as a dominant tall shrub in this vegetation unit, together with one or both of <i>A. exigua</i> and <i>A. ancistrocarpa</i> . <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> occurred as very scattered low trees.
Other Associated Species	<u>Tall Shrubs:</u> <i>Acacia maitlandii</i> . <u>Shrubs:</u> <i>Senna artemisioides</i> subsp. <i>oligophylla</i> , <i>S. glutinosa</i> subsp. <i>glutinosa</i> , <i>S. glutinosa</i> subsp. <i>pruinosa</i> , <i>S. glutinosa</i> subsp. <i>x luerssenii</i> . <u>Low Shrubs:</u> <i>Goodenia stobbsiana</i> , <i>Indigofera monophylla</i> , <i>Ptilotus astrolasius</i> , <i>P. calostachyus</i> , <i>P. obovatus</i> var. <i>obovatus</i> , <i>Sida echinocarpa</i> , <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Enneapogon caerulescens</i> , <i>Paraneurachne muelleri</i> , <i>Sporobolus australasicus</i> , <i>Triodia epactia</i> . <u>Herbs:</u> <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Ptilotus clementii</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Stackhousia muricata</i> subsp. <i>annual</i> (W.R. Barker 2172), <i>Tribulus hirsutus</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats MMFR01 (initially sampled as MMF01 by Biota 2013a), MMF04 (Biota 2013a) and BMF05; relevés BRO-RB (Biota 2005) and BMFRSPG.



H14: relevé BMFRSPG.



H14: relevé BRO-RB.

H15: EsTw	<i>Eucalyptus socialis</i> subsp. <i>eucentrica</i> low open mallee woodland over <i>Triodia wiseana</i> open hummock grassland
Distribution and Comments	This vegetation occurred on some low stony calcrete hills in the south of the study area, both in the central and eastern sections. The middle shrub strata were typically sparse, but usually included scattered <i>Acacia bivenosa</i> , <i>Senna artemisioides</i> subsp. <i>oligophylla</i> and <i>S. glutinosa</i> subsp. <i>x luerssenii</i> . One of the two records of the Priority 1 herb <i>Goodenia pedicellata</i> was from this vegetation type.
Other Associated Species	<u>Tall Shrubs:</u> <i>Acacia synchronicia</i> . <u>Shrubs:</u> <i>Acacia exigua</i> , <i>Melaleuca eleuterostachya</i> , <i>Templetonia egena</i> . <u>Low Shrubs:</u> <i>Indigofera monophylla</i> , <i>Solanum lasiophyllum</i> . <u>Grasses:</u> <i>Paspalidium clementii</i> , <i>Triodia angusta</i> . <u>Herbs:</u> <i>Dysphania rhadinostachya</i> , <i>D. sphaerosperma</i> , <i>Haloragis gossei</i> , <i>Heliotropium</i> spp., <i>Oldenlandia crouchiana</i> , <i>Ptilotus auriculifolius</i> , <i>P. clementii</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Salsola australis</i> , <i>Stackhousia muricata</i> subsp. <i>annual</i> (W.R. Barker 2172), <i>Zygophyllum eichleri</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrats BMF10 and BMF29; relevés BMF-RMAA and BMF-RMO.

**H15: quadrat BMF10.****H15: relevé BMF-RMAA.**

5. Snakewood / Mulga complex

A1: AxSIfSENsppTlo	<i>Acacia xiphophylla</i> tall shrubland over <i>Sida fibulifera</i>, (<i>Senna artemisioides</i> subsp. <i>oligophylla</i> x subsp. <i>helmsii</i>, <i>Senna</i> sp. Karijini (M.E. Trudgen 10392)) low shrubland over <i>Triodia longiceps</i> scattered hummock grasses
Distribution and Comments	This vegetation occurred only on plains with a substrate of cracking clay. The largest areas were on the elevated colluvial plains with extensive basalt cobbles associated with the Wona land system in the southernmost part of the study area, while some very small patches of more marginal habitat were found at the eastern end of the study area. The low shrubland was typically dominated by <i>Sida fibulifera</i>, with lesser amounts of <i>Senna artemisioides</i> subsp. <i>oligophylla</i> x subsp. <i>helmsii</i> and <i>Senna</i> sp. Karijini (M.E. Trudgen 10392). The low shrub species <i>Senna artemisioides</i> subsp. <i>oligophylla</i> (thinly sericeous form MET 15,035) and <i>Eremophila cuneifolia</i> were also typically present, and <i>Neptunia dimorphantha</i> was abundant in some places. The ground layer typically comprised scattered hummocks of <i>Triodia longiceps</i> with a very open annual grassland of <i>Brachyachne prostrata</i>; a very open tussock grassland of <i>Astrebla pectinata</i> was also present in some areas. Annual herbs would be expected to be abundant following substantial rainfall but were relatively sparse at the time of survey. All records of the Priority 3 herb <i>Oldenlandia</i> sp. Hamersley Station (A.A. Mitchell PRP 1479) were from this vegetation type.
Other Associated Species	<u>Tall Shrubs:</u> <i>Rhagodia eremaea</i>. <u>Shrubs:</u> <i>Scaevola spinescens</i>, <i>Senna glutinosa</i> subsp. x <i>luerssenii</i>. <u>Low Shrubs:</u> <i>Dipteracanthus australasicus</i> subsp. <i>australasicus</i>, <i>Enchylaena tomentosa</i> var. <i>tomentosa</i>, <i>Solanum diversiflorum</i>, <i>S. lasiophyllum</i>. <u>Grasses:</u> <i>Aristida latifolia</i>, <i>Dichanthium sericeum</i> subsp. <i>humilius</i>, <i>Enneapogon caerulescens</i>, <i>E. polyphyllus</i>, <i>Eragrostis xerophila</i>, <i>Eriachne mucronata</i> (typical form), <i>Iseilema vaginiflorum</i>, <i>Paspalidium clementii</i>, <i>Sporobolus australasicus</i>. <u>Herbs:</u> <i>Boerhavia paludosa</i>, <i>Calocephalus</i> sp. Wittenoom (A.S. George 1082), <i>Cleome viscosa</i>, <i>Corchorus trilocularis</i>, <i>Flaveria</i> sp. Tom Price (M.E. Trudgen 11246), <i>Goodenia muelleriana</i>, <i>Nicotiana occidentalis</i>, <i>Phyllanthus maderaspatensis</i>, <i>Ptilotus auriculifolius</i>, <i>P. carinatus</i>, <i>P. nobilis</i> subsp. <i>nobilis</i>, <i>Salsola australis</i>, <i>Streptoglossa bubakii</i>, <i>S. decurrens</i>.
Vegetation Condition	Very Good: scattered individuals of <i>*Flaveria trinervia</i> typically present.
Sites in the Study Area	Quadrats BMF06 and BMF08; relevé BMF-RMC.



A1: quadrat BMF06.



A1: relevé BMF-RMC.

A2: AxAapTspp	<i>Acacia xiphophylla</i>, (<i>A. aptaneura</i>) tall shrubland over <i>Triodia</i> spp. very open hummock grassland
Distribution and Comments	This vegetation occurred in patches on the plains throughout the study area, and also occurred occasionally on low hills. The substrate was less clayey than that supporting vegetation type A1. The overstorey was dominated by <i>Acacia xiphophylla</i> (either as a tall shrub or low tree), usually with lesser amounts of <i>A. aptaneura</i>, and very occasionally with scattered <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i>. There was typically little or no shrub cover in the middle strata, however scattered shrubs of <i>Acacia synchronicia</i>, <i>Eremophila cuneifolia</i>, <i>Maireana georgei</i>, <i>Ptilotus schwartzii</i> var. <i>schwartzii</i>, <i>Senna artemisioides</i> subsp. <i>oligophylla</i>, <i>S. glutinosa</i> subsp. <i>x luerssenii</i>, <i>S. glutinosa</i> subsp. <i>pruinosa</i> and <i>S. stricta</i> were usually present. The ground layer typically comprised a very open hummock grassland, which was dominated by various combinations of all the spinifex species present on site (typically <i>Triodia angusta</i>, <i>T. brizoides</i>, <i>T. epactia</i> and <i>T. wiseana</i>, but occasionally <i>T. longiceps</i>). While previous mapping exercises distinguished separate vegetation types within these Snakewood shrublands based on the spinifex species present, this was not found to be useful for the current exercise, as the dominant species seemed to merely reflect whatever species were present in the immediate surrounds and the cover was highly variable (even within a stand).
Other Associated Species	<u>Tall Shrubs:</u> <i>Rhagodia eremaea</i>. <u>Shrubs:</u> <i>Abutilon lepidum</i>, <i>Acacia bivenosa</i>, <i>Jasminum didymum</i> subsp. <i>lineare</i>. <u>Low Shrubs:</u> <i>Maireana melanocoma</i>, <i>Ptilotus astrolasius</i>, <i>P. obovatus</i> var. <i>obovatus</i>, <i>Solanum lasiophyllum</i>, <i>Tribulus suberosus</i>. <u>Grasses:</u> <i>Aristida contorta</i>, <i>Enneapogon caeruleus</i>, <i>E. polyphyllus</i>, <i>Eriachne aristidea</i>, <i>E. pulchella</i>, <i>Paspalidium clementii</i>, <i>Sporobolus australasicus</i>. <u>Herbs:</u> <i>Duperreya commixta</i>, <i>Goodenia forrestii</i>, <i>G. microptera</i>, <i>Lepidium pholidogynum</i>, <i>Polycarpaea holtzei</i>, <i>Ptilotus auriculifolius</i>, <i>P. helipteroides</i>, <i>P. nobilis</i> subsp. <i>nobilis</i>, <i>Sclerolaena eriacantha</i>, <i>Trachymene oleracea</i> subsp. <i>oleracea</i>, <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i>.
Vegetation Condition	Excellent to Very Good: scattered weeds sometimes present (particularly <i>*Flaveria trinervia</i>).
Sites in the Study Area	Quadrats BRO23 and BRO43 (Biota 2005), WQR02 (Biota 2007a), MMFR10 (originally sampled as MMF10 in Biota 2013a), BMF26 and BMF31; relevés BRO-MI (Biota 2005), BMF-RMG, BMF-RMP and BMF-RMQ.



A2: quadrat BMF31.



A2: relevé BMF-RMG.

A3: AapAayTeTw	<i>Acacia aptaneura</i>, <i>A. ayersiana</i> low woodland over <i>Triodia epactia</i>, <i>T. wiseana</i> open hummock grassland
Distribution and Comments	This vegetation occurred in numerous stands throughout the study area, mainly on plains but also occasionally on hill crests. The two wattle species in the overstorey occurred either as low trees or tall shrubs, and usually occurred with scattered <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Grevillea berryana</i> . <i>Acacia ayersiana</i> occurred in two forms; the normal phyllode width and a narrow form (as per Maslin and Reid 2012). The middle strata were typically sparse, but scattered shrubs of <i>Eremophila forrestii</i> subsp. <i>forrestii</i> , <i>Keraudrenia nephrosperma</i> , <i>Senna glutinosa</i> subsp. <i>glutinosa</i> and <i>Tribulus suberosus</i> were usually present. The ground layer was a very open to open hummock grassland typically dominated by <i>Triodia epactia</i> and <i>T. wiseana</i> , but small amounts of <i>T. angusta</i> and <i>T. brizoides</i> were also sometimes present.
Other Associated Species	<u>Shrubs</u> : <i>Acacia bivenosa</i> , <i>Gossypium australe</i> (Burrup Peninsula form). <u>Low Shrubs</u> : <i>Hibiscus burtonii</i> , <i>Ptilotus calostachyus</i> , <i>P. obovatus</i> var. <i>obovatus</i> , <i>Senna notabilis</i> , <i>Solanum diversiflorum</i> . <u>Grasses</u> : <i>Aristida contorta</i> , <i>Enneapogon caeruleus</i> , <i>E. polyphyllus</i> , <i>Eriachne aristidea</i> , <i>E. pulchella</i> , <i>Paspalidium clementii</i> . <u>Herbs</u> : <i>Cucumis variabilis</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> , <i>Goodenia microptera</i> , <i>Oldenlandia crouchiana</i> , <i>Polycarpaea corymbosa</i> var. <i>corymbosa</i> , <i>P. holtzei</i> , <i>Polygala glaucifolia</i> , <i>Pterocaulon sphacelatum</i> , <i>Ptilotus auriculifolius</i> , <i>P. fusiformis</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>P. polystachyus</i> , <i>Streptoglossa bubakii</i> , <i>S. decurrens</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> .
Vegetation Condition	Typically Excellent; occasionally Very Good (e.g. at BMF11 due to scattered * <i>Bidens bipinnata</i> and * <i>Setaria verticillata</i> , and signs of grazing animals).
Sites in the Study Area	Quadrats BRO04, BRO05 (Biota 2005), BMF11 and BMF14; relevé BMFRSPH.



A3: quadrat BRO05.



A3: relevé BMFRSPH.

A4: AapAciTeTw	<i>Acacia aptaneura</i>, <i>A. citrinoviridis</i> tall shrubland over <i>Triodia epactia</i>, <i>T. wiseana</i> open hummock grassland
Distribution and Comments	This vegetation type occurred in several stands on hill slopes, and was particularly common in the eastern section of the study area. The tallest stratum was dominated by <i>Acacia aptaneura</i> , usually with lesser amounts of <i>A. citrinoviridis</i> ; both species typically occurred as tall shrubs but sometimes as low trees. Scattered trees of <i>Acacia pruinocarpa</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Grevillea berryana</i> were also often present. Occasional small patches of <i>Acacia rhodophloia</i> were also present in the study area but these were included within this unit and not mapped separately. The middle shrub strata were typically sparse, but scattered shrubs of <i>Senna glutinosa</i> subsp. <i>glutinosa</i> and <i>Solanum lasiophyllum</i> were usually present. The open hummock grassland was often dominated by <i>Triodia epactia</i> , sometimes with <i>T. wiseana</i> .
Other Associated Species	<u>Tall Shrubs:</u> <i>Acacia atkinsiana</i> , <i>A. marramamba</i> , <i>Codonocarpus cotinifolius</i> . <u>Shrubs:</u> <i>Capparis lasiantha</i> , <i>Jasminum didymum</i> subsp. <i>lineare</i> , <i>Senna glutinosa</i> subsp. <i>x luerssenii</i> . <u>Low Shrubs:</u> <i>Eremophila exilifolia</i> , <i>Goodenia stobbsiana</i> , <i>Ptilotus calostachyus</i> , <i>Sida</i> sp. Shovelanna Hill (S. van Leeuwen 3842), <i>Tribulus suberosus</i> . <u>Grasses:</u> <i>Eriachne mucronata</i> (typical form), <i>E. pulchella</i> , <i>Paraneurachne muelleri</i> , <i>Paspalidium clementii</i> . <u>Herbs:</u> <i>Cucumis variabilis</i> , <i>Duperreya commixta</i> , <i>Dysphania rhadinostachya</i> subsp. <i>rhadinostachya</i> , <i>Polycarpaea holtzei</i> , <i>Ptilotus auriculifolius</i> , <i>P. nobilis</i> subsp. <i>nobilis</i> , <i>Trachymene oleracea</i> subsp. <i>oleracea</i> , <i>Trichodesma zeylanicum</i> var. <i>zeylanicum</i> .
Vegetation Condition	Excellent.
Sites in the Study Area	Quadrat BNVR03 (originally sampled as BNVR03 by Biota 2014a); relevés BNV-RRPA, BNV-RRPC (Biota 2014a), BMF-RMN and BMFRSPE.



A4: relevé BMF-RMN.



A4: relevé BNV-RRPC.

Appendix 7

Records of Priority Flora from the Study Area



Family	Species	Site ¹	Easting	Northing	Number of Individuals	Notes	Source
PRIORITY 1							
Goodeniaceae	<i>Goodenia pedicellata</i>	BMF10	529081	7497454	1	Identification confirmed by A. Perkins.	Current survey
		BMF-OPPL	528328	7497511	20	Identification confirmed by A. Perkins.	
Malvaceae	<i>Hibiscus</i> sp. Mt Brockman (E. Thoma ET 1354)	BMF-OPCEF	535115	7502862	3		Current survey
		BMF-OPCEF	535128	7502834	4		
		BMF-OPCEF	535144	7502831	5		
		BMF-OPCEF	535305	7502743	12		
		BMF-OPCEF	532807	7502096	20		
		BMF-OPCEF	536612	7504262	5		
		BMF-oppMM	534887	7503056	1		
		BMF-oppMM	535250	7502975	1		
		BMF-oppMM	535255	7502968	1		
		BMF-oppMM	535265	7502941	4		
		BMF-oppMM	535298	7502926	10		
		BMF-oppMM	535275	7502922	2		
		BMF-oppMM	535327	7502907	2		
		BMF-oppMM	536768	7504396	3		
		BMF-oppMM	536516	7504396	2	Record located immediately north of northern boundary of study area.	
		BNV-PA	532124	7502104	6		Brockman 4 Eastern Edge Native Vegetation Clearing Permit Report (Biota 2014a)
		BNV-PA	532276	7501947	6		
		BNV-PA	531888	7501828	3		
		BNV-PA	530719	7502073	5		
		BNV-PA	530652	7502059	1		
		BNV-RRPB	530935	7502233	5		
		Opp.	538733	7502453	5		Metadata Statement - Brockman Targeted Flora Survey (Rio Tinto 2015)
		Opp.	538998	7502494	30		
		Opp.	539037	7502497	10		

¹ "Op" or "Opp" in the site name denotes an opportunistic record.

Family	Species	Site	Easting	Northing	Number of Individuals	Notes	Source
Malvaceae	<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	BMF-OPCEF	538196	7504106	1		Current survey
		BMF-OPCEF	538236	7504047	5		
		BMF-OPCEF	535769	7502930	8		
		BMF-OPCEF	535677	7502954	3		
		BMF-OPCEF	535620	7502975	4		
		BMF-OPCEF	535583	7502996	1		
		BMF-OPCEF	535522	7503029	3		
		BMF-OPCEF	535452	7503083	1		
		BMF-OPCEF	535418	7503115	3		
		BMF-OPCEF	535071	7502930	1		
		BMF-OPCEF	535200	7503034	1		
		BMF-OPCEF	535070	7502937	1		
		BMF-OPCEF	535089	7502907	4		
		BMF-OPCEF	535115	7502862	2		
		BMF-OPCEF	535128	7502834	4		
		BMF-OPCEF	532856	7502005	3		
		BMF-OPCEF	532807	7502096	10		
		BMF-OPCEF	538571	7504213	2		
		BMF-OPCEF	538512	7504257	1		
		BMF-OPCEF	538753	7504278	20		
		BMF-OPCEF	538737	7504249	10		
		BMF-OPCEF	538746	7504227	5		
		BMF-OPCEF	538745	7504221	10		
		BMF-OPCEF	538731	7504195	5		
		BMF-OPCEF	538749	7504192	5		
		BMF-OPCEF	538784	7504200	10		
		BMF-OPCEF	538753	7504147	5		
		BMF-OPCEF	536663	7504295	1		
		BMF-OPCEF	536621	7504322	2		
		BMF-OPCEF	536584	7504338	1		
		BMF-OPCEF	536899	7504257	5		
		BMF-OPCEF	536908	7504227	3		
		BMF-OPCEF	536893	7504210	1		
		BMF-OPCEF	536880	7504179	5		
		BMF-OPCEF	536856	7504117	1		

Family	Species	Site	Easting	Northing	Number of Individuals	Notes	Source
Malvaceae	<i>Sida</i> sp. Hamersley Range (K. Newbey 10692)	BMF-OPCEF	536831	7504047	4		Current survey
		BMF-oppMM	537747	7504026	2		
		BMF-oppMM	537945	7504125	2		
		BMF-oppMM	537935	7504137	1		
		BMF-oppMM	538021	7504182	1		
		BMF-oppMM	538077	7504195	3		
		BMF-oppMM	538097	7504191	2		
		BMF-oppMM	538202	7504166	2		
		BMF-oppMM	538221	7504134	2		
		BMF-oppMM	538232	7504120	2		
		BMF-oppMM	538230	7504104	1		
		BMF-oppMM	538235	7504094	1		
		BMF-oppMM	538239	7504085	1		
		BMF-oppMM	538249	7504077	6		
		BMF-oppMM	535671	7503116	1		
		BMF-oppMM	535543	7503270	2		
		BMF-oppMM	535071	7502901	1		
		BMF-oppMM	535064	7502914	1		
		BMF-oppMM	535217	7503015	1		
		BMF-oppMM	535226	7503011	1		
		BMF-oppMM	535227	7503003	1		
		BMF-oppMM	535267	7502951	1		
		BMF-oppMM	535275	7502941	2		
		BMF-oppMM	535275	7502922	3		
		BMF-oppMM	535283	7502914	1		
		BMF-oppMM	538420	7504059	1		
		BMF-oppMM	538732	7504190	3		
		BMF-oppMM	536702	7504235	2		
		BMF-oppMM	536704	7504242	5		
		BMF-oppMM	536709	7504249	1		
		BMF-oppMM	536768	7504396	6		
		BMF-oppMM	536751	7504401	3		
		BMF-oppMM	536740	7504416	6		
		BMF-oppMM	536727	7504413	3		
		BMF-oppMM	536614	7504342	2		