Appendices for the Glen Rock Nature Conservation Report

2nd April 2001

Appendix 2 Full List of All Species Recorded for Glen Rock

The table is sorted by Species

Also lists the data sources which supplied the information. The following table lists the codes that apply to the Source columns.

Note that some species have been recorded by a number of different surveys.

There are a number of duplicates within this species list.

Source Code	Source Description	Source
wn_natures.	Nature Search database	Wildnet
wn_qld_hist.	QLD Historical fauna database	Wildnet
wn_se_fauna	SEQ fauna database	Wildnet
corveg	Corveg	Corveg
herbrecs	Herbrecs	Herbrecs
qm_crustacea	Crustacea info	Queensland Museum
qm_main	Queensland Museum records	Queensland Museum
vert_fauna	Fauna	Vertebrate Report Krieger & Lehmann
vert_flora	Flora - P. Grimshaw	Vertebrate Report Krieger & Lehmann
goomb_ptc	Goomburra Permits to Collect	Permits to Collect database
goomb_smp	SMP species found at Goomburra	SMP database
qm_disjunct	Disjunct species	Queensland Museum
feris2_forsite	Forsite	Feris2
feris_general	General flora and fauna database	Feris2
cra_wildnet	CRA species	Wildnet
h&i_qpws	Harry and Ian latest QPWS survey	Harry and Ian latest QPWS survey
hh_qpws	Harry Hines latest QPWS survey	Harry Hines latest QPWS survey
ig_qpws	Ian Gynther latest QPWS survey	Ian Gynther latest QPWS survey
gk_qpws	George Krieger latest QPWS survey	George Krieger latest QPWS survey
prob_map	probability mapping	probability mapping

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Abrophyllum ornans		Grossulariaceae	WH	5	feris2_forsite	goomb_ptc	herbrecs	vert_flora				
Acacia concurrens		Mimosaceae	C	2	vert_flora							
Acacia decora		Mimosaceae	C	2	corveg	herbrecs	vert_flora					
Acacia fimbriata		Mimosaceae	C	2	corveg	vert_flora						
Acacia implexa		Mimosaceae	C	2	corveg	vert_flora						
Acacia irrorata	green wattle	Mimosaceae	C	2	corveg	herbrecs	vert_flora					
Acacia leiocalyx		Mimosaceae	C	2	vert_flora							
Acacia maidenii		Mimosaceae	C	2	corveg	vert_flora						
Acacia neriifolia		Mimosaceae	C	2	vert_flora							
Acacia obtusifolia		Mimosaceae	C	2	corveg	vert_flora						
Acacia salicina		Mimosaceae	C	2	corveg	herbrecs	vert_flora					
Acanthiza chrysorrhoa	yellow-rumped thornbill	Pardalotidae	WH	5	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Acanthiza lineata	striated thornbill	Pardalotidae	WH	5	cra_wildnet	feris2_general	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Acanthiza nana	yellow thornbill	Pardalotidae	WH	5	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Acanthiza pusilla	brown thornbill	Pardalotidae	WH	5	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Acanthiza reguloides	buff-rumped thornbill	Pardalotidae	WH	5	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Acanthorhynchus tenuirostris	eastern spinebill	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Accipiter cirrhocephalus	collared sparrowhawk	Accipitridae	CJ	5	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.				
Accipiter fasciatus	brown goshawk	Accipitridae	CJ	5	h&i_qpws	ig_qpws	wn_natures.	wn_qld_hist.				
Accipiter novaehollandiae	grey goshawk	Accipitridae	R, CJ	6	cra_wildnet	feris2_general	h&i_qpws	ig_qpws	wn_natures.	wn_qld_hist.		
Acridotheres tristis	common myna	Sturnidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Adiantum aethiopicum		Adiantaceae	C	2	corveg	vert_flora						
Adiantum formosum		Adiantaceae	C	2	corveg	vert_flora						
Adiantum hispidulum		Adiantaceae	C	2	corveg	herbrecs						
Adiantum hispidulum var.whitei		Adiantaceae	C	2	vert_flora							
Aegotheles cristatus	Australian owlet-nightjar	Aegothelidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Ageratina adenophorum		Asteraceae	C	2	vert_flora							
Ageratina riparia		Asteraceae	C	2	corveg	vert_flora						
Ailanthus altissima		Simaroubaceae	C	2	herbrecs	vert_flora						
Ajuga australis		Lamiaceae	C	2	corveg	goomb_ptc	vert_flora					
Alcedo azurea	azure kingfisher	Alcedinidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.				
Alchornea ilicifolia		Euphorbiaceae	C	2	vert_flora							

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Alectryon connatus		Sapindaceae	C	2	vert_flora							
Alisterus scapularis	Australian king-parrot	Psittacidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Allocasuarina torulosa		Casuarinaceae	C	2	corveg	herbrecs	vert_flora					
Alphitonia excelsa		Rhamnaceae	C	2	corveg	vert_flora						
Alyxia ruscifolia		Apocynaceae	C	2	herbrecs	vert_flora						
Amphibolurus nobbi	nobbi	Agamidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Anas superciliosa	Pacific black duck	Anatidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Angophora floribunda		Myrtaceae	C	2	corveg	feris2_forsite	vert_flora					
Angophora subvelutina		Myrtaceae	C	2	corveg	vert_flora						
Anguilla reinhardtii	Australian longfin eel	Anguillidae	CUT	6	vert_fauna							
Anomalopus leuckartii		Scincidae	C	2	h&i_qpws							
Antechinus flavipes	yellow-footed antechinus	Dasyuridae	C	2	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Antechinus stuartii	brown antechinus	Dasyuridae	C	2	cra_wildnet	qm_disjunct	qm_main	wn_natures.	wn_qld_hist.			
Anthochaera carunculata	red wattlebird	Meliphagidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Anthus novaeseelandiae	Richard's pipit	Motacillidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Aphanopetalum resinosum		Cunoniaceae	WH	5	corveg	herbrecs	vert_flora					
Aquila audax	wedge-tailed eagle	Accipitridae	CJ	5	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Araucaria cunninghamii		Araucariaceae	WH	5	corveg	feris2_forsite	vert_flora					
Ardea ibis	cattle egret	Ardeidae	C	2	vert_fauna	wn_natures.	wn_se_fauna					
Ardea novaehollandiae		Ardeidae	C	2	h&i_qpws	qm_main						
Argyrodendron actinophyllum		Sterculiaceae	WH	5	corveg	feris2_forsite	vert_flora					
Aristida gracilipes		Poaceae	C	2	corveg	vert_flora						
Aristida personata		Poaceae	C	2	corveg	herbrecs						
Aristida queenslandica var. queenslandica		Poaceae	C	2	corveg	vert_flora						
Artamus cyanopterus	dusky woodswallow	Artamidae	C	2	feris2_general	h&i_qpws	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna		
Artamus superciliosus	white-browed woodswallow	Artamidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Arthropteris tenella		Nephrolepidaceae	C	2	corveg	herbrecs						
Arytera foveolata		Sapindaceae	C	2	vert_flora							
Asperula conferta		Rubiaceae	C	2	corveg	herbrecs	vert_flora					
Asplenium attenuatum		Aspleniaceae	C	2	vert_flora							
Asplenium australasicum		Aspleniaceae	C	2	vert_flora							
Austrostipa aristiglumis		Poaceae	C	2	corveg	herbrecs						
Aviceda subcristata	Pacific baza	Accipitridae	CJ	5	cra_wildnet	feris2_general	h&i_qpws	ig_qpws	qm_main	wn_natures.	wn_qld_hist.	
Bidens pilosa		Asteraceae	C	2	corveg	vert_flora						

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Blechnum cartilagineum	gristle fern	Blechnaceae	C	2	vert_flora							
Bos taurus	European cattle	Bovidae	C	2	vert_fauna	wn_qld_hist.						
Bothriochloa decipiens		Poaceae	C	2	corveg	goomb_ptc	herbrecs	vert_flora				
Botrychium australe		Ophioglossaceae	C	2	herbrecs							
Brachychiton acerifolius		Sterculiaceae	WH	5	corveg	vert_flora						
Brachychiton discolor		Sterculiaceae	C	2	vert_flora							
Brachychiton populneus		Sterculiaceae	WH	5	corveg	vert_flora						
Brachyscome microcarpa		Asteraceae	C	2	corveg	herbrecs	vert_flora					
Bracteantha bracteata		Asteraceae	C	2	corveg	herbrecs	vert_flora					
Breynia oblongifolia		Euphorbiaceae	C	2	corveg	vert_flora						
Bufo marinus	cane toad	Bufonidae	C	2	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Bulbine bulbosa		Asphodelaceae	C	2	vert_flora							
Bursaria incana		Pittosporaceae	WH	5	herbrecs							
Bursaria incana var. incana		Pittosporaceae	C	2	corveg							
Bursaria spinosa var. macrophylla		Pittosporaceae	C	2	vert_flora							
Cacatua galerita	sulphur-crested cockatoo	Cacatuidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Cacatua roseicapilla	galah	Cacatuidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Cacomantis flabelliformis	fan-tailed cuckoo	Cuculidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Cacomantis variolosus	brush cuckoo	Cuculidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.				
Callistemon sp.		Myrtaceae	C	2	herbrecs							
Callistemon viminalis		Myrtaceae	C	2	vert_flora							
Callitris baileyi	Bailey's cypress	Cupressaceae	R	6	herbrecs	vert_flora						
Callitris glaucophylla	white cypress pine	Cupressaceae	CUT	6	corveg	herbrecs	vert_flora					
Calochlaena dubia		Dicksoniaceae	WH	5	corveg	vert_flora						
Calotis dentex		Asteraceae	C	2	vert_flora							
Calyptorhynchus banksii	red-tailed black-cockatoo	Cacatuidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Calyptorhynchus lathami	glossy black-cockatoo	Cacatuidae	V	8	cra_wildnet	feris2_general	goomb_smp	vert_fauna	wn_natures.	wn_qld_hist.		
Canis familiaris	dog	Canidae	C	2	feris2_general	vert_fauna						
Canis lupus dingo	dingo	Canidae	C	2	h&i_qpws	wn_natures.	wn_qld_hist.					
Canthium buxifolium		Rubiaceae	C	2	vert_flora							
Canthium odoratum		Rubiaceae	C	2	corveg	herbrecs	vert_flora					
Capillipedium spicigerum		Poaceae	C	2	corveg							
Capparis arborea		Capparaceae	C	2	herbrecs	vert_flora						
Capparis mitchellii		Capparaceae	C	2	vert_flora							
Capparis sarmentosa		Capparaceae	C	2	vert_flora							

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Carissa ovata		Apocynaceae	C	2	vert_flora							
Carlia schmeltzii	robust rainbow skink	Scincidae	C	2	h&i_qpws	wn_natures.						
Carlia vivax	skink	Scincidae	C	2	vert_fauna	wn_natures.						
Cassine australis var. australis		Celastraceae	C	2	vert_flora							
Cassinia laevis	coughbush	Asteraceae	C	2	corveg	herbrecs	vert_flora					
Cassinia quinquefaria		Asteraceae	C	2	corveg	vert_flora						
Casuarina cunninghamiana		Casuarinaceae	C	2	herbrecs	vert_flora						
Celastrus subspicata		Celastraceae	C	2	vert_flora							
Centropus phasianinus	pheasant coucal	Centropodidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Chalinolobus dwyeri	large-eared pied bat	Vespertilionidae	R	6	feris2_general	qm_disjunct	wn_qld_hist.					
Chamaecrista nomame		Caesalpiniaceae	C	2	herbrecs							
Chamaecrista nomame var. nomame		Caesalpiniaceae	C	2	corveg							
Cheilanthes sieberi		Adiantaceae	C	2	corveg	vert_flora						
Chenonetta jubata	Australian wood duck	Anatidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Cheramoeca leucosternus	white-backed swallow	Hirundinidae	C	2	h&i_qpws	wn_natures.	wn_qld_hist.					
Cherax sp.	crayfish	Parastacidae	C	2	vert_fauna							
Chloris divaricata		Poaceae	C	2	corveg							
Chloris gayana		Poaceae	C	2	vert_flora							
Chloris truncata		Poaceae	C	2	corveg							
Choretrum candollei		Santalaceae	C	2	corveg	vert_flora						
Christella dentata		Thelypteridaceae	C	2	corveg	herbrecs	vert_flora					
Chrysocephalum apiculatum		Asteraceae	C	2	herbrecs	vert_flora						
Chrysococcyx minutillus	little bronze-cuckoo	Cuculidae	C	2	cra_wildnet	vert_fauna	wn_qld_hist.					
Chthonicola sagittata	speckled warbler	Pardalotidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Cinclosoma punctatum	spotted quail-thrush	Cinclosomatidae	C	2	feris2_general	ig_qpws	qm_disjunct	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	
Cirsium vulgare		Asteraceae	C	2	corveg	vert_flora						
Cissus antarctica		Vitaceae	C	2	corveg	feris2_forsite	vert_flora					
Cissus hypoglauca		Vitaceae	C	2	corveg	herbrecs	vert_flora					
Cisticola exilis	golden-headed cisticola	Sylviidae	CJ	5	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Claoxylon australe		Euphorbiaceae	C	2	vert_flora							
Cleistanthus cunninghamii		Euphorbiaceae	C	2	vert_flora							
Clematis glycinoides		Ranunculaceae	C	2	corveg	feris2_forsite	vert_flora					
Clerodendrum tomentosum		Lamiaceae	C	2	corveg							
Climacteris erythrops	red-browed treecreeper	Climacteridae	R, WH	6	cra_wildnet	feris2_general	goomb_smp	hh_qpws	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Colluricincla harmonica	grey shrike-thrush	Pachycephalidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Commelina diffusa		Commelinaceae	C	2	corveg	vert_flora						
Conyza canadensis		Asteraceae	C	2	corveg							
Coracina novaehollandiae	black-faced cuckoo-shrike	Campephagidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Coracina papuensis	white-bellied cuckoo-shrike	Campephagidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.				
Coracina tenuirostris	cicadabird	Campephagidae	CJ	5	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Cordyline petiolaris		Dracaenaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Cordyline rubra		Dracaenaceae	C	2	corveg	herbrecs	vert_flora					
Cormobates leucophaeus	white-throated treecreeper	Climacteridae	WH	5	cra_wildnet	feris2_general	ig_qpws	qm_main	vert_fauna			
Corvus orru	Torresian crow	Corvidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Corymbia clarksoniana		Myrtaceae	C	2	corveg	herbrecs	vert_flora					
Corymbia intermedia		Myrtaceae	C	2	corveg	vert_flora						
Corymbia tessellaris		Myrtaceae	C	2	corveg	vert_flora						
Coturnix ypsilophora	brown quail	Phasianidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Cracticus nigrogularis	pied butcherbird	Artamidae	C	2	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Cracticus torquatus	grey butcherbird	Artamidae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Craterocephalus marjoriae	Marjorie's Hardyhead	Atherinidae	CUT	6	vert_fauna							
Crotalaria incana		Fabaceae	C	2	herbrecs							
Crotalaria incana subsp. incana		Fabaceae	C	2	corveg							
Crotalaria montana		Fabaceae	C	2	corveg	herbrecs						
Cryptoblepharus virgatus		Scincidae	C	2	vert_fauna	wn_natures.	wn_se_fauna					
Ctenotus robustus		Scincidae	C	2	qm_main	vert_fauna	wn_natures.					
Ctenotus taeniolatus	copper-tailed skink	Scincidae	C	2	vert_fauna	wn_se_fauna						
Cupaniopsis parvifolia		Sapindaceae	C	2	vert_flora							
Cymbopogon refractus		Poaceae	C	2	corveg	herbrecs	vert_flora					
Cyperus fulvus		Cyperaceae	C	2	corveg	herbrecs						
Cyperus gracilis		Cyperaceae	C	2	corveg							
Dacelo novaeguineae	laughing kookaburra	Halcyonidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Daphoenositta chrysoptera	varied sittella	Neosittidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Dasyurus hallucatus	northern quoll	Dasyuridae	C	2	qm_disjunct							
Dasyurus maculatus maculatus	spotted-tailed quoll (southern subspecies)	Dasyuridae	V	8	goomb_smp	qm_disjunct	wn_natures.	wn_qld_hist.				
Daviesia genistifolia		Fabaceae	C	2	vert_flora							
Demansia psammophis	yellow-faced whip snake	Elapidae	C	2	cra_wildnet	h&i_qpws	wn_natures.	wn_qld_hist.				
Dendrelaphis punctulata	common tree snake	Colubridae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Dendrobium kingianum	pink rock orchid	Orchidaceae	CUT	6	corveg	herbrecs	vert_flora					

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Dendrobium speciosum		Orchidaceae	CUT	6	vert_flora							
Dendrocnide excelsa		Urticaceae	C	2	corveg	feris2_forsite	vert_flora					
Dendrocnide photinophylla		Urticaceae	C	2	vert_flora							
Dendrocygna arcuata	wandering whistling-duck	Anatidae	CJ	5	vert_fauna	wn_natures.						
Denhamia celastroides		Celastraceae	C	2	corveg	herbrecs						
Desmodium brachypodum		Fabaceae	C	2	corveg	herbrecs	vert_flora					
Desmodium gunnii		Fabaceae	C	2	corveg	herbrecs						
Desmodium varians		Fabaceae	C	2	corveg	herbrecs	vert_flora					
Dianella brevipedunculata		Phormiaceae	C	2	corveg	herbrecs	vert_flora					
Dianella caerulea		Phormiaceae	C	2	corveg	herbrecs						
Dianella longifolia		Phormiaceae	C	2	corveg	vert_flora						
Dianella revoluta		Phormiaceae	C	2	corveg							
Dicaeum hirundinaceum	mistletoebird	Dicaeidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Dichanthium tenue		Poaceae	C	2	corveg	herbrecs						
Dichondra repens		Convolvulaceae	C	2	corveg	herbrecs	vert_flora					
Dicrurus bracteatus	spangled drongo	Dicruridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Digitaria ciliaris		Poaceae	C	2	corveg	herbrecs						
Dioscorea transversa		Dioscoreaceae	C	2	corveg	vert_flora						
Diospyros australis		Ebenaceae	C	2	herbrecs	vert_flora						
Diospyros geminata		Ebenaceae	C	2	vert_flora							
Dodonaea viscosa	sticky hopbush	Sapindaceae	C	2	corveg							
Dodonaea viscosa subsp. angustifolia		Sapindaceae	C	2	corveg							
Dodonaeae viscosa subsp. burmanniana		Sapindaceae	C	2	vert_flora							
Doodia aspera		Blechnaceae	C	2	corveg	herbrecs	vert_flora					
Doodia caudata		Blechnaceae	C	2	corveg	herbrecs	vert_flora					
Doryanthes palmeri		Doryanthaceae	C	2	corveg	herbrecs	vert_flora					
Echinopogon nutans		Poaceae	C	2	corveg	herbrecs						
Echinopogon nutans var. nutans		Poaceae	C	2	corveg							
Egernia cunninghami	Cunningham's skink	Scincidae	WH	5	cra_wildnet	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Egernia frerei	major skink	Scincidae	WH	5	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Egretta novaehollandiae	white-faced heron	Ardeidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Elaeocarpus kirtonii		Elaeocarpaceae	WH	5	corveg	feris2_forsite	herbrecs	vert_flora				
Elanus axillaris	black-shouldered kite	Accipitridae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.					
Elattostachys xylocarpa		Sapindaceae	C	2	vert_flora							

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Elseya latisternum	saw-shelled turtle	Chelidae	C	2	vert_fauna							
Elymus scaber		Poaceae	C	2	corveg	herbrecs						
Entomyzon cyanotis	blue-faced honeyeater	Meliphagidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Eopsaltria australis	eastern yellow robin	Petroicidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Epilobium hirtigerum		Onagraceae	C	2	herbrecs							
Equus caballus	horse	Equidae	C	2	vert_fauna	wn_qld_hist.						
Eragrostis brownii		Poaceae	C	2	corveg	herbrecs						
Eragrostis leptostachya		Poaceae	C	2	corveg							
Eragrostis spartinoides		Poaceae	C	2	corveg							
Eremophila debilis		Myoporaceae	C	2	corveg	vert_flora						
Erythrina vespertilio		Fabaceae	C	2	herbrecs	vert_flora						
Erythrotriorchis radiatus	red goshawk	Accipitridae	E, CJ	10	h&i_qpws	ig_qpws	qm_disjunct					
Erythroxylum sp. (Splityard Creek L.Pedley 5360)		Erythroxylaceae	C	2	vert_flora							
Euastacus jagara		Parastacidae	R, WH	6	hh_qpws	qm_crustacea						
Eucalyptus albens		Myrtaceae	C	2	corveg	herbrecs	vert_flora					
Eucalyptus biturbinata		Myrtaceae	C	2	corveg	herbrecs	vert_flora					
Eucalyptus campanulata		Myrtaceae	C	2	herbrecs	vert_flora						
Eucalyptus carnea		Myrtaceae	C	2	vert_flora							
Eucalyptus crebra		Myrtaceae	C	2	corveg	feris2_forsite	vert_flora					
Eucalyptus crebra x Eucalyptus melanophloia		Myrtaceae	C	2	corveg							
Eucalyptus eugenioides		Myrtaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Eucalyptus melanophloia		Myrtaceae	C	2	corveg	feris2_forsite	vert_flora					
Eucalyptus melliodora		Myrtaceae	C	2	corveg	feris2_forsite	vert_flora					
Eucalyptus moluccana		Myrtaceae	C	2	corveg	vert_flora						
Eucalyptus quadrangulata		Myrtaceae	CUT	6	corveg	herbrecs	vert_flora					
Eucalyptus saligna		Myrtaceae	C	2	corveg	feris2_forsite	vert_flora					
Eucalyptus tereticornis		Myrtaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Euchiton involucratus		Asteraceae	C	2	corveg	herbrecs						
Eudynamys scolopacea	common koel	Cuculidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.				
Eulamprus martini		Scincidae	C	2	qm_main	vert_fauna						
Euroschinus falcata var. falcata		Anacardiaceae	C	2	vert_flora							
Eurostopodus mystacalis	white-throated nightjar	Caprimulgidae	C	2	feris2_general	h&i_qpws	wn_qld_hist.	wn_se_fauna				
Eurystomus orientalis	dollarbird	Coraciidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Eustrephus latifolius		Philesiaceae	C	2	corveg	herbrecs	vert_flora					

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Exocarpos cupressiformis		Santalaceae	C	2	corveg	vert_flora						
Exocarpos latifolius		Santalaceae	C	2	vert_flora							
Falco berigora	brown falcon	Falconidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Falco cenchroides	nankeen kestrel	Falconidae	CJ	5	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Falco longipennis	Australian hobby	Falconidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.					
Falco peregrinus	peregrine falcon	Falconidae	CUT, CJ	6	h&i_qpws	ig_qpws	wn_natures.	wn_qld_hist.	wn_se_fauna			
Felis catus	cat	Felidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Ficus coronata		Moraceae	C	2	corveg	goomb_ptc	herbrecs	vert_flora				
Ficus macrophylla		Moraceae	C	2	feris2_forsite	vert_flora						
Ficus obliqua var. petiolaris		Moraceae	C	2	vert_flora							
Ficus platypoda		Moraceae	C	2	vert_flora							
Ficus virens var. sublanceolata		Moraceae	C	2	vert_flora							
Ficus watkinsiana		Moraceae	C	2	corveg	feris2_forsite	vert_flora					
Fimbristylis dichotoma		Cyperaceae	C	2	vert_flora							
Floydia praealta		Proteaceae	V	8	herbrecs							
Furina diadema	red-naped snake	Elapidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Gahnia aspera		Cyperaceae	C	2	corveg	herbrecs	vert_flora					
Galactia tenuiflora		Fabaceae	C	2	corveg							
Galium migrans		Rubiaceae	C	2	corveg	herbrecs	vert_flora					
Gallinula tenebrosa	dusky moorhen	Rallidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Gehyra dubia		Gekkonidae	C	2	qm_main	vert_fauna						
Geijera salicifolia		Rutaceae	C	2	feris2_forsite	herbrecs	vert_flora					
Geitonoplesium cymosum		Philesiaceae	C	2	corveg	vert_flora						
Geopelia humeralis	bar-shouldered dove	Columbidae	C	2	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Geopelia striata	peaceful dove	Columbidae	C	2	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.				
Geranium solanderi		Geraniaceae	C	2	herbrecs	vert_flora						
Gerygone mouki	brown gerygone	Pardalotidae	WH	5	cra_wildnet	feris2_general	h&i_qpws	ig_qpws	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna
Gerygone olivacea	white-throated gerygone	Pardalotidae	WH	5	cra_wildnet	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.			
Glossocardia bidens		Asteraceae	C	2	corveg							
Glossopsitta concinna	musk lorikeet	Psittacidae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Glossopsitta pusilla	little lorikeet	Psittacidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Glycine clandestina		Fabaceae	C	2	corveg							
Glycine tabacina		Fabaceae	C	2	corveg	herbrecs						
Gomphocarpus physocarpus		Asclepiadaceae	C	2	corveg	vert_flora						

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Goodenia rotundifolia		Goodeniaceae	C	2	vert_flora							
Grallina cyanoleuca	magpie-lark	Dicruridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Grewia latifolia		Tiliaceae	C	2	corveg							
Gymnorhina tibicen	Australian magpie	Artamidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Gymnostachys anceps		Araceae	C	2	corveg	vert_flora						
Hardenbergia violacea		Fabaceae	C	2	corveg	vert_flora						
Heteropogon contortus		Poaceae	C	2	corveg	vert_flora						
Hibbertia scandens		Dilleniaceae	C	2	corveg	vert_flora						
Hirundo neoxena	welcome swallow	Hirundinidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Hoplocephalus stephensii	Stephens' banded snake	Elapidae	R, WH	6	hh_qpws	wn_qld_hist.						
Hovea sp. (Dalby K.A.Williams 90035)		Fabaceae	C	2	vert_flora							
Hoya australis		Asclepiadaceae	C	2	herbrecs	vert_flora						
Hybanthus enneaspermus		Violaceae	C	2	corveg							
Hydrocotyle pedicellosa		Apiaceae	C	2	corveg	goomb_ptc	herbrecs	vert_flora				
Hypochaeris radicata		Asteraceae	C	2	corveg	herbrecs						
Imperata cylindrica		Poaceae	C	2	corveg	vert_flora						
Indigofera australis	Australian indigo	Fabaceae	C	2	herbrecs	vert_flora						
Indigofera brevidens		Fabaceae	C	2	corveg	herbrecs						
Jacksonia scoparia		Fabaceae	C	2	corveg	herbrecs	vert_flora					
Jasminum simplicifolium subsp. australiense		Oleaceae	C	2	vert_flora							
Kennedia rubicunda		Fabaceae	C	2	vert_flora							
Kyarranus kundagungan	red-and-yellow mountain-frog	Myobatrachidae	R, WH	6	cra_wildnet	goomb_ptc	hh_qpws	ig_qpws	qm_main	wn_natures.	wn_qld_hist.	
Lalage leucomela	varied triller	Campephagidae	C	2	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Lalage sueurii	white-winged triller	Campephagidae	C	2	h&i_qpws	wn_natures.	wn_qld_hist.					
Lampropholis amicula		Scincidae	C	2	qm_main	vert_fauna	wn_natures.					
Lampropholis delicata		Scincidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.			
Lantana camara		Urticaceae	C	2	vert_flora							
Lechriodus fletcheri	black-soled frog	Myobatrachidae	R, WH	6	cra_wildnet	goomb_ptc	hh_qpws	qm_disjunct	qm_main	wn_natures.	wn_qld_hist.	
Legnephora moorei		Menispermaceae	C	2	vert_flora							
Lepidosperma laterale		Cyperaceae	C	2	corveg	vert_flora						
Lepidosperma urophorum		Cyperaceae	C	2	vert_flora							
Leptochloa decipiens		Poaceae	C	2	corveg	herbrecs						
Lepus capensis	brown hare	Leporidae	C	2	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Leucopogon juniperinus		Epacridaceae	C	2	corveg	herbrecs	vert_flora					

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Leucosarcia melanoleuca	wonga pigeon	Columbidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Lichenostomus chrysops	yellow-faced honeyeater	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Lichenostomus leucotis	white-eared honeyeater	Meliphagidae	C	2	ig_qpws	qm_main	vert_fauna	wn_qld_hist.				
Lichenostomus melanops	yellow-tufted honeyeater	Meliphagidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.					
Lichmera indistincta	brown honeyeater	Meliphagidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Limnodynastes peronii	brown-striped marshfrog	Myobatrachidae	WH	5	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Limnodynastes tasmaniensis	spotted marshfrog	Myobatrachidae	WH	5	cra_wildnet	h&i_qpws	qm_main	wn_natures.	wn_qld_hist.			
Limnodynastes terraereginae	scarlet-sided pobblebonk	Myobatrachidae	WH	5	h&i_qpws	qm_main	wn_natures.	wn_qld_hist.				
Lissanthe strigosa		Epacridaceae	C	2	corveg	vert_flora						
Litoria dentata	bleating treefrog	Hylidae	C	2	vert_fauna							
Litoria fallax	eastern sedgefrog	Hylidae	WH	5	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Litoria latopalmata	broad-palmed rocketfrog	Hylidae	WH	5	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Litoria nasuta	striped rocketfrog	Hylidae	WH	5	vert_fauna	wn_natures.						
Litoria peronii	emerald-spotted treefrog	Hylidae	WH	5	goomb_ptc	qm_main	vert_fauna	wn_qld_hist.				
Litoria rubella	naked treefrog	Hylidae	WH	5	cra_wildnet	qm_main	vert_fauna	wn_qld_hist.	wn_se_fauna			
Litoria verreauxii	whistling treefrog	Hylidae	WH	5	cra_wildnet	feris2_general	h&i_qpws	ig_qpws	qm_main	wn_natures.	wn_qld_hist.	
Lobelia purpurascens		Campanulaceae	C	2	corveg	vert_flora						
Lomandra filiformis		Xanthorrhoeaceae	C	2	corveg	vert_flora						
Lomandra hystrix		Xanthorrhoeaceae	C	2	herbrecs	vert_flora						
Lomandra longifolia		Xanthorrhoeaceae	C	2	corveg	herbrecs	vert_flora					
Lophostemon confertus		Myrtaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Lophostemon suaveolens		Myrtaceae	C	2	vert_flora							
Lygisaurus foliorum		Scincidae	C	2	vert_fauna	wn_natures.						
Maclura cochinchinensis		Moraceae	C	2	vert_flora							
Macrobrachium sp	freshwater prawn	Palaemonidae	C	2	vert_fauna							
Macropus giganteus	eastern grey kangaroo	Macropodidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Macropus parryi	whiptail wallaby	Macropodidae	C	2	feris2_general	ig_qpws	qm_main	wn_natures.	wn_qld_hist.			
Macropus rufogriseus	red-necked wallaby	Macropodidae	C	2	h&i_qpws	ig_qpws	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna		
Macropygia amboinensis	brown cuckoo-dove	Columbidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Mallotus philippensis		Euphorbiaceae	C	2	herbrecs	vert_flora						
Malurus cyaneus	superb fairy-wren	Maluridae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Malurus lamberti	variegated fairy-wren	Maluridae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Malurus melanocephalus	red-backed fairy-wren	Maluridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Manorina melanocephala	noisy miner	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Manorina melanophrys	bell miner	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		

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Maytenus bilocularis	orangebark	Celastraceae	C	2	vert_flora							
Maytenus silvestris	narrow-leaved orange bark	Celastraceae	C	2	corveg	herbrecs	vert_flora					
Melaleuca bracteata		Myrtaceae	C	2	herbrecs	vert_flora						
Melanotaenia fluviatilis	Murray Rainbowfish	Atherinidae	CUT	6	vert_fauna							
Melia azedarach		Meliaceae	C	2	vert_flora							
Melinis repens		Poaceae	C	2	corveg	vert_flora						
Meliphaga lewinii	Lewin's honeyeater	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Meliphaga notata	yellow-spotted honeyeater	Meliphagidae	C	2	vert_fauna							
Melithreptus albogularis	white-throated honeyeater	Meliphagidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Melithreptus lunatus	white-naped honeyeater	Meliphagidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Melodorum leichhardtii		Annonaceae	C	2	herbrecs	vert_flora						
Melomys cervinipes	fawn-footed melomys	Muridae	WH	5	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Mentha diemenica		Lamiaceae	C	2	corveg	vert_flora						
Menura alberti	Albert's lyrebird	Menuridae	R, WH	6	cra_wildnet	feris2_general	goomb_smp	hh_qpws	qm_disjunct	wn_natures.	wn_qld_hist.	
Merops ornatus	rainbow bee-eater	Meropidae	CJ	5	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.				
Microeca fascinans	jacky winter	Petroicidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Miniopterus australis	little bentwing-bat	Vespertilionidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_qld_hist.				
Mixophyes fleayi	Fleay's barred-frog	Myobatrachidae	E, WH	10	cra_wildnet	feris2_general	goomb_ptc	goomb_smp	hh_qpws	qm_main	wn_qld_hist.	
Mogurnda adspersa	purple spotted gudgeon	Eleotrididae	CUT	6	vert_fauna	wn_se_fauna						
Monarcha melanopsis	black-faced monarch	Dicruridae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Morelia spilota	carpet python	Boidae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Morethia taeniopleura	fire-tailed skink	Scincidae	C	2	vert_fauna	wn_qld_hist.						
Mus musculus	house mouse	Rodentia	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Myiagra inquieta	restless flycatcher	Dicruridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Myiagra rubecula	leaden flycatcher	Dicruridae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Myzomela sanguinolenta	scarlet honeyeater	Meliphagidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Neochmia temporalis	red-browed finch	Passeridae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Nephrolepis cordifolia		Nephrolepidaceae	C	2	vert_flora							
Ninox novaeseelandiae	southern boobook	Strigidae	CJ	5	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Notelaea microcarpa		Oleaceae	C	2	herbrecs	vert_flora						
Nycticorax caledonicus	nankeen night heron	Ardeidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Nyctinomus australis	white-striped freetail-bat	Molossidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Ocyphaps lophotes	crested pigeon	Columbidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Olea paniculata		Oleaceae	C	2	corveg	vert_flora						
Olearia elliptica	sticky daisy bush	Asteraceae	C	2	corveg							
Opuntia tomentosa		Cactaceae	C	2	corveg	vert_flora						

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Oriolus sagittatus	olive-backed oriole	Oriolidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Oxalis chnoodes		Oxalidaceae	C	2	corveg	herbrecs						
Pachycephala pectoralis	golden whistler	Pachycephalidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Pachycephala rufiventris	rufous whistler	Pachycephalidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Pandorea jasminoides		Bignoniaceae	C	2	feris2_forsite	vert_flora						
Pandorea pandorana		Bignoniaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Panicum effusum var. effusum		Poaceae	C	2	corveg							
Panicum maximum var. trichoglume		Poaceae	C	2	vert_flora							
Paratya australiensis		Atyidae	C	2	qm_crustacea	vert_fauna						
Pardalotus punctatus	spotted pardalote	Pardalotidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Pardalotus striatus	striated pardalote	Pardalotidae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Parsonsia straminea		Apocynaceae	C	2	vert_flora							
Parsonsia velutina		Apocynaceae	C	2	vert_flora							
Paspalidium distans		Poaceae	C	2	corveg	herbrecs						
Paspalidium jubiflorum		Poaceae	C	2	corveg	herbrecs						
Paspalum dilatatum		Poaceae	C	2	corveg	herbrecs						
Paspalum scrobiculatum		Poaceae	C	2	corveg							
Pellaea falcata var. nana		Adiantaceae	C	2	vert_flora							
Pennisetum alopecuroides		Poaceae	C	2	herbrecs	vert_flora						
Peperomia blanda var. floribunda		Piperaceae	C	2	vert_flora							
Perameles nasuta	long-nosed bandicoot	Peramelidae	C	2	cra_wildnet	feris2_general	h&i_qpws	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna	
Petauroides volans	greater glider	Pseudocheiridae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Petaurus australis australis	yellow-bellied glider (southern subspecies)	Petauridae	CUT, WH	6	feris2_general	goomb_smp	hh_qpws	wn_natures.	wn_qld_hist.			
Petaurus breviceps	sugar glider	Petauridae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Petaurus norfolcensis	squirrel glider	Petauridae	C	2	vert_fauna	wn_qld_hist.	wn_se_fauna					
Petrogale penicillata	brush-tailed rock-wallaby	Macropodidae	V	8	ig_qpws	qm_disjunct	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Petroica multicolor	scarlet robin	Petroicidae	CUT	6	vert_fauna	wn_natures.	wn_qld_hist.					
Petroica rosea	rose robin	Petroicidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Phalacrocorax carbo	great cormorant	Phalacrocoracidae	C	2	vert_fauna							
Phalacrocorax melanoleucos	little pied cormorant	Phalacrocoracidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Phalacrocorax varius	pied cormorant	Phalacrocoracidae	C	2	vert_fauna							
Phaps chalcoptera	common bronzewing	Columbidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.				
Phascolarctos cinereus	koala	Phascolarctidae	CS	4	cra_wildnet	ig_qpws	qm_disjunct	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Philemon citreogularis	little friarbird	Meliphagidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Philemon corniculatus	noisy friarbird	Meliphagidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Phylidonyris nigra	white-cheeked honeyeater	Meliphagidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Phyllanthus gasstroemii		Euphorbiaceae	C	2	corveg							
Physignathus lesueurii	eastern water dragon	Agamidae	WH	5	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Pimelea linifolia		Thymelaeaceae	C	2	corveg	vert_flora						
Pimelea neoanglica		Thymelaeaceae	C	2	corveg	goomb_ptc	herbrecs					
Pitta versicolor	noisy pitta	Pittidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.			
Pittosporum rhombifolium		Pittosporaceae	WH	5	herbrecs	vert_flora						
Pittosporum undulatum		Pittosporaceae	WH	5	corveg	feris2_forsite	vert_flora					
Plantago		Plantaginaceae	C	2	corveg							
Plantago debilis		Plantaginaceae	C	2	corveg	herbrecs						
Platalea flavipes	yellow-billed spoonbill	Threskiornithidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Platalea regia	royal spoonbill	Threskiornithidae	C	2	vert_fauna	wn_natures.						
Platycercus adscitus	pale-headed rosella	Psittacidae	C	2	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Platycercus elegans	crimson rosella	Psittacidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Platycercus eximius	eastern rosella	Psittacidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		
Platycerium bifurcatum	elkhorn fern	Polypodiaceae	C	2	herbrecs	vert_flora						
Platycerium superbum	staghorn fern	Polypodiaceae	C	2	vert_flora							
Plectorhyncha lanceolata	striped honeyeater	Meliphagidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Plectranthus graveolens		Lamiaceae	C	2	corveg	herbrecs	vert_flora					
Plectranthus parviflorus		Lamiaceae	C	2	corveg	vert_flora						
Poa labillardieri var. labillardieri		Poaceae	C	2	vert_flora							
Poa sieberiana		Poaceae	C	2	corveg	herbrecs						
Poa sieberiana var. sieberiana		Poaceae	C	2	corveg	vert_flora						
Podargus strigoides	tawny frogmouth	Podargidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Pogona barbata	bearded dragon	Agamidae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Pollia crispata		Commelinaceae	C	2	herbrecs	vert_flora						
Polyscias elegans		Araliaceae	C	2	corveg	feris2_forsite	herbrecs	vert_flora				
Pomatostomus temporalis	grey-crowned babbler	Pomatostomidae	C	2	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.				
Pouteria cotinifolia var. cotinifolia		Sapotaceae	C	2	vert_flora							
Psephotus haematonotus	red-rumped parrot	Psittacidae	C	2	vert_fauna	wn_qld_hist.						
Pseudechis porphyriacus	red-bellied black snake	Elapidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Pseudocheirus peregrinus	common ringtail possum	Pseudocheiridae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.		

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Pseudomys novaehollandiae	New Holland mouse	Muridae	R	6	qm_disjunct	qm_main	vert_fauna	wn_qld_hist.				
Psophodes olivaceus	eastern whipbird	Cinclosomatidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Pteridium esculentum	common bracken	Dennstaedtiaceae	C	2	corveg	vert_flora						
Ptilonorhynchus violaceus	satin bowerbird	Ptilonorhynchidae	WH	5	cra_wildnet	feris2_general	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	
Pyrrosia confluens		Polypodiaceae	C	2	vert_flora							
Pyrrosia rupestris		Polypodiaceae	C	2	corveg	herbrecs	vert_flora					
Rapanea variabilis		Myrsinaceae	C	2	corveg	vert_flora						
Rattus fuscipes	bush rat	Muridae	C	2	cra_wildnet	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Retropinna semoni	Australian smelt (fw fish)	Retropinnidae	CUT	6	vert_fauna							
Rhamphotyphlops weidii	blind snake	Typhlopidae	C	2	vert_fauna							
Rhinolophus megaphyllus	eastern horseshoe-bat	Rhinolophidae	C	2	cra_wildnet	feris2_general	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	
Rhinoplocephalus nigrescens	eastern small-eyed snake	Elapidae	C	2	cra_wildnet	vert_fauna	wn_natures.	wn_qld_hist.				
Rhipidura fuliginosa	grey fantail	Dicruridae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	
Rhipidura leucophrys	willie wagtail	Dicruridae	C	2	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Rhipidura rufifrons	rufous fantail	Dicruridae	C	2	cra_wildnet	feris2_general	h&i_qpws	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna	
Rhodanthe anthemoides		Asteraceae	C	2	corveg	herbrecs	vert_flora					
Rhodosphaera rhodanthema		Anacardiaceae	C	2	vert_flora							
Rhynchosia minima		Fabaceae	C	2	corveg	herbrecs						
Rhynchosia minima var. minima		Fabaceae	C	2	corveg							
Ripogonum album		Smilacaceae	C	2	vert_flora							
Rostellularia adscendens		Acanthaceae	C	2	corveg	vert_flora						
Rubus parvifolius		Rosaceae	C	2	corveg							
Saproscincus rosei		Scincidae	R	6	cra_wildnet	hh_qpws	qm_disjunct	qm_main				
Sarcochilus olivaceus		Orchidaceae	CUT	6	herbrecs							
Scaevola albida		Goodeniaceae	C	2	corveg	herbrecs	vert_flora					
Scleria mackaviensis		Cyperaceae	C	2	corveg	vert_flora						
Scythrops novaehollandiae	channel-billed cuckoo	Cuculidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Secamone elliptica		Asclepiadaceae	C	2	vert_flora							
Sehima nervosum		Poaceae	C	2	corveg	herbrecs						
Selaginella brisbanensis		Selaginellaceae	C	2	herbrecs							
Senecio lautus		Asteraceae	C	2	corveg	herbrecs						
Senna floribunda		Caesalpiniaceae	C	2	vert_flora							
Sericornis frontalis	white-browed scrubwren	Pardalotidae	WH	5	cra_wildnet	feris2_general	ig_qpws	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna
Sigesbeckia orientalis		Asteraceae	C	2	corveg	vert_flora						

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
Sloanea woollsii		Elaeocarpaceae	WH	5	corveg	feris2_forsite	herbrecs	vert_flora				
Smicrornis brevirostris	weebill	Pardalotidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Smilax australis		Smilacaceae	C	2	corveg	vert_flora						
Sminthopsis murina	common dunnart	Dasyuridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Solanum elegans	spiny kangaroo apple	Solanaceae	C	2	corveg	herbrecs						
Sorghum leiocladum		Poaceae	C	2	corveg	herbrecs	vert_flora					
Sphecotheres viridis	figbird	Oriolidae	C	2	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna			
Stephania japonica var. discolor		Menispermaceae	C	2	corveg							
Strepera graculina	pied currawong	Artamidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Sturnus vulgaris	common starling	Sturnidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Swainsona galegifolia		Fabaceae	C	2	herbrecs	vert_flora						
Tachybaptus novaehollandiae	Australasian grebe	Podicipedidae	C	2	vert_fauna	wn_natures.	wn_se_fauna					
Tachyglossus aculeatus	short-beaked echidna	Tachyglossidae	CS	4	cra_wildnet	h&i_qpws	ig_qpws	wn_natures.	wn_qld_hist.			
Taeniopygia bichenovii	double-barred finch	Passeridae	C	2	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna				
Tagetes minuta		Asteraceae	C	2	vert_flora							
Tandanus tandanus	freshwater catfish	Plotosidae	CUT	6	vert_fauna							
Tephrosia purpurea var. purpurea		Fabaceae	C	2	corveg							
Tetrastigma nitens		Vitaceae	C	2	corveg	vert_flora						
Teucrium argutum		Lamiaceae	C	2	corveg	herbrecs	vert_flora					
Teucrium argutum var. argutum		Lamiaceae	C	2	corveg							
Themeda triandra		Poaceae	C	2	corveg	goomb_ptc	herbrecs	vert_flora				
Threskiornis molucca	Australian white ibis	Threskiornithidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Threskiornis spinicollis	straw-necked ibis	Threskiornithidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Thylogale stigmatica	red-legged pademelon	Macropodidae	C	2	qm_disjunct	qm_main	wn_qld_hist.					
Todiramphus sanctus	sacred kingfisher	Halcyonidae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Toona australis		Meliaceae	C	2	corveg	feris2_forsite						
Toona ciliata		Meliaceae	C	2	vert_flora							
Tragia novaehollandiae		Euphorbiaceae	C	2	vert_flora							
Trichoglossus chlorolepidotus	scaly-breasted lorikeet	Psittacidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Trichoglossus haematodus	rainbow lorikeet	Psittacidae	C	2	cra_wildnet	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna		
Trichosurus caninus	mountain brushtail possum	Phalangeridae	C	2	cra_wildnet	feris2_general	ig_qpws	qm_disjunct	qm_main	wn_natures.	wn_qld_hist.	wn_se_fauna
Trichosurus vulpecula	common brushtail possum	Phalangeridae	C	2	cra_wildnet	qm_main	vert_fauna	wn_natures.	wn_qld_hist.			
Trophis scandens		Moraceae	C	2	vert_flora							

Species	Common Name	Family	Final status class	Final status value	Source1	Source2	Source3	Source4	Source5	Source6	Source7	Source8
subsp.scandens												
Turnix varia	painted button-quail	Turnicidae	WH	5	vert_fauna	wn_natures.	wn_qld_hist.					
Turraea rubescens		Meliaceae	C	2	vert_flora							
Tyto alba	barn owl	Tytonidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Tyto novaehollandiae	masked owl	Tytonidae	C	2	cra_wildnet	hh_qpws						
Tyto tenebricosa	sooty owl	Tytonidae	R	6	cra_wildnet	feris2_general	goomb_smp	hh_qpws	ig_qpws	vert_fauna	wn_natures.	wn_qld_hist.
Vanellus miles	masked lapwing	Charadriidae	CJ	5	vert_fauna	wn_natures.	wn_qld_hist.					
Varanus varius	lace monitor	Varanidae	C	2	vert_fauna	wn_natures.	wn_qld_hist.					
Verbena officinalis		Verbenaceae	C	2	corveg	herbrecs						
Vernonia cinerea		Asteraceae	C	2	corveg	vert_flora						
Vulpes vulpes	red fox	Canidae	C	2	feris2_general	vert_fauna	wn_natures.	wn_qld_hist.				
Wahlenbergia communis		Campanulaceae	C	2	corveg	herbrecs						
Wedelia spilanthoides		Asteraceae	C	2	corveg	vert_flora						
Wikstroemia indica		Thymelaeaceae	C	2	corveg	herbrecs						
Xanthomyza phrygia	Regent honeyeater	Meliphagidae	E, CJ	10	h&i_qpws	ig_qpws						
Xanthorrhoea glauca		Xanthorrhoeaceae	C	2	corveg	vert_flora						
Zornia dyctiocarpa		Fabaceae	C	2	corveg							
Zosterops lateralis	silvereye	Zosteropidae	C	2	cra_wildnet	feris2_general	qm_main	vert_fauna	wn_natures.	wn_qld_hist.	wn_se_fauna	

Appendix 3 List of Data Sources

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
Specific Data											
Frog survey	Glen Rock Frog Survey	Harry Hines, QPWS, Moggill	30/10/00				species list and summary info, paper maps with species distributions marked	relate distribution maps to the puids	hines.doc, recent_qpws.xls		maps indicate known, highly likely and possible frog species distributions
Threatened species	Survey Summary – Glen Rock Regional Park and Adjacent Land	Ian Gynther, QPWS, Moggill	31/10/00				species list and summary info, xls with species locations		point pure survey summary.doc, gynther_v21.xls		
Species list		Harry Hines & Ian Gynther, QPWS, Moggill	30/10/00				species list		newqpwsglenrockspp.xls		
Species list		George Krieger, QPWS, Moggill	31/10/00				species list				
Site locations and species for vertebrate fauna survey	Survey of Vertebrate Fauna at Glen Rock in the Gatton Shire	George Krieger & Peter Lehmann, QPWS, Moggill	March, 2000				combination of spreadsheets and data taken directly from an electronic copy of the report	extracted species list from the doc – specifically Appendix 3 & 4	vert_fauna_app 2.doc		
Flora species list	Survey of Vertebrate Fauna at Glen Rock in the Gatton Shire	George Krieger & Peter Lehmann, QPWS, Moggill	March, 2000				combination of spreadsheets and data taken directly from an electronic copy of the report	extracted species list from the doc – specifically Appendix 2	added to main_species_list		Appendix 2 of report, no coordinates – the species list from Paul Grimshaw's site data and Corveg will have the coordinates
Flora species sites and data	Draft Gatton Shire Remnant Vegetation Mapping – Gatton Shire	Paul Grimshaw, EPA, Moggill		11/8/00	flora species list and survey site information	email	received as a point shape file	the species field has been truncated, so did not add to master species list, extracted info to xls	gr_veg_sites.xls, gr_veg_sites_a.shp		the species list should be the same as Appendix 2 of the vertebrate report some extra sites compared to Corveg
Vegetation Map	Draft Gatton Shire Remnant Vegetation Mapping – Gatton Shire	Paul Grimshaw EPA, Moggill		11/8/00	vegetation info	email	polygon shape file		gr_shire_veg_a.shp		subset of full Gatton Shire veg data should be same as Map3 and Appendix 1 in Vertebrate Fauna report Signed a standard licence agreement
Goomburra fauna	Feris2 search	Mark Gordon, DNR, NRIM		9/8/00	fauna species list for Goomburra SF	email	CRA and general flora and fauna data points shape file	species list added to master_species_list	goomb_fauna_a.shp		this search will be available through the web interface
Goomburra flora	Feris2 search	Mark Gordon, DNR, NRIM		9/8/00	flora species list for Goomburra SF	email	Forsite data points shape file	species list added to master_species_list	goomb_flora_a.shp		this search will be available through the web interface

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
FERIS2 – datasets	Feris2 web site	Mark Gordon, DNR, NRIM		9/8/00	any datasets that cover the GR area	via the website and email	list of datasets for the area	719 datasets for the area, of which 70 had titles – searched through the list for anything relevant	feris2.xls		
Goomburra Permits to Collect	Permits to Collect database	Gus Cheratzu DNR, FPSU		8/7/00	search of PTC database for Goomburra SF	pers comm with Gus	the results of the reports from the permits	manually converted txt report from Access to xls	gr_ptc_750.xls		no point data for the species records, a few spelling mistakes in the species names
Crustacea data	Museum Natural History Database	John Short Museum 38407717		29/8/00	complete search of Museum database and any other relevant information 152.10 to 152.30 27.40 to 28.10	request form faxed to Andrew Amey Fax No. 38461918	7 species, none from within GR	added to master list	gr_qm_crustacea.xls	7 records = min charge of $50	
Main Museum database	Museum Natural History Database	Peter Gehls Museum 38407664 Andrew Amey Museum 38407705		23/8/00	complete search of Museum database and any other relevant information 152.10 to 152.30 27.40 to 28.10	request form faxed to Andrew Amey Fax No. 38461918	species point data, none from within GR	lat longs are decimal degrees, converted to base 10 for ArcView	gr_qm_main.xls	620 records at 33c per record = $204.6	288 frogs and reptiles 332 birds and mammals
Museum Fish Collection	Museum Natural History Database	Geoff Johnson		23/8/00	complete search of Museum database and any other relevant information 152.10 to 152.30 27.40 to 28.10	request form faxed to Andrew Amey Fax No. 38461918	no freshwater fish records for the area, the closest is for Western Creek				
Disjunct species	Most significant areas for phylogenetically distinct, relic and or disjunctly distributed insect, frewshwater fish, frog, reptile, bird and mammal species of south east Queensland	Janette Covacevich et al QLD Museum 38407708	1998		complete search of Museum database and any other relevant information 152.10 to 152.30 27.40 to 28.10		species list for the general area, no point locations	only able to view the report (no photocopies), copied down all the relevant info, then put into xls	qm_disjunct within master_species_list.xls		
Herbrecs	Herbrecs Oracle database	Rosemary Neihus, Queensland Herbarium 34066045		18/8/00	search of Herbrecs DB, 152.10 to 152.30 27.45 to 28.05	email to Gordon Guymer and cc to Rosemary Neihus	species list text file & associated metadata	converted to AV and added to master species list, added extra field for all records within a 500m buffer of GR	gr_herbrecs.xls		

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
Corveg	Corveg FoxPro database	Rosemary Neihus, Queensland Herbarium 34066045		18/8/00	search of Herbrecs DB, 152.10 to 152.30 27.45 to 28.05	email to Gordon Guymer and cc to Rosemary Neihus	species list text file & associated metadata	received corveg site desc and location; and species info in separate files. Joined files using vr_num and added to gis and master species list, added extra field for all records within a 500m buffer of GR	gr_corveg.xls		
Wildnet	Wildnet Oracle database with web interface	Noleen Kunst & Jan Abbotts, EPA		30/8/00	all available databases ie sightings search 152.10 to 152.30 27.40 to 28.10	via faxed order form 32276386	only search of QLD Historical Fauna DB, SE_Fauna and NatureSearch DB	loaded text file into Excel coords in dec10 format			The databases searched did not include Herbrecs or Corveg, even though these are part of the WildNet system. The Herbarium prefers that such searches for external departments are done through the Herbarium. Signed a standard licence agreement
CRA report 1.1.1b	Systematic vertebrate fauna survey project. Stage 1 – Vertebrate fauna survey in the south east Queensland bioregion	RFA	1997				report	data covered by WildNet and Feris2 search	eh 1.1.1b.doc		found by searching the CRA reports for the word Goomburra – no docs had the words Glen Rock
CRA report 1.1.2A	Forest vertebrate fauna study for a comprehensive regional assessment in south-east Queensland. Stage 2A: Analysis and reserve options example	RFA, D.C. McFarland	1998				report	provides background information	eh 1.1.2a.doc		found by searching the CRA reports for the word Goomburra – no docs had the words Glen Rock
CRA report 1.1.2b	Systematic vertebrate fauna survey project. Stage 2b – Assessment of habitat quality for priority species in southeast Queensland bioregion	RFA	1997				report	provides background information, specific	eh 1.1.2b.doc		found by searching the CRA reports for the word Goomburra – no docs had the words Glen Rock

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
DRAFT Habitat Maps For Queensland Priority Fauna Species	from CRA report 1.1.2b	Kate McNamara, DNR, RFA	1998				The maps were generated by either intersecting environmental data coverages defined by ecological experts or by using statistical spatial data modelling techniques.	16 species with coverage over GR	misc		from forester\fdatas01\qld\fauna
Species Management Profiles Database	SMP database	Rosey Edgar DNR, FPSU		version 1.8, 10/4/2000	search of DB for Goomburra SF	direct search of DB	12 EVR species and their threatening processes				only contains EVR species found on State Forests
SMP distributions	SMP species predicted distributions						distribution maps for the SMP species	31 species with coverage over GR	files are named using the CAVS number		the distributions were only very coarse from forester\fdatas01\qld\smp_species_distributions
Document search	Feris2	Geoff Osborn, DNR, NRIM		10/8/00	free text search through docs on RSK G drive for Goomburra SF		list of approx 20 documents				of the docs listed either the info was not relevant or had been found in other data sources
Threatened and significant Flora and Fauna species - Gatton & Laidley Shires		Recorder & Compiler P.Grimshaw --- Record data was largely compiled from WILDNET and with assistance from H.Hines and I.Gynther	9/6/00				list of EVR species found within GR		glen rock evrs.doc		indicates which RE's the EVR species are thought to be associated with and what are the threatening processes
General Data											
total remnant RE coverage	Queensland Herbarium	via Mike Mayo, DNR									
total preclearing RE coverage	Queensland Herbarium	via Mike Mayo, DNR									
Master planning units	Forest Planning, DNR										
ERSIS roads	SDE										
major roads	SDE										
State Forests & Timber Reserves	SDE										
Estates	SDE										
localities		Colin Wade									
lookouts		Colin Wade									no attribute data
tracks		Colin Wade									
fences		Colin Wade									
proposed fences		Colin Wade									

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
water points		Colin Wade									dams and wells
drainage points		Colin Wade									
drainage	SDE										
streams		Colin Wade									
contours		Colin Wade									
degraded land											
land units											
geology											
soils											
DCDB	SDE										
shires	SDE										
DEM		Colin Wade									
major towns	SDE										
Rectified aerial photographs	Made from 1:25,000 aerial photography acquired by QASCO Pty Ltd 20 July 2000 courtesy of the Gatton Shire Council. Ortho-rectification by Aerometrex Pty Ltd.	Colin Wade, SEQ 2001, Regional Resource Unit, DCILGPS							top, bot, topbot .sid and .tif		Spatial precision +/- 5m. Resolution 0.6m. Maximum reproduction scale 1:1,500 through Robert Preston
Non rectified aerial photographs		Vic Bushing, DNR					aerials for the GR area				scanned in aerials, geographically organised, but not rectified
Non rectified aerial photographs		Peter Lawson, QPWS, Moggill									
Landsat satellite image		Jo Lawrence, DNR									
Authority/ Background Data											
Species Management Profiles	http://insite/staff/depbus/resmgt/forestmgt/forest_species.htm	Rosey Edgar DNR			profiles for species from SMP DB search	direct search via web page	SMP's available for 11 of the 12 Goomburra EVR species				
Review and recommendation for reducing the impact of domestic stock on EVR wildlife in the Dalrymple and Banshee Creek catchments of Goomburra State Forest		Adrian Borsboom	March, 2000						goomb_evr_boorsboom.doc		specifically concerns 11 EVR, species but also includes a fauna species list for Goomburra

Data Short Title	Origin/ Source	Contact/Author & details	Date of Report/ DB	Date of search	What was requested	How requested	What received	Data Manipulation	File Name	Cost	Comments
An assessment of the Brush-tailed rock-wallaby population in the Mt Machar and Cooks Tableland areas of Glen Rock (Gatton Shire)		George Krieger and Shawn Capararo, QPWS, Moggill	August 1999						glenrock rock wall.doc		
Regional Nature Conservation Strategy Classification		Hans Dillewaard, EPA						the initial assessment was done by EPA using the 1:100000 RE coverage. Another will be done using P.Grismahw's 1:25000 veg coverage			
Queensland Flora	Queensland Herbarium						list of flora from Herbarium database		allqldflora2000		
Protected Wildlife Register	WildNet, EPA	Noleen Kunst, EPA		14/8/00			list of EVR species		pwregister		
SMP species	SMP database	Rosey Edgar DNR, FPSU	version 1.8, 10/4/2000				table of SMP species taken from SMP database		tbl_cd_fauna_and_flora		
Species status	WildNet, EPA						species status from WildNet		wn_status		
World Heritage species		Peter Lawson, EPA	29/9/00				list of species at GR that have World Heritage status		world_h		
Jamba/Camba/Bonn species	http://www.biodiversity.environment.gov.au/wildlife/lists/migratory/			3/11/00			Jamba, Camba and Bonn listed species		jcb		

Abbreviations

AV – ArcView shape file
CRA – Comprehensive Regional Assessment
DB – database
DCDB – Digital Cadastral Database

DEM – Digital Elevation Model
EVR – Endangered, Vulnerable and Rare species
FERA – Forest Ecosystem Research and Assessment
FPSU – Forest Planning and Sustainable Use
GR – Glen Rock
PTC – Permits to Collect Database
PUIDS – Planning Unit Identifiers
RE – Regional Ecosystem
RFA – Regional Forest Assessments
RSK – Resource, Science and Knowledge
SDE – Spatial Database Engine through GIS unit within RSK
SEQ – South East Queensland
SF – State Forest
SMP – Species Management Profiles
VM – Vegetation Management

Date of Search refers to the date the source was searched
Blanks mean either not applicable or the information has yet to be entered into the table

Appendix 4A Species Profiles of Significant Species

Information on the significant species at Glen Rock. Significant is defined as have a Final Status Value of 6 or greater. It was not possible to obtain copyright for all the significant species and relevant information can be found in the general literature. The information is arranged alphabetically by species common name.

Common Name	Species	Status	Final status class	Final status value	Location	Class	Family	Text Source	Photo Source
Albert's lyrebird	Menura alberti	R	R, WH	6	found nearby	birds	Menuridae	1, 2	
Australian longfin eel	Anguilla reinhardtii		CUT	6		fish	Anguillidae	3	
Australian smelt (fw fish)	Retropinna semoni		CUT	6		fish	Retropinnidae		
Bailey's cypress	Callitris baileyi	R	R	6		conifers	Cupressaceae	5	4
ball nut tree	Floydia praealta	V	V	8	found nearby	higher dicots	Proteaceae	1	
black-soled frog	Lechriodus fletcheri	R	R, WH	6	found nearby	amphibians	Myobatrachidae		
brush-tailed rock-wallaby	Petrogale penicillata	V	V	8		mammals	Macropodidae	4	4
cascade tree frog	Litoria pearsoniana	E	E	10	found nearby	amphibians	Hylidae	1	
Fleay's barred-frog	Mixophyes fleayi	E	E, WH	10	found nearby	amphibians	Myobatrachidae	1	
freshwater catfish	Tandanus tandanus		CUT	6		fish	Plotosidae		
glossy black-cockatoo	Calyptorhynchus lathami	V	V	8		birds	Cacatuidae	1	
grey goshawk	Accipiter novaehollandiae	R	R, CJ	6		birds	Accipitridae	1	
king orchid	Dendrobium speciosum	C	CUT	6		monocots	Orchidaceae	5	
large-eared pied bat	Chalinolobus dwyeri	R	R	6	found nearby	mammals	Vespertilionidae	1	
Marjorie's Hardyhead	Craterocephalus marjoriae		CUT	6		fish	Atherinidae		
Mistake Mtns crayfish	Euastacus jagara		R, WH	6		crustacea	Parastacidae		
Murray Rainbowfish	Melanotaenia fluviatilis		CUT	6		fish	Atherinidae		
New Holland mouse	Pseudomys novaehollandiae	C	CUT	6	found nearby	mammals	Muridae	4	6
olive orchid	Sarcochilus olivaceus	C	CUT	6		monocots	Orchidaceae	5	
peregrine falcon	Falco peregrinus	C	CUT, CJ	6	found nearby	birds	Falconidae		
pink rock orchid	Dendrobium kingianum	C	CUT	6		monocots	Orchidaceae	5	
purple spotted gudgeon	Mogurnda adspersa		CUT	6		fish	Eleotrididae		
red goshawk	Erythrotriorchis radiatus	E	E, CJ	10		birds	Accipitridae	1, 2	
red-and-yellow mountain-frog	Kyarranus kundagungan	R	R, WH	6	found nearby	amphibians	Myobatrachidae		
red-browed treecreeper	Climacteris erythrops	R	R, WH	6		birds	Climacteridae	1	
Regent honeyeater	Xanthomyza phrygia	E	E, CJ	10		birds	Meliphagidae	2	
scarlet robin	Petroica multicolor	C	CUT	6		birds	Petroicidae		
shadeskink	Saproscincus rosei	R	R	6	found nearby	reptiles	Scincidae	1	
soft white box	Eucalyptus quadrangulata		CUT	6	found nearby	higher dicots	Myrtaceae	5	
sooty owl	Tyto tenebricosa	R	R	6		birds	Tytonidae	1, 2	
spotted-tailed quoll (southern subsp.)	Dasyurus maculatus maculatus	V	V	8	found nearby	mammals	Dasyuridae	1	
Stephens' banded snake	Hoplocephalus stephensii	R	R, WH	6	found nearby	animal	Elapidae	1	
white cypress pine	Callitris glaucophylla	C	CUT	6		conifers	Cupressaceae		4
yellow-bellied glider (southern subsp.)	Petaurus australis australis	C	CUT, WH	6	found nearby	mammals	Petauridae	1	

Text and Photo Sources

1 Species Management Profiles, DNR
2 Garnett, S.T., and Crowley, G.M. *The Action Plan for Australian Birds, 2000* (Commonwealth of Australia, 2000).
3 Australian Museum Online http://www.austmus.gov.au/fishes/fishfacts/fish/areinhard.htm
4 Krieger,G. and Lehmann,P. 2000 Survey of Vertebrate Fauna at Glen Rock in the Gatton Shire
5 Stanley, T.D., and Ross, E.M. 1989 *Flora of south-eastern Queensland,* (DPIF). Volume 3
6 Bruce Colwell, Copyright, Qld Museum

Explanation of Status Values and Classes

Final status value	Final status class	Status
10	PE	Presumed Extinct
10	E	Endangered
8	V	Vulnerable
6	R	Rare
6	CUT	Common and under threat
5	WH	World Heritage
5	CJ	CAMBA/JAMBA/BONN
4	CS	Culturally significant
2	C	Common and not under threat

Menura alberti

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Bird **FAMILY: Menuridae**

- **Restricted distribution from the Richmond River in north east NSW to the Mistake Range in south east Queensland.**
- **Recorded from two State forests and three protected areas.**
- **Occurs in rainforest and wet sclerophyll forest.**
- **Threatening process is clearance of habitat. Possible threats are: clear fell timber harvesting; feral animals; inappropriate grazing regimes; and inappropriate fire regimes.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: minimising habitat clearance on State forests; restriction of timber harvesting at nest sites and at active nests; control of feral animals; monitoring grazing; and appropriate fire regimes.**

SPECIES PROFILE

DESCRIPTION

Menura alberti varies in size with females reaching 75 cm in length and males 90 cm.[14] It is a rich chestnut-brown with a rufous undertail, rump and throat.[2,3] The male has a long tail of glossy black filamentous feathers, which are wiry and lace-like at their tips.[2] The female's tail is shorter and more simple.[2] It is distinguished from the superb lyrebird by being smaller and more reddish in colour, lacking the spectacular lyre-shaped tail feathers of the male superb lyrebird.[2,14] The song of *M. alberti* is clear and powerful, often interspersed with the mimicked calls of a variety of other birds.[2]

NO IMAGE CURRENTLY AVAILABLE FOR THIS PROFILE. SEE REFERENCE 12 FOR A PHOTOGRAPH OF THE BIRD.

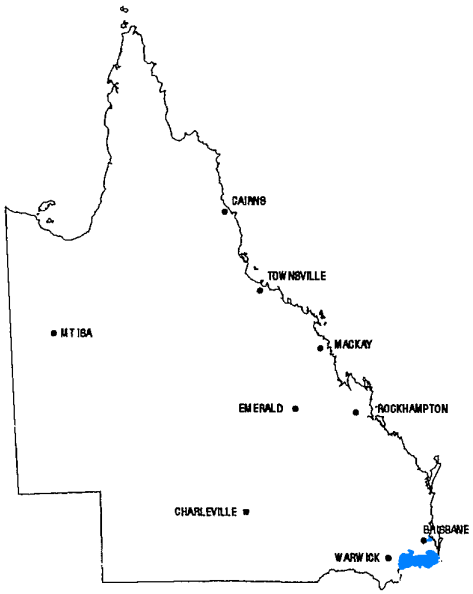
BIOLOGY & ECOLOGY

Occurs singly or in pairs, but is very timid and seldom seen.[2,5] It feeds on the forest floor on leaf litter insects and possibly land snails and earthworms.[5,7] Territories are estimated to be somewhere between 5 to 15 ha depending on habitat productivity.[17] The male usually sings and displays from the forest floor on a well concealed platform of either vine stems, or vine stems and fallen branches.[6] During a display, he inverts his tail over his back and droops his wings.[2,6] The breeding period extends from late April to mid September.[17] At the start of the breeding season, display and mating commences and intensifies through May to mid June, followed by nest-building and incubation from late June to early August, with the young fledged by mid September.[17] A large domed nest of sticks, roots and moss is built by the female either in debris-covered rock crevices in cliffs, tree buttresses, crotches in tree trunks 2 to 5 m above the ground, tree ferns, on stumps or on the ground.[2,4,12,17] The female incubates a single egg for six weeks and feeds the chick unassisted.[2,4,12]

HABITAT

Occurs in rainforest and wet sclerophyll with adequate ground cover, which may include lantana.[2-5,7,8,15,17] In wet sclerophyll forest, it prefers either a rainforest or shrubby understorey.[17] In north east NSW it has also been recorded in montane acacia forest, gully acacia forest, regenerating flooded gum forest, regenerating moist blackbutt forest, casuarina forest under eucalypt, heathy open forest and dry open blackbutt forest.[17] There is also a breeding record from dry eucalypt forest in NSW.[8] In Queensland, there is a single record of the lyrebird from a mature *Pinus radiata* plantation in SF 661 (Emu Vale).[15]

CONSERVATION STATUS & DISTRIBUTION



Current Conservation Status

Queensland: Rare[1] NSW: Vulnerable[13]

Former Distribution & Status

Former distribution was restricted and included rainforest from the Richmond River in north east NSW north to Mt Tamborine and the Mistake Range near Cunningham's Gap in south east Queensland.[6,8] There are early unconfirmed, possibly erroneous records of the bird from the Blackall Range near Gympie.[7,8,10] Due to its timid nature, former abundance is unable to be estimated.[7,8]

Current Distribution

The range of *M. alberti* has contracted to a region of about 250 km by 100 km,[8] with records today mainly restricted to altitudes over 300 m.[17] Within this range, some populations have fragmented, with the Mt Tamborine population now considered isolated.[7,11] There have been no recent records from the Blackall Range, and assuming a prior existence, it is now presumed extinct there.[6,8,10] There are no estimates of current population size.[7,8] Recorded in SF 661 (Emu Vale) and SF 750 (East Haldon).[6,15,16] Probably in SF 326 and SF 327 (Gilbert), as the lyrebird is recorded in protected areas directly adjacent.[16] Recorded also in Lamington, Main Range and Tamborine National Parks.

THREATS & MANAGEMENT
INTRODUCTORY COMMENT

M. alberti is restricted to a relatively small area of south east Queensland and north east NSW. Fragmentation and contraction of its range has occurred because much of the lowland rainforest of this region has been cleared for agriculture.[8,11] Remaining rainforest is largely secure within protected areas.[8,11] In addition, Department of Primary Industries Forestry (DPI-F) no longer harvests rainforest. However, wet sclerophyll forest is also important habitat for the lyrebird and requires appropriate management in State forests where *M. alberti* occurs. In the early 1980's, timber harvesting was considered a possible threat,[5] but recent surveys in NSW found *M. alberti* was more common in habitat harvested extensively during the 1970's.[17] Although the isolated Mt Tamborine population has proved to be surprisingly resilient to suburban development,[11] it is considered unlikely to survive in the longer term.[7] There is still little information regarding measures to minimise the impact of grazing and fire.

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans available.

THREATENING PROCESSES

1. Loss and fragmentation of habitat through clearance of rainforest and wet sclerophyll forest for agriculture, grazing and urban development.[7,8,11]

POSSIBLE THREATENING PROCESSES

1. Disturbance, loss and fragmentation of habitat by clear fell timber harvesting.[17]
2. Feral animals.
3. Inappropriate fire regime (destruction of forest floor litter).[17]
4. Inappropriate grazing regimes.

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *M. alberti* and maintain its habitat.

ACTION 1: Other than for essential roads, fire breaks and infrastructure, or on a case by case basis in consultation with Environmental Management, Department of Natural Resources (DNR), no clearing is to occur in State forests and timber reserves where *M. alberti* occurs.

ACTION 2: No timber harvesting of nest sites. Establish a protective buffer that excludes timber harvesting and machinery disturbance within 50 m of the nest, while the nest is active. Active nests are those which contain eggs, sitting birds, nestlings or are in the process of construction.

ACTION 3: Where practical control or eradicate feral cats, foxes and pigs where *M. alberti* occurs. Please consult with the district DNR Land Protection Officer for appropriate control or eradication procedures.

ACTION 4: Monitor the impact of grazing at known nest sites and adjust grazing management to ameliorate adverse impacts, especially on understorey and forest floor litter.

COMMENT: Grazing impacts vary spatially and over time according to stock behaviour and site factors such as topography, vegetation and pasture type, season, rainfall, fire, water source location, and disturbance. Consequently, regular monitoring is required. An appropriate monitoring program should be adopted using guidelines from Department of Natural Resources (DNR) Environmental Management (refer to Appendix 3). The monitoring program may vary on a case by case basis.

ACTION 5: The aims of fuel management should include: excluding fire from wet sclerophyll forest in State forests where *M. alberti* occurs, for the duration of the breeding period from late April to mid-September.

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17. Schodde, *et al* (1996) pp. 4.3-78 - 4.3-82 in *Murwillumbah Management Area Fauna Survey 1995*. Report by CSIRO Division of Wildlife and Ecology.

AUTHOR & DATE OF COMPILATION: K. Park, Department of Primary Industries Forestry in December 1995.
Revised A. Borsboom, Resource Sciences Centre DNR in July 1997.
FIRST REVIEW: G. Smith, DPI Forestry, December 1995.
EDITING: Environmental Management, Forest Resources, DNR. November 1999.
EVR status correct as at December 1997

RECOVERY OUTLINE

Albert's Lyrebird

1	**Family**	Menuridae
2	**Scientific name**	*Menura alberti* (Bonaparte, 1850)
3	**Common name**	Albert's Lyrebird
4	**Conservation status**	Vulnerable: C1

5 Reasons for listing

Fewer than 10,000 mature individuals remain and the population may decline by 10% in the next two generations (30 years; C1).

	Estimate	*Reliability*
Extent of occurrence	*1,500 km²*	*medium*
trend	*stable*	*medium*
Area of occupancy	*300 km²*	*medium*
trend	*stable*	*medium*
No. of breeding birds	*3,500*	*medium*
trend	*decreasing*	*medium*
No. of sub-populations	*10*	*medium*
Largest sub-population	*2,200*	*low*
Generation time	*15 years*	*low*

6 Infraspecific taxa

None described.

7 Past range and abundance

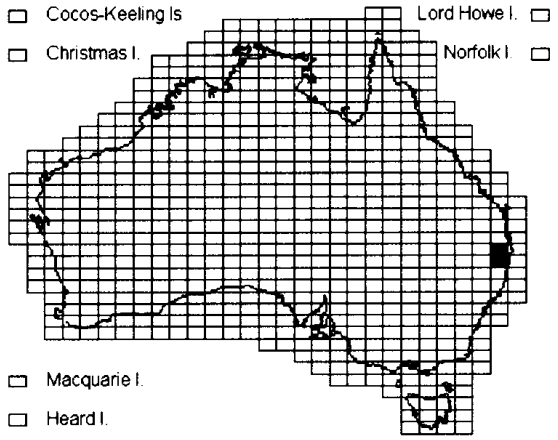
High rainfall areas above 300m between Blackwall Ra., N. S. W. and Mistake Ra., Qld (Robinson and Curtis, 1996, Higgins, in press). In optimal habitat, territories are widely spaced with a density of about five pairs/km² (A. Gilmore).

8 Present range and abundance

Estimated to be fewer than 800 pairs in New South Wales with highest densities at Whian Whian State Forest in Nightcap Ra. Also along Tweed, McPherson and Richmond Ra. An isolated group of less than 10 birds persists in the Blackwall Ra. (A. Gilmore). In Queensland population similar, possibly smaller. Occurs from Lamington National Park around Main Ra. to Mistake Ra. with a few birds isolated on Tambourine Mountain (Curtis, 1996, Higgins, in press).

9 Ecology

Albert's Lyrebirds live in moist forest above 300 m, with highest densities on poorer soils which develop a deep leaf litter. They favour areas with Antarctic Beech *Nothofagus moorei* and wet sclerophyll forest with a dense understorey of rainforest plants but are absent from some rainforest types, including complex notophyll vine forest on high nutrient soils (Gilmore, 2000, A. Gilmore) and from dry sclerophyll forest (Robinson and Curtis, 1996, Higgins, in press, A. Gilmore). They feed on invertebrates on the ground



and have a clutch of one, laid in a large domed nest built in trees, on rock escarpments or on the steep sides of gullies (Higgins, in press).

10 Threats

Much of the bird's habitat was cleared in the 19th century. The major remaining threat is intense forest management, particularly in the Whian Whian State Forest, N. S. W., where proposals exist to allow replacement of optimal wet sclerophyll habitat with unsuitable eucalypt plantations. Plantations contain about 30% of the density of lyrebirds that occur in habitat recovering from selective logging, which are estimated to be about 50% of potential densities (A. Gilmore). Often logged areas are invaded by lantana *Lantana camara* which also reduces habitat suitability. Remaining sub-populations are under relatively secure tenure, although the isolated groups at Blackwall Ra. and Tambourine Mt. are threatened simply because they are so small and densities are unusually low near areas of closer settlement (Gilmore, 2000). Fire could be a threat in exceptionally dry years, especially to outlying sub-populations (Higgins, in press, A. Gilmore), although fire at intervals of several centuries is a natural feature of these environments (Turner, 1984).

11 Information required

11.1 Determine extent of isolation between forest patches.

12 Recovery objectives

12.1 Ensure principal sub-populations remain viable.

13 Actions completed or under way

13.1 A study of the habitat distribution and population density has been completed.

14 Management actions required

14.1 Desist from clearing optimal habitat to create plantations.

14.2 Ensure adequate fire protection is in place, particularly in dry years.

15 Organisations responsible for conservation

New South Wales National Parks and Wildlife Service, Queensland Parks and Wildlife Service.

16 Other organisations involved

State Forests New South Wales, Queensland Department of Natural Resources.

17 Staff and financial resources required for recovery to be carried out

Staff resources required 2001-2005 *None*

Financial resources required 2001-2005

Action	*Conservation agencies*	*Other funding sources*	*Total*
Implement habitat protection	$12,500	$0	$12,500
Fire planning and construction of firebreaks	$22,000	$0	$22,000
Total	$34,500	$0	**$34,500**

18 Bibliography

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Robinson, F.N. and Curtis, H.S. 1996. The vocal displays of the lyrebirds (Menuridae). *Emu* 96:258–75.

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Comments received from

Sandy Gilmore, Ian Gynther.

Australian Longfinned Eel

Anguilla reinhardtii Steindacher, 1867

The Longfinned Eel has well developed pectoral fins, a broad head, and a large mouth with fleshy lips. It can be distinguished from the similar-looking Shortfinned Eel, (Anguilla australis) by the length of the dorsal fin. The dorsal fin origin (glossary) of the Longfinned Eel is well forward of the anal fin origin (glossary), whereas the dorsal fin origin of the Shortfinned Eel is above the anal fin origin. The two species also differ in dentition and colouration. The Longfinned Eel usually has olive or brown blotches above and on the sides, fading to pale on the belly. The median fins are brown and the pectoral fins are often yellowish. The Shortfinned Eel is usually a uniform colour and does not have a blotched pattern.

The Longfinned Eel lives in rivers, lakes and swamps, but appears to prefer flowing water.

A Longfinned Eel at Sydney Aquarium.

This species is commonly recorded from the entire coastal margin of eastern Australia from Cape York to Melbourne. It is also recorded from northern and eastern Tasmania, from Lord Howe Island and from New Caledonia.

Longfinned Eels undergo a remarkable migration to sea to breed. Adult Longfinned Eel swim downstream to the sea and then migrate to their spawning grounds near New Caledonia. Developing leptocephali take about one year to return to the streams of eastern Australia. Young eels (called elvers) then swim upstream and spend a number of years maturing in freshwater.

Landlocked Longfinned Eels (those that cannot return to sea, due to physical barriers) can grow to 3m in length and weigh 22kg. They are usually seen at much smaller sizes than this, often about 1m. Males are smaller than females. The Longfinned Eel is primarily carnivorous and eats water beetles, dragonfly larvae (mudeyes), fishes and even young waterfowl.

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A Longfinned Eel caught in Eastern Creek, Sydney, NSW. (AMS I.37958-001). View larger image

Head of the above Longfinned Eel. View larger image

The tongue and band of teeth on the lower jaw. View larger image

The vulnerable plant *Callitris bailleyii was* recorded at site 30 in the north eastern corner of Glen Rock. This community is susceptible to the impact of fire.

Bailey's Cypress: Callitris baileyi C. T. White

Slender green tree up to ca 15m tall; bark greyish. Leaves including decurrent part 2-5mm long, dorsal surface acutely and prominently keeled. Male stroboli ca 2-3 mm long on ends of branchlets. Female cones solitary, sessile on ends of branchlets, ovoid to oblong, 1- 1.3 cm diameter, cone scales 6, thick, each with prominent dorsal point below apex, furrowed below point, alternate scales slightly shorter and narrower, columella stout, narrowed at base, slightly angled, 3-4 mm long.

Hilly or mountainous areas of the Morton, Darling Downs and Burnett districts, eg. Marburg Range, Yarraman area, Bunya Mtns, Wondai areas.

ball nut or possum nut

Floydia praealta

QUEENSLAND CONSERVATION STATUS: Vulnerable[1]

SPECIES TYPE: Medium tree FAMILY: Proteaceae

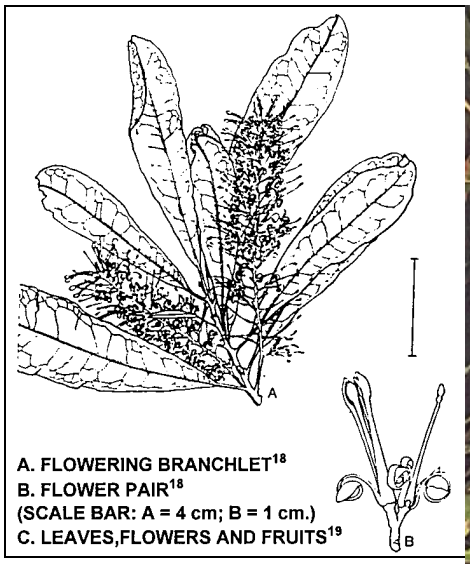
- **Restricted to east Australia, extending from the Clarence River, in north east New South Wales to near Gympie, in south east Queensland.**
- **Recorded from two State forests and four protected areas.**
- **Occurs in riverine and lowland subtropical rainforest.**
- **Current threatening process is destruction of habitat by clearing. Possible threatening process is timber harvesting of this species on freehold land.**
- **Protective measure for operations conducted under the *Forestry Act 1959* is the establishment of protective buffers excluding clearing.**

SPECIES PROFILE

G = See glossary

DESCRIPTION

Floydia praealta is a small to medium-sized tree growing to 30 m[3,8] and 60 cm diameter.[3,6,8] The bark is brown with a rough appearance.[3,5,8] The leaves are leathery[3,4,9] to semi-stiff, oblanceolate[G] to oblong shaped, and measure 10 to 25 cm long by 1 to 3 cm wide.[3,6,8,9] Both leaf surfaces are green and shiny with the lower surface glossier.[4,9] The leaf margins are wavy, [4,9] but not serrated.[3,5,7,8] The leaf stalk is 0.6 to 1.2 cm long.[3,6,8] The creamy coloured flowers have stalks 3 to 5 mm long and are arranged in pairs on stems (racemes) 5 to 12 cm long.[3,5,6,8,9] The flower perianth[G] is about 1.2 cm long and hairy.[3,5,8] The fruit (nut) is woody, brown, globular[G] and usually 3 to 4 cm in diameter.[3-9] Each fruit contains one or two seeds.[4,6,9] The fruit has a somewhat bitter taste.[5,6]



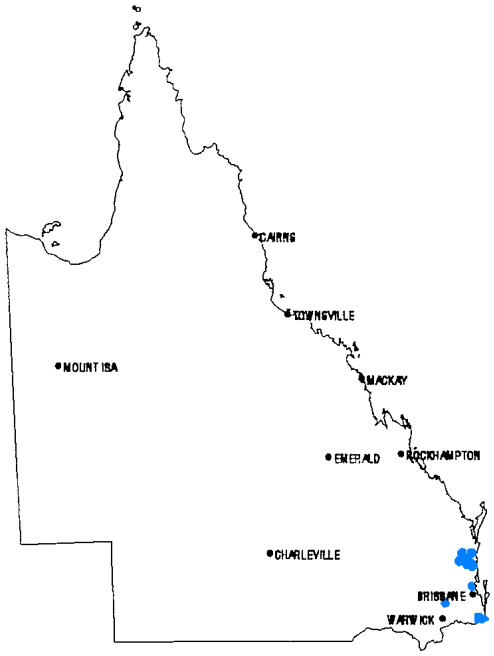
A. FLOWERING BRANCHLET[18]
B. FLOWER PAIR[18]
(SCALE BAR: A = 4 cm; B = 1 cm.)
C. LEAVES,FLOWERS AND FRUITS[19]

BIOLOGY & ECOLOGY

Flowering normally occurs from January to April, although at Springbrook in south east Queensland, flowering has been recorded in July.[10,11] Fruiting is from January to June.[6,10,11]

HABITAT

Occurs in riverine and lowland subtropical rainforest.[3,5,6,8] On sites where *F.praealta* occurs the vegetation varies from simple to complex very tall to extremely tall closed forest with a mixed and variable floristic composition.[3] Associated with *Acmena smithii* (lilly pilly), *Aphananthe philippinensis* (native elm), *Argyrodendron trifoliolatum* (crowsfoot elm), *Canarium australasicum* (mango-bark), *Diploglottiscunninghamii* (native tamarind), *Excoecaria dallachyana* (scrub poison tree), *Flindersia australis* (crows ash), *Gmelina leichhardtii* (white beach), *Grevilla hilliana* (white yiel yiel), *Harpullia pendula* (tulipwood), *Pentaceras australe* (bastard crow's ash), *Planchonella laurifolia* (blush coondoo), *Pseudoweinmannia lachnocarpa* (marara), *Syzygium francisii* (giant water gum), *S. luehmannii* (small-leaved water gum), *S. moorei* (durobby) and *Toona ciliata* (red cedar).[3,11]



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Vulnerable[1]
New South Wales: Vulnerable[14]
Australia: Vulnerable[15,16]

Former Distribution & Status

First described in 1862 as *Helicia praealta*.[2] From 1901 it was also known as *Macadamia praealta*.[2,7] It was renamed *Floydia praealta* in 1975.[2] Historically, *F. praealta* was recorded from a large number of rainforest sites in south east Queensland and north east New South Wales.[3] It was common near Gympie on the slopes above Mitchell Creek in 1954.[11]

Current Distribution

Restricted to east Australia where its distribution extends from the Gympie area in south east Queensland south to the Clarence River in north east New South Wales. Recorded in Queensland SF 135 (Brooloo)[13] and SF 435.[11,13] Also recorded in Triunia National Park,[3] Nicoll Scrub National Park,[3] Mount Pinbarren National Park[3,10] and Mount Cooroy Conservation Park.[3]

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Historically, *F. praealta* was recorded from a large number of rainforest sites.[3] However, much of the habitat has been cleared or heavily disturbed, and it is now considered vulnerable.[12] *F. praealta* is suitable for cabinet work and tool handles.[5-7] Timber harvesting on freehold land is still a possible threat. Timber harvesting of rainforest is no longer a threat on Queensland's State forests and timber reserves. Currently *F. praealta* is known from less than 20 sites in south east Queensland[3,10,11] and less than five sites in New South Wales.[12] On five Queensland sites surveyed in 1994 the population was very low (1 to 3 plants).[3] Management of *F. praealta* and its habitat on State forests is very important to its conservation as it is only recorded in four protected areas in Queensland.

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans available.

THREATENING PROCESS

1. Destruction of habitat by clearing.[3,12]

POSSIBLE THREATENING PROCESS

1. Timber harvesting on freehold land.

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *F. praealta* and maintain its habitat.

ACTION: Where *F. praealta* occurs establish a protective buffer that excludes clearing. Minimum area to be 3000 m^2 (0.3 ha) with all *F. praealta* at least 30 m inside the protective buffer.

GLOSSARY

Globular: spherical in shape.
Oblanceolate: lance-shaped with the lower (attachment) end narrower.
Perianth: 'leaf-like' flower parts attached to the base of the flower.

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17. Queensland DPI Forestry (1996) Map prepared by Mapping and Geographic Information Services from information supplied by the Queensland Herbarium, Environmental Protection Agency (EPA).

18. Diagrams used with permission from **Foreman, D.B. (1995)** *Floydia, Flora of Australia* **16**:418.

19. Photograph reproduced with permission from Murray Fagg, colour plate in **Foreman, D.B. (1995)** *Floydia, Flora of Australia* **16**:313.

AUTHORS: A. Borsboom and J. Wang, Resource Sciences Centre, DNR. August 1997.
FIRST REVIEW: P.I. Forster, Queensland Herbarium, EPA.
EDITING: Environmental Management, Forest Resources, DNR. November 1999.

Photo: The vulnerable Brush-tailed Rock-wallaby *Petrogale penicillata* was recorded along the steep rocky outcrops. Site 7 and 13 were identified as major core refuge areas for this species at Glen Rock. Photo QPWS, Moggill.

Brush-tailed rock-wallaby *(Petrogale penincillata)*

The brush-tailed rock-wallaby *(Petrogale penicillata)* is listed as vulnerable by the *Nature Conservation (Wildlife) Regulation 1994*. In Queensland it inhabits rocky outcrops throughout the Great Dividing Range from the NSW border north to Nanango. It has declined from the western edge of its range around Stanthorpe, Warwick and Toowoomba and from the east of its range around Lamington.

Due to its specialised habitat requirements, its distribution is naturally fragmented and seemingly disjunct or isolated colonies often occur. Secure populations of this species remain close to the centre of the Divide, where due to the rugged terrain, colonies continue to be linked by natural corridors of undisturbed vegetation and rocky escarpment.

Development and its consequences, such as clearing of native vegetation and the invasion of feral animals, increases the isolation of colonies by making the intervening lands inhospitable to activity and movement. Introduced predators *(foxes and cats)* can prey successfully on young brush-tailed rock-wallabies resulting in aging colonies with no recruitment. Goats can compete aggressively with rock-wallabies for both food and shelter. These events can lead to the local extinction of colonies ultimately resulting in the loss of the species from an area. Management of this species should aim to, not only maintain habitat within colonies, but also the intervening lands between colonies.

Rock-wallaby diet consists predominantly of grasses.

Previous studies suggest that *P. penicillata* has a Home Range size between 5.8 and 28.7 hectares.

Litoria pearsoniana

CONSERVATION STATUS: **Endangered**[1]

SPECIES TYPE: Frog **FAMILY:** Hylidae

- **Distribution restricted to south east Queensland and north east NSW, with one isolated population at Kroombit Tops.**
- **Recorded from SF 135, SF 207, SF 274, SF 316, SF 750, SF 788, SF 792 & SF 1355.**
- **Normally occurs along rocky, montane watercourses in rainforest and wet sclerophyll forest.**
- **Possible threats are: disturbance or destruction of winter aggregation sites or habitat by clearing, timber harvesting, inappropriate grazing regime; weed invasions, feral pigs; modification of watercourse and wetland water quality, water tables or drainage patterns; and declining frog syndrome and chytrid fungal skin disease.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: protection of winter aggregation sites; establish watercourse protective buffers, excluding timber harvesting and clearing; control of weeds and feral pigs; monitoring grazing impacts; maintenance of water quality, drainage patterns and water tables; and restricting frog handling.**

SPECIES PROFILE

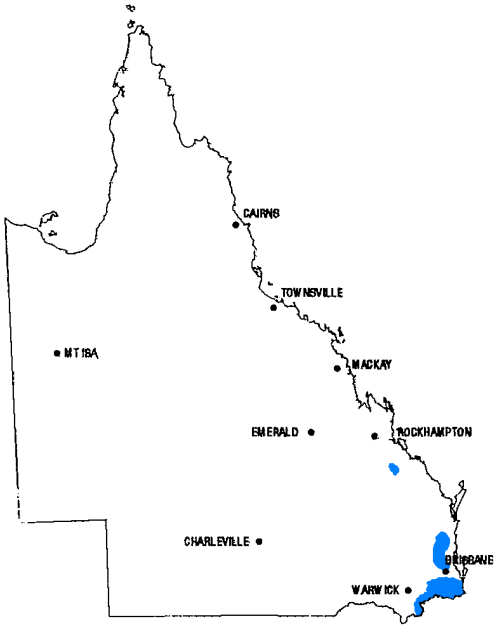
DESCRIPTION[6]

Litoria pearsoniana grows up to 37 mm in length. The frog is highly variable in colour and can be dark brown, brown with green suffusions, yellowish brown with green suffusions, brown and green or completely green. Black spots or reticulations may also be present. The underside is cream. The disk- shaped tympanum (eardrum) just behind the eye is brown. The iris of the eye is golden or bronze. There is a brown stripe extending along the side of the head from the nasal opening through the eye and tympanum along the flank to the midbody. A white, upper lip stripe is sometimes present. The toes of the hind legs are webbed.

BIOLOGY & ECOLOGY[3-10]

During the day in spring and summer, adult frogs can be found immediately adjacent to the stream under logs, rocks, rotting leaf litter, in moist soil cavities or clinging to ground vegetation such as ferns and grasses. At night the frog can be found in or near streams on rocks, dead branches, leaf litter and ground vegetation. From May to about mid September the frog is normally inactive, forming aggregations of up to 180 or more under rocks, rock cracks behind waterfalls and crevices in bridge structures. The main breeding period is between October and early February, coinciding with spring and summer rains. Males call from September to April. Eggs are laid in still, shallow pools adjacent to, or connected with the main stream. Eggs hatch 3 to 5 days after spawning, the tadpoles reaching 30 mm in length and taking 2 to 2.5 months to metamorphose.

EENSLAND MUSEUM[2]



HABITAT

The frog prefers the immediate environs of rocky montane watercourses in rainforest and closed forest with emergent eucalypts, and thickly vegetated watercourses adjacent to closed forest and wet sclerophyll forest.[6,10]

CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Endangered[1]

Former Distribution & Status

Formally described in 1960 as *Hyla pearsoni*.[15] Restricted distribution, occurring from about Kenilworth in south east Queensland to near Lismore in north east NSW, with an isolated population at Kroombit Tops south west of Gladstone.[6] The frog only occurs in upland areas with suitable habitat.[6]

Current Distribution

Although the frog's numbers declined significantly from the late 1970's,[6] it still appears to be present at most previously recorded sites.[10,11] It has been recorded in eight State forests: SF 135 (Brooloo), SF 207(Monsildale), SF 274, SF 316 (Winterbourne), SF 750 (East Haldon), SF 788, SF 792 and SF 1355.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Prior to a decline in numbers in the late 1970's, the cascade tree frog was abundant.[6] The reason for the decline is not fully understood, but disease deaths are reported in wild populations[12] and recent research has found the chytrid fungal skin disease present in *L. pearsoniana.*[16] Frog monitoring programs have recently been intensified in the Conondale Ranges near Kenilworth and include the monitoring of *L. pearsoniana* numbers.[10,11] The frog's winter aggregation sites require special protection as destruction of such sites may result in the loss of an entire local population of the frog[6]. Watercourse protection zones provide habitat protection in logged wet sclerophyll forest, and rainforest is no longer logged on State land in Queensland. Feral pigs and livestock may disturb the frog's habitat and impact on water quality. Weed infestation,[9] grazing, and the activities of feral pigs may also result in significant changes to the composition and cover of ground vegetation in the frog's habitat. The effects of weedicides on frogs is being researched.[13]

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans are available.

THREATENING PROCESSES

Chytrid fungal skin disease

POSSIBLE THREATENING PROCESSES

1. Destruction or disturbance of winter aggregation sites.[6]
2. Habitat loss due to clearing, especially of riparian vegetation.
3. Habitat change due to timber harvesting along or directly adjacent to watercourses.
4. Modification of drainage patterns and water tables of watercourses and isolated water bodies. Predation by pigs or their disturbance of the forest floor adjacent to watercourses
5. Reduction in water quality in watercourses and isolated water bodies where the frog occurs.
6. The spread and proliferation of weeds such as mist flower and crofton weed (*Eupatorium* spp.) along watercourses.
7. Inappropriate grazing regimes.
8. Declining frog syndrome

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *L. pearsoniana* and maintain its habitat.

ACTION 1: No timber harvesting, clearing or machinery disturbance within 30 m of watercourses and isolated water bodies in which the frog, its eggs or tadpoles occur.

ACTION 2: Establish a protective buffer that excludes timber harvesting and clearing within 30 m of any known winter aggregation site.

COMMENT: As most winter aggregation sites are expected to occur close to watercourses, these sites will already be protected in part by watercourse protection zones (detailed in Appendix 3).

ACTION 3: Winter aggregation site locality information to be confidential and available on a need-to-know basis only, from Environmental Management, Department of Natural Resources (DNR).

ACTION 4: Where practical control or eradicate mistflower and crofton weed along watercourse edges for at least 100 m upstream and downstream of the frog's known winter aggregation sites. Consult with the district DNR Land Protection Officer for appropriate control or eradication procedures.

ACTION 5: Where practical control or eradicate feral pigs along watercourses in which the frog occurs. Please consult with the district DNR Land Protection Officer for appropriate control or eradication procedures.

ACTION 6: Monitor the impact of grazing along watercourses in which the frog occurs, and adjust grazing management to ameliorate adverse impacts.

ACTION 7: Maintain water tables, hydrological patterns and water quality when conducting activities on, adjacent to, or uphill of sites where *L. pearsoniana* occurs. In instances where the frog occurs in habitat where natural hydrological conditions have already been altered, appropriate drainage patterns, water table, and water quality are to be determined on case by case basis with Environmental Management, DNR.

ACTION 8: To reduce the risk of amphibian disease transfer, frog handling is to be avoided. If handling is required, DNR frog handling procedures are to be followed. Refer to Appendix 4.2.

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AUTHOR AND DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, DNR. January 1996.
FIRST REVIEW: G. Czechura and G. Ingram, Queensland Museum; K. McDonald, EPA.
EDITING: Environmental Management, Forest Resources, DNR. November 1999. EVR status correct as at December 1997

Mixophyes fleayi

QUEENSLAND CONSERVATION STATUS: Endangered[1]

SPECIES TYPE: FROG FAMILY: MYOBATRACHIDAE

- **Occurring mainly in rainforest and wet sclerophyll forest from north east NSW to the Conondale Range in south east Queensland.**
- **Known threat is a fatal skin fungus. Possible threats are: inappropriate grazing regime; feral pigs; clearance; damming; water extraction; road drainage; timber harvesting; and recreational activities.**
- **Protective measures where operations are conducted under the *Forestry Act 1959* are: 30 m watercourse buffers where the frog or its tadpoles occur which exclude clearing, timber harvesting and grazing; weed and feral pig control; maintaining natural hydrology; avoiding frog handling; and protective signs.**

SPECIES PROFILE

DESCRIPTION

Mixophyes fleayi is a large frog, females growing to 9 cm, males to 7 cm.[13] The frog's dorsal surface is light brown with indistinct darker marbling.[3] There is a distinct dark line running each side of the head from the nasal opening through the eye to behind the disk-shaped tympanum (eardrum).[3] In adults the lower part of the eye is normally brownish with the upper sections paler and varying from pale-brown to yellowish, silvery or blue.[15] The limbs are banded and the flanks have a series of dark spots and blotches.[4] *M. fleayi*'s creamy yellow belly distinguishes it from *M. fasciolatus* and three joints free of web on the fourth toe of the back legs distinguishes it from *M. iteratus*.[15] *M. fleayi* has two distinct calls, a throaty "ok-ok-ok-ok-ok-ok", or a long, rasping "arrrrrrrr" or growling call.[3] The tadpoles are dark and grow to over 8 cm long,[6] but may be confused with *M. fasciolatus* tadpoles which can occur in the same watercourses[3,6,15]. However, *M. fleayi* tadpoles are darker grey,[3] more elongate especially in the body,[15] and more muscular in the tail[15].

ADULT FROG[2]

BIOLOGY & ECOLOGY

Little is known about the biology of this ground dwelling frog. It does not inhabit ponds or ephemeral pools[17]. Breeding is recorded after rain from early spring to autumn along uncleared permanent watercourses[3,6,10,15]. Males call from among rocks, ground vegetation, leaf litter or flood debris, or buried in the topsoil, at or adjacent to watercourses.[6,13,15] The female constructs a depression approximately 12 cm in diameter and 4 cm deep in gravel, leaf litter and/or pebbles in shallow, flowing water in rocky sections of the watercourse.[18] In this she lays usually about 500 to 1000 eggs.[18] Eggs are also laid on flat bedrock in shallow water.[10,15] The eggs are about 2 to 3 mm in diameter and hatching time is at least seven days.[18] The tadpoles use both pools and shallow reaches of watercourses.[6,15] Developmental time from tadpole to frog is unknown, but field observations suggest development is slow and may take 12 months or more.[6]

HABITAT

M. fleayi is normally found in moist forest such as rainforest and wet sclerophyll forest,[3,6,7,10,15] sometimes in bordering drier eucalypt forest[6]. It is recorded from 100 to 1200 m altitude,[17] usually above 300 m[13]. The frog prefers a moist microhabitat,[13] and has often been recorded on watercourses with permanent water or in adjacent riparian vegetation.[6,8,15] It has also been found away from water on roadways in rainforest,[10,15] and on rainforest walking tracks[3]. The frog is also recorded adjacent to rainforest on clearings with short grass.[3,13] At some sites *M. fleayi* occurs in riparian vegetation disturbed or dominated by weed species, however this is considered marginal habitat, the frog appearing to seek refuge in nearby rainforest.[17]

CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Endangered[1] NSW: Vulnerable[20] Australia: Endangered[19,21]

Former Distribution & Status

M. fleayi is restricted to Australia. Its distribution and status at the time of European settlement is unknown. The species was known as a distinct taxon in 1975,[19] but was not described until 1987[3].

Current Distribution

Fragmented distribution from the Richmond River in north east NSW north to the Conondale Range in south east Queensland.[3,5,11,13] *M. fleayi* is recorded from Queensland State forests SF 274[7-9], SF 750 (East Haldon)[6,8,15] and SF 832 (Durundur)[23]. Also recorded from Conondale,[7,9,22,15] Lamington,[10,15,] Main Range,[15] Tamborine[3] and Springbrook[15] National Parks.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

M. fleayi has not been recorded breeding in cleared habitat. Since European settlement significant areas of rainforest and wet sclerophyll forest within the frog's range have been cleared.[12] Rainforest is no longer logged nor cleared for plantation establishment on State land in Queensland. Wet sclerophyll forest is still harvested by Department of Primary Industries Forestry (DPI-F) but Codes of Practice watercourse protection zones protect habitat of the frog and its tadpoles. Deaths appearing to be associated with a recently identified skin fungus [16] have been recorded from National Park and State forest sites in Queensland, including a significant breeding site on Goomburra State forest (SF 750 East Haldon).[6,15] The Goomburra site is also impacted by grazing, which has caused significant physical damage to watercourse banks and vegetation. Access by cattle to watercourse shallows is a potential threat, as dung and urine impact on the frog's egg masses.[6] In the Conondale Ranges, feral pigs have severely disturbed the frog's riparian habitat.[6,15] Although *M. fleayi* is recorded in riparian habitat that is disturbed or replaced by weeds, such habitat seems to be marginal.[17] Growth of the weed, lantana (*Lantana camara*) can also be expected to change fire intensity and fire frequency in riparian zones.

CONSERVATION & RECOVERY PLANS

A Recovery Plan is in preparation.[15] *The Action Plan for Australian Frogs* has a recovery outline for *M. fleayi.*[19]

THREATENING PROCESSES

1. Death associated with a fungus infection.[16]

POSSIBLE THREATENING PROCESSES

1. Trampling of egg sites during grazing.[6,18]
2. Degradation of water quality and riparian habitat by grazing.[6,18]
3. Predation and habitat degradation by feral pigs.[6,15]
4. Clearing of rainforest and wet sclerophyll forest, especially riparian forest
5. Degradation of water quality, drainage patterns and/or watertable by roading, drainage works or dams.
6. Weed invasion of riparian habitat [eg by lantana[6] and mist flower[7] (*Eupatorium riparian*)].
7. Degradation of water quality and riparian habitat by timber harvesting.
8. Disturbance or interference of frogs, tadpoles or egg sites by recreational visitors to State forest.
9. Degradation of riparian habitat and water quality.from recreational activities

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *M. fleayi* and maintain its habitat.

ACTION 1: Exclude clearing, timber harvesting and grazing from a 30 m buffer either side of watercourses where the frog or its tadpoles occur.

ACTION 2: Within the 30 m protective buffer, control mistflower, crofton weed and lantana. Please consult with the district Department of Natural Resources (DNR) Land Protection Officer and DNR Environmental Management (EM) for appropriate frog safe control procedures

ACTION 3: Where practical control or eradicate feral pigs along watercourses where the frog occurs. Please consult with the district DNR Land Protection Officer for appropriate frog safe control or eradication procedures

ACTION 4: Maintain water tables, hydrological patterns and water quality when conducting activities on, adjacent to, or uphill of watercourses where *M. fleayi* occurs. In instances where the frog occurs in a location where natural hydrological conditions have already been significantly altered, appropriate drainage patterns, water table and water quality to be determined on a case by case basis with Environmental Management, DNR.

ACTION 5: To reduce the risk of fungus transfer between frogs, all frog handling is to be avoided. If handling is required, DNR frog handling procedures are to be followed. Refer to Appendix 4.2.

ACTION 6: In SF 750 (New Haldon) frog protection signs to be set up in the camping area adjacent to Dalrymple Creek and at the commencement of the Cascade walking track along Dalrymple Ck.

COMMENT: Wordage for the signs to be decided in consultation with DNR (EM) and appropriate ecologists from the DNR Resource Sciences Centre, Indooroopilly.

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AUTHOR & DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, DNR. June 1998.
FIRST REVIEW: Early drafts G. Czechura & Dr. G. Ingram, Qld Museum & K. McDonald, EPA. Later reviews H. Hines, EPA & Dr M. Mahony, Uni. of Newcastle.
EDITING: Environmental Management, Forest resources, DNR. November 1999. EVR status correct as at December 1997

Calyptorhynchus lathami

QUEENSLAND CONSERVATION STATUS: Vulnerable[1]

SPECIES TYPE: Bird FAMILY: Cacatuidae

- **Distribution extends from Eungella in north Queensland to east Victoria and west to the Riverina and Pilliga in NSW.**
- **Recorded from 25 State forests and one timber reserve.**
- **Occurs in eucalypt forest and woodland with casuarina stands.**
- **Threatening processes are: destruction and fragmentation of habitat by clearing. Possible threatening processes are: habitat disturbance by timber harvesting; destruction of nesting trees by fire; destruction of casuarina stands by fire; and illegal collection.**
- **Important protective measures for operations conducted under the *Forestry Act 1959* are: protection of nest trees; protecting casuarina stands; habitat tree retention; appropriate fire regimes; and minimising illegal collection.**

SPECIES PROFILE

DESCRIPTION

Calyptorhynchus lathami is misleadingly named, being a dull brown black colour with a red panel in its tail. Females have additional irregular yellow markings on the head and neck.[2-5] Adults have a 46 to 51 cm body length.[2] It can be distinguished from the similar red-tailed black-cockatoo by its duller plumage, massive bulbous bill, lack of a conspicuous crest, a feeble call and the female's yellow markings.[3,5]

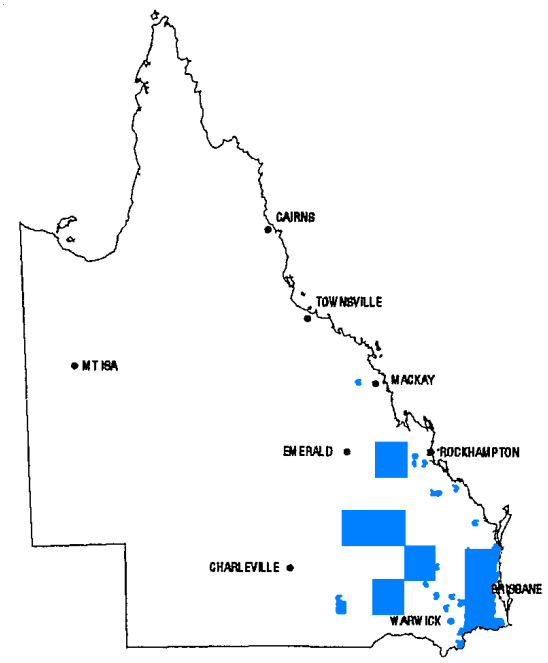
BIOLOGY & ECOLOGY

A close association exists between the species and casuarina, the seeds of which are the bird's principal food.[3,4,6,7] Therefore, it is rarely found far from this food source and spends around 88% of each day foraging quietly and methodically among branches of the casuarina tree.[8] The seeds of eucalyptus, acacia and angophora are also eaten, as are wood-boring insect larvae which the cockatoo extracts from the branches of casuarina.[4] This species is usually seen in pairs or small groups where food is abundant, and is usually nomadic.[5,9] Breeding occurs from March to August. Nests are located in tree hollows, often in dead trees,[4,20] with the entrance usually 15 to 20 m above the ground.[4] A single egg is laid and constantly incubated by the female. Chicks leave the nest 60 days after hatching.[4,5]

D. & M. Trounson/NPIAW[16]

HABITAT

The Glossy Black-Cockatoo occurs almost exclusively in eucalypt forest and woodland with casuarina stands. The primary source of food is *Allocasuarina torulosa* and *A. littoralis*.[10] In inland areas hilly rocky ridge country is preferred.[3] The species is also found in semi cleared agricultural land with casuarina and tall gums.[12]



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Vulnerable[1]

Former Distribution & Status

The cockatoo was formerly distributed widely across most of east Australia including east Victoria and Tasmania, and as far west as the Mount Lofty Ranges and Kangaroo Island in South Australia.[13,15,16]

Current Distribution

Since European settlement the cockatoo's abundance and distribution have decreased, particularly to the south and west. Currently it is found on the mainland in isolated populations from Eungella in north Queensland to Mallacoota in east Victoria, and to the New South Wales Riverina and Pilliga in the west.[14] The stronghold of the species is considered to be north NSW and south east Queensland, where it is generally scarce but can be locally common.[3] The Kangaroo Island sub-species is considered endangered.[11] Recorded in twenty five State forests and one timber reserve: SF 54 (Greycliffe), SF 81, SF 135 (Brooloo), SF 207, SF 274, SF 283 (Alford),[19] SF 302, SF 316 (Winterbourne), SF 351, SF 391, SF 494 (Moggill),[10] SF 564, SF 571, SF 611, SF 616, SF 679, SF 745, SF 750 (East Haldon), SF 832 (Stanton), SF 898, SF 952, SF 959, SF 1239, SF 1294 and TR 170.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Glossy black-cockatoo habitat has been subject to clearing throughout the species' range, especially for agriculture, plantations and timber.[11,14] Population declines have been reported, and further declines may be masked by the species' longevity and low rates of reproduction.[11,14] The cockatoos' principal habitat of casuarina woodland is conserved in a large number of protected areas Australia wide. However, much of this habitat also occurs within State forests[11] and is important for the conservation of the species across its range. Although *A. torulosa* can resprout after a hot fire, *A. littoralis* cannot.[17] In the wild, seeds of both species once shed, do not stay viable for long and are susceptible to fire.[17,18] Subsequent to adequate rainfall, localised mass germination can occur where seeds fall on bare ground (e.g. after fire, machinery disturbance etc.).[17,18] Frequent fire will prevent seedlings reaching maturity, with both *A. torulosa* and *A. littoralis* estimated to take at least seven years to reach a sturdy stature and to be producing significant seed.[17]

CONSERVATION & RECOVERY PLANS

No recovery plan available.

THREATENING PROCESSES

1. Loss of habitat and habitat fragmentation due to clearing of forest.[11,14]

POSSIBLE THREATENING PROCESSES

1. Harvesting causing loss of nests, hollow habitat trees[14] and casuarina.
2. Destruction of nest trees by fire.
3. Destruction of casuarina stands by fire.[8]
4. Illegal collection.[11]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect the glossy black-cockatoo and maintain its habitat.

ACTION 1: Establish a protective buffer that excludes timber harvesting and clearing within a 50 m radius of any known nest tree while the nest is in active use.

ACTION 2: Other than for essential roads, fire breaks and infrastructure, no clearing is to occur in stands of casuarina in State forests and timber reserves where glossy black-cockatoo occurs.

ACTION 3: Evaluate the impact of timber harvesting and other operations on mature casuarina and casuarina stands, and when necessary apply adaptive management techniques developed with Department of Natural Resources (DNR) Environmental Management. Refer to Appendix 7 for evaluation form.

ACTION 4: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice Production.

ACTION 5: Wherever possible, retain dead hollow habitat trees in State forests and timber reserves where cockatoo occurs.

ACTION 6: Where glossy black-cockatoo occurs on State forest and timber reserves, the aims of fuel management must include: - to ensure a mosaic of burnt and unburnt areas throughout the State forest or timber reserve;

- to ensure the interval between fire on any site be greater than 7 years;
- to exclude fire from the area during the breeding season from March to August;
- to ensure nest trees are protected; and
- to retain a minimum of approximately 25% of ground layer vegetation and 25% of the leaf litter.

The intensity, frequency and timing of prescribed burns should be consistent with achieving the aims.

ACTION 7: All staff and researchers are to notify DNR districts of observed heavy fuels at the base of known nest trees. Where the district considers there is a substantial risk to the nest tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season from March to August.

OBJECTIVE: Minimise illegal trapping of cockatoos for trading.

ACTION 1: Investigate and liaise with Environmental Protection Agency (EPA) officers on any suspected illegal taking activities. Where requested assist with prosecution under the relevant provisions of the *Nature Conservation Act 1992*. When appropriate prosecute any breaches of the *Forestry Act 1959*.

ACTION 2: Nest site locality information to be confidential and available on a need-to-know basis from DNR Environmental Management.

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AUTHOR AND DATE OF COMPILATION: K. Park and A. Borsboom, Resource Sciences Centre, DNR. February 1996.
FIRST REVIEW: Dr. G. Smith, Resource Sciences Centre, DNR.

grey goshawk

Accipiter novaehollandie

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Bird FAMILY: Accipitridae

- **Occurs in low densities in coastal and sub-coastal areas across north, east and south east Australia.**
- **Found in rainforest, gallery forest, sclerophyll forest, swamp forest, mangroves and plantations.**
- **Recorded in twenty eight State forests.**
- **Threatening processes are: destruction and fragmentation of habitat due to clearing; and shooting. Possible threats are: widespread timber harvesting; disturbance to nest sites; inappropriate fire regimes; and illegal collection.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: the establishment of protective buffers around nest trees; the retention of habitat trees; restricting access to nest sites; appropriate fire regimes; and minimising illegal collection.**

SPECIES PROFILE

DESCRIPTION[2-5]

Accipiter novaehollandie is powerfully built, with a body length from beak to tail tip of 40 to 55 cm, and a wingspan of 70 to 110 cm. Females are distinctly larger than males. There are 2 colour phases. One phase is pure white. The other phase is grey and white with the head grey, the top of the body, wings and tail grey, the wing tips a darker grey and the body underneath white with fine grey barring on a pure white chest.

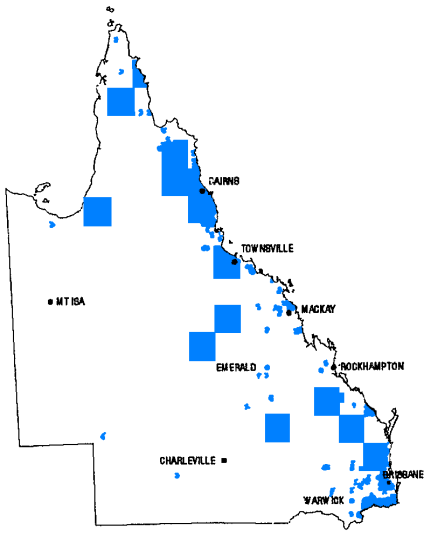
BIOLOGY & ECOLOGY[2-6]

The Grey Goshawk preys on birds, mammals such as rabbits, possums and bats, as well as reptiles, frogs and insects, occasionally carrion. It hunts within vegetation and sometimes in adjacent open country. The Grey Goshawk appears to form permanent, sedentary breeding pairs. Both birds build the nest, which may be used in successive breeding seasons. The Queensland breeding period is normally July to December. Two to 4 eggs are laid, the female doing most of the incubating, which takes about 35 days. After the young hatch, the male does all the hunting for the female and the brood. Young are fledged about 35 to 40 days after hatching. There is currently no published information on its home range size in Queensland, though in Tasmania it is estimated at 2 to 3 breeding pairs/100 km^2.

HABITAT[2,3,5,7,8]

The Grey Goshawk inhabits various forest types. It is most abundant in mature forest or woodland that can provide a stable hunting perch in a dense shaded canopy. In Queensland it hunts forest margins and clearings, but prefers moist dense forest. The Grey Goshawk hunts less over open habitats such as heath, rice fields, sedge covered flood plains, wooded farmlands, exotic conifer plantations, road easement vegetation and urban areas. It normally breeds in mature dense forest such as rainforest, wet sclerophyll, *Melaleuca, Leptospermum* or *Acacia* swamp forest and mangroves. It rarely breeds in regrowth forest less than 30 years old. The nest is normally about 18 m (9 to 30) up in the canopy of a large tree, and is either in a major fork next to the trunk or on sloping or horizontal branches well away from the trunk. Nest trees include *Castanospermum*, *Eucalyptus*, *Ficus*, and *Lophostemom*. In north Queensland *Corymbia tessellaris* is often used.

QUEENSLAND MUSEU M[13]



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Rare[1] WA & VIC: Rare[12] Tasmania: Vulnerable[12]

Former Distribution & Status[5]

Historically occurred in Australia, New Guinea and islands to the north. Found in coastal and sub-coastal areas from the Kimberleys (WA), across to Queensland, down to Tasmania and into South Australia.

Current Distribution[3-5]

Today it very rare to uncommon throughout its Australian range. In Queensland it is generally found east of the Great Dividing Range. Recorded from the following State forests: SF 42 (Mowbray),[16] SF 82 (Brooyar),[8] SF135 (Brooloo),[8] SF 143,[16] SF 194,[15] SF 207,[8] SF 220 (Kilkivan),[8] SF 223 (Selma),[15] SF 251,[15] SF 256,[8] SF 268 (Waterview),[15] SF 274 (including FPA 109),[8,15] SF 316 (Winterbourne),[15] SF 391,[15] SF 546,[8] SF 575 (King),[8] SF 605,[15] SF 618 (SA 16),[15] SF 632,[8] SF 639 (Wrattens),[8] SF 658,[15] SF 679,[15] SF 788,[8] SF 792,[8,15] SF 958 (Gundiah),[15] SF 986 (Monsildale),[8] SF 294[16] and SF 1355,[15].

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

The species is widespread with low population densities, and habitat loss has adversely effected numbers.[4,5] Since European settlement significant areas of Queensland's coastal and sub-coastal forest have been cleared, especially in the south east.[10-12] Historically, clearing for plantation establishment and rainforest logging were threats to the species. However, these activities have ceased on State land. Although the Grey Goshawk appears to be tolerant of selective timber harvesting in sclerophyll forest, wide-spread timber harvesting is believed to be detrimental.[5] For breeding, the Grey Goshawk requires blocks of mature forest 10 ha or more in area.[5] It rarely uses regrowth forest less than 30 years old.[5] With continuing clearing of forest on freehold and leasehold land, forest on State forests and timber reserves will become increasingly important for the Grey Goshawk. Being a predator of poultry and aviary birds, the bird is illegally shot and trapped. The impact of shooting is unclear in Queensland, but in Tasmania an estimated 20 to 30% of juveniles and 5 to 10% of adults are killed annually.[5] Egg collectors for the illegal avifauna trade will go to extreme lengths to obtain eggs. The Grey Goshawk is known to re-use nests and nest sites in successive breeding seasons.[2-6]

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans available.

THREATENING PROCESSES

1. Loss and fragmentation of habitat due to clearing of coastal and sub-coastal forest.[4,5,10] 2. Illegal shooting.[5]

POSSIBLE THREATENING PROCESSES

1. Widespread timber harvesting in forest and woodland.[5] 2. Illegal collection (eggs)[8]
3. Inappropriate fire regimes 4. Disturbance of nest sites in breeding season causing nest abandonment either immediately[5] or in subsequent years

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect Grey Goshawks, their nests, nest trees and habitat.

ACTION 1: Establish a protective buffer that excludes timber harvesting and clearing within a 200m radius of any known nest tree.

ACTION 2: Any clearing beyond the protective buffer and out to a 2 km radius should retain at least a 10 ha block of mature forest. Preferably the forest block should be surrounding or directly adjacent to the nest tree.

ACTION 3: After timber harvesting in wet sclerophyll forest in which the bird occurs, at least 25% of the forest should be older than 30 years.

ACTION 4: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice. Habitat and recruitment trees and their selection process are as defined in the Code of Practice.

ACTION 5: All staff and researchers are to notify DNR districts of observed heavy fuels at the base of known nest trees. Where the district considers there is a substantial risk to the nest tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season from July to December.

ACTION 6: No prescribed burning within 25 m of a nest tree while the nest is in active use. Otherwise maintain current fire management practices.

COMMENT: Active nests are those which contain eggs, sitting birds, nestlings or are in the process of construction. The precautionary principle will be applied when considering the status of nests (as per the Code of Practice).

OBJECTIVE: Minimise illegal collection

ACTION 1: Investigate and liaise with EPA officers on any suspected illegal taking activities. Where requested assist with prosecution under the relevant provisions of the *Nature Conservation Act 1992*. When appropriate prosecute any breaches of the *Forestry Act 1959*.

ACTION 2: Nest site locality information to be confidential and available on a need-to-know basis only from DNR Environmental Management.

ACTION 3: Restrict public access to nest sites.

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AUTHOR AND DATE OF COMPILATION: Adrian Borsboom, Resource Sciences Centre, DNR. March 1996. EVR status correct as at December 1997

FIRST REVIEW: G. Czechura, Queensland Museum. **EDITING:** Environmental Management, Forest Resources, DNR. August 1996.

5. Dendrobium speciosum Smith KING ORCHID; ROCK ORCHID

Epiphyte or lithophyte, sometimes growing into huge masses; stems 8–100 cm × (1–)2–6 cm, sometimes swollen throughout but usually with short swollen part at base then short slightly contracted part before main cylindrical slightly fusiform or slightly tapered stem, usually shallowly sulcate and partly covered in scarious sheathing bracts. Leaves 2–5 at top of stem, thick, leathery, oblong-ovate or oblong-elliptic, often concave above, obtuse, 4–25(–30) cm × 2–8(–15) cm. Racemes from leaf axils or ± terminal, 10–60 cm long, pedicel including ovary 2–5 cm long; flowers numerous, white to yellowish, with red or purple markings on labellum, mentum short, broad, thick, curved, *ca* 5 mm long; dorsal sepal linear-triangular, acute, 1.5–4 cm × 0.2–0.8 cm, free part of lateral sepals narrowly triangular, blunt, 1.5–3.5 cm × 0.5–1 cm; petals linear-acuminate, 1.5–3.5 cm × 0.1–0.4 cm; labellum 1.5–3 cm long when flattened, erect for short distance then curved through *ca* 90° and then straight, lateral lobes ± obliquely triangular, erect, incurved, obtuse, midlobe separated from rest by short neck, ± broadly ovate, mucronate, 0.5–1 cm × 0.8–1.7 cm, disc with single keel not extending onto midlobe, wider near apex; column 4–8 mm long, apical teeth 1 per side, short, sharp, foot sharply curved, 5–10 mm long.

Two varieties occur in the region:

1. Flowers 1.5–2.5 cm across, opening white, though sometimes turning cream or yellow with age . . . . . *D. speciosum* var. *hillii*
   Flowers 3.5–5.5 cm across, opening deep yellow and remaining so . *D. speciosum* var. *grandiflorum*

large pied bat

Chalinolobus dwyeri

QUEENSLAND CONSERVATION STATUS: Rare

SPECIES TYPE: Insectivorous bat **FAMILY: Vespertilionidae**

- **Restricted to east Australia from Goulburn in NSW to about Rockhampton and west to about 148^0 longitude in Queensland.**
- **Recorded in State forests SF 50 (Presho), SF 661 (Emu Vale) and two protected areas.**
- **Occurs in wet and dry sclerophyll forest, woodland and rainforest, as well as along ridges near outcrops of sandstone and rhyolite.**
- **Current threatening processes are: disturbance or loss of roost sites by quarrying, recreationalists, rock removal and the destruction or re-working of old mines; predation by feral animals; and destruction of habitat by clearing. Possible threatening processes are: illegal collection; inappropriate fire regime; and disturbance of habitat by timber harvesting.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: gating and stabilising caves and mines; preventing disturbance to maternity and roost sites; feral animal control; establishing protective buffers excluding clearing around roost and maternity sites; and habitat tree retention.**

SPECIES PROFILE

G = see glossary

DESCRIPTION

Chalinolobus dwyeri is a small bat weighing 6 to 10 g and with a forearm length of 3.8 to 4.2 cm.[4,6] The fur is glossy black over the entire body except for varying amounts of white fur along the undersides where the belly fur meets the wing and tail membranes. This white fur forms a V in the pubic area. The muzzle has glandular swellings which enlarge during the mating season in March.[2,4] Some facial glands exude a milky secretion.[4] There are also glands surrounding the eye.[11] Sexes are easily distinguished via external genitals.[11] The ears are thick and folded.[11]

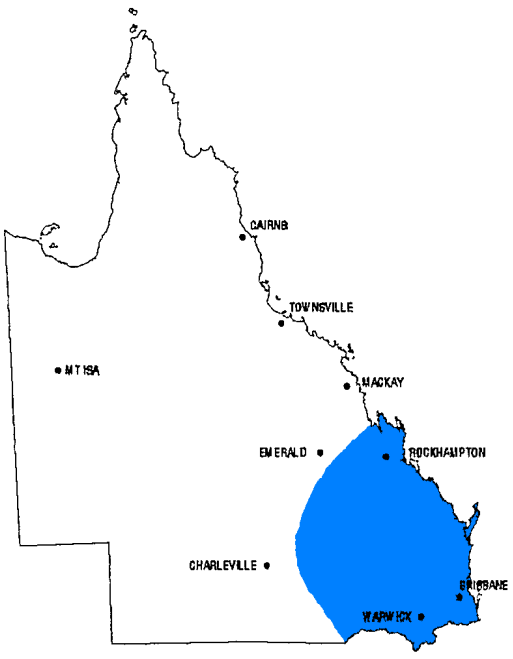
BIOLOGY & ECOLOGY

Roosts known to be regularly used are shallow caves, abandoned mines, cracks in rocks and the abandoned mud nests of Fairy Martins.[2,4,11] Captures of the bat in forest areas lacking cave roosts,[10] indicate that tree hollows are also used as day time roosts.[11] Roost sites in shallow caves are close to the entrance.[4] Inside larger caves and mines roosts are deeper.[2] Roosts in mines are occupied on a seasonal basis.[2] Colonies found have been small with one to 13 bats of varying sex ratio.[2,4] Breeding colonies are established by males and females in September, but most males leave before the one or two young are born in late November and early December.[2,4] The young suckle until late January.[4] During February and March juveniles disappear through emigration or mortality.[2] Breeding sites are abandoned in late autumn and winter.[2] *C. dwyeri* forages for flying insects below the canopy in well timbered areas, and has been caught in bat harp traps set on the ground.[10]

HABITAT

In south east Queensland and east NSW south to Goulburn, *C. dwyeri* is recorded in rainforest, wet sclerophyll forest and tall and open woodland.[4,7,10] In the western part of its range, it is found in drier sclerophyll forest and woodland.[4,7] It particularly prefers areas near outcrops of sandstone or areas near rhyolite.[10,11] Coastal and main range forests in which *C. dwyeri* is found are dominated by *Eucalyptus pilularis* (blackbutt) or *E. andrewsii* (New England blackbutt), while drier inland forests where it occurs are dominated by *E. crebra* (narrow-leafed ironbark) and *Corymbia citriodora* (spotted gum).[11]

ADULT MALE LARGE PIED BAT[9]



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Rare[1] Australia: Rare[3]

Former Distribution & Status

Former distribution and status unknown. It was not described until 1966,[6] that indicates that it is not a frequently encountered species. Most capture records have been from the coastal ranges, with fewer inland records.[4,7] There were two specimens collected from SF 50 (Presho) in 1979.[7,13]

Current Distribution

C. dwyeri is currently found in east Australia from Goulburn in NSW to near Rockhampton in Queensland.[4,7] The western limit in Queensland is the central highlands at approximately 148^o longitude.[7] The small number of specimens seen across its range since 1966 show that *C. dwyeri* is widespread but in very low numbers. The NSW mine from which it was first described in 1966 has now been flooded by Copeton Dam.[4] So far, there have been no permanent colonies located in Queensland. In addition to the 1979 records from SF 50 (Presho) *C. dwyeri* was also recorded at Bald Mountain in SF 661 (Emu Vale) in 1993.[13] Also recorded in Expedition, Lamington and Main Range National Parks.

THREATS & MANAGEMENT
INTRODUCTORY COMMENT

Threats are difficult to identify due to the small number of records of *C. dwyeri*, the variety of habitats in which it occurs and its widespread distribution. An important aspect of management is protection of roost sites. *C. dwyeri* requires caves or old mines for daytime roosts,[2,4] and if such sites are not available, it is suspected to use tree hollows.[11] Although permanent roost sites can be expected in Queensland, none have been located to date. Information on other cave-dwelling bat species shows that cats, foxes, snakes and owls regularly prey on bats leaving roost sites.[11] Although *C. dwyeri* has only been recorded from two State forests, surveys have been limited, especially surveys for maternity sites. It can be expected to occur in more State forests based on distribution and habitat preference.

CONSERVATION & RECOVERY PLANS

No conservation or recovery plan available. A Recovery Outline is at a draft stage.[3]

THREATENING PROCESSES

1. Predation at roost sites by foxes and feral cats.[4]
2. Destruction of habitat by clearing.[5]
3. Loss of roost and maternity sites by quarrying, rock removal and the destruction or re-working of old mines.[3,4]

POSSIBLE THREATENING PROCESSES

1. Illegal collection for specimens and photography.[11]
2. Inappropriate fire regime.[5]
3. Habitat disturbance by timber harvesting (loss of tree-hollow roost sites in areas where suitable roosts in caves, rock cracks and mines are absent.)[11]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *C. dwyeri*, its roost and maternity sites and their immediate surrounds.

ACTION 1: On State forest and timber reserves construct a protective gate at the entrance to all caves and abandoned mines where *C. dwyeri* is known to roost. Gate design should maintain bat access, prevent unauthorised human access and minimise the risk of access by feral cats and foxes. Where entrance collapse is a risk on gated caves or mines, stabilise the entrance. For gate design consult with Environmental Management, Department of Natural Resources (DNR).

ACTION 2: Prevent destruction or damage to known roost or maternity sites for *C. dwyeri.* Prior to any possible destructive or damaging activity, potential sites are to be checked for presence or signs of *C. dwyeri* (eg. guano[G]).

ACTION 3: Establish protective buffers of the following radii and types around roost and maternity sites on State forests and timber reserves as follows:

- 20 m radius when site is occupied, in which human activity and noise, especially from machinery, is minimised.
- 50 m radius in which clearing is excluded. For essential clearing within the protective buffer, such as firebreaks, prior approval from Environmental Management, DNR is required.

Buffers on mines and caves may need to be greater, and are to be determined on a case by case basis in consultation with Environmental Management, DNR.

ACTION 4: Monitor entrances to occupied roost and maternity sites for evidence of predators (eg scats, bat wings). Where there is evidence of predation by foxes or cats, carry out an appropriate control program within a 500 m radius of the entrance. Please consult with the district DNR Land Protection Officer for appropriate control procedures.

ACTION 5: All staff and researchers are to notify DNR districts of observed heavy fuels at the base of known roost/maternity trees. Where the district considers there is a substantial risk to the roost/maternity tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season from September to the end of March.

ACTION 7: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice - Native Forest Timber Production.

OBJECTIVE: Minimise illegal collection.

ACTION 1 : Investigate and liaise with local Environmental Protection Agency (EPA) officers on any suspected illegal taking activities. Where requested assist with prosecution under the relevant provisions of the *Nature Conservation Act* 1992. When appropriate prosecute any breaches of the *Forestry Act* 1959.

GLOSSARY

Guano: faeces, usually accumulated at regular roosting or maternity sites.

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12. Corben, C. (1997) Pers comm. Former DPI Forestry Zoologist.
13. Queensland Museum records.

AUTHOR AND DATE OF COMPILATION: L.S. Hall, University of Queensland and A. Borsboom, DNR. July 1997.
FIRST REVIEW: Dr. I. Gynther, Environmental Protection Agency.
EDITING: Environmental Management, Forest Resources, DNR. November 1999. EVR status correct as at December 1997

Pseudomys novaehollandiae

Photo: The New Holland Mouse *Pseudomys novaehollandiae* was recorded on the boundary of Glen Rock and the Main Range National Park in the Blackfellow Creek valley. This capture represents only the third known record for this species in Queensland.
[Photo: Bruce Colwell, Copyright, Qld Museum]

The New Holland mouse *Pseudomys novaehollandiae* is a small ground dwelling mammal. It is a species of very limited distribution in Queensland and is only known from three locations within the state. Records of this species indicate that its distribution ranges from Tasmania and along the east coast of mainland Australia to southeast Queensland. Very little ecological information is known about this species and this population at Glen Rock is significant as it may provide additional habitat information.

Sarcochilus olivaceus Lindl.

Epiphyte or occasionally lithophyte; stems up to 7 cm long. Leaves dark green, thin, ± oblong, ovate or obovate, slightly falcate, 2.5 –12 cm x 1-3.5 cm. Racemes pendulous, 2-10 cm long, pedicel including ovary 6-10mm long, subtending bract acute, 1-3 mm long; flowers 2-12, olive-green or golden green, delicately fragrant; sepals spathulate or narrowly oblong-obovate, apex obtuse or blunt, 0.6 –1.2 cm x 0.2 –0.4 cm, lateral sepals dilated basally and adnate to column foot; petals narrowly oblong-obovate, 0.5 –1.1 cm x 0.15 – 0.3 cm; labellum whitish with red markings, ca 3-4 mm long, lateral lobes oblong-ovate and usually falcate, ca 4 mm long, midlobe ± erect or curved forward, ca 1 mm long, spur fleshy, obtuse, ca 1.5-2mm long, central callus grooved, prominent, side calli prominent; column ca 2mm long, foot set at oblique angle, slightly longer. Capsules very narrowly cylindrical, 2.5 - 5 cm long.

Moreton, Darling Downs and Wide Bay districts, usually in rainforest. Flowers usually late winter-spring.

Fig. 60 ORCHIDACEAE — A–D *Dendrobium* spp. — A_1–A_2 *D. aemulum*, A_1 habit x ⅓, A_2 flower x 1½; B_1–B_2 *D. kingianum*, B_1 habit x ⅓, B_2 flower x 1½; C *D. mortii*, habit x ½; D_1–D_2 *D. tetragonum*, D_1 habit x 1; D_2 flower x 1½.

4. Dendrobium kingianum Bidw. PINK ROCK ORCHID

Dendrobium kingianum var. *pallidum* F. M. Bailey; *D. kingianum* subvar. *pallidum* Veitch; *Callista kingiana* (Bidw.) Kuntze; *D. kingianum* var. *silcockii* F. M. Bailey; *D. kingianum* var. *aldersoniae* F. M. Bailey

Lithophyte growing into large dense masses; stems broadest at base then tapering for varying distances to slender cylindrical apical part, without contracted part near base, stems freely producing aerial growths, 8–30 cm × 1–2 cm. Leaves 3–6, ovate to elliptic or narrowly so, bluntly acuminate, 3–14 cm × 0.8–2.5(–3.2) cm. Racemes 1–3, 7–15 cm long, pedicel including ovary 1–1.5 cm long; flowers 2–15, white through pink or lilac to deep red-mauve, sometimes segments white with pink, red or mauve markings, mentum very prominent; dorsal sepal oblong-triangular or oblong-ovate, obtuse, 0.9–1.6 cm × 0.4–0.7 cm, free part of lateral sepals triangular-falcate, 5–10 mm × 4–7 mm; petals narrowly obovate or narrowly elliptic, 0.8–1.4 cm × 0.2–0.4 cm; labellum 0.8–1.5 cm, lateral lobes starting near base, usually obliquely triangular, acute or blunt, 3–6 mm × 3–6 mm, midlobe transverse oblong to ± semicircular, decurved, mucronate, 3–5 mm × 5–10 mm, disc with single keel extending just onto midlobe, usually shallowly channelled, usually 3-dentate apically; column *ca* 3 mm long, dilated laterally about middle, apical margin crenulate, foot straight, 5–8 mm long. **Fig. 60B.**

Ranges of the region, on cliff faces or on rocks in open forest. Flowers mainly late winter–spring.

Hybrids between this species and **D. macropus** (Endl.) H. G. Reichb. ex Lindl. subsp. **gracilicaule** (F. Muell.) P. S. Green occur rarely in the McPherson Ra. This hybrid has been called **D. × suffusum** Cady.

Erythrotriorchis radiatus

QUEENSLAND CONSERVATION STATUS: Endangered[1]

SPECIES TYPE: BIRD FAMILY: ACCIPITRIDAE

- **Occurs in coastal and subcoastal forest and woodland across north Australia and down the east coast to about Sydney.**
- **Estimated that only 350 pairs remain.**
- **Recorded from thirty-two State forests. Records from protected areas are unavailable.**
- **Threatening processes are: destruction and fragmentation of habitat by clearing; and deliberate killing. Possible threatening processes are: modification of habitat due to wetland drainage; habitat disturbance by timber harvesting; inappropriate fire regimes; inappropriate grazing regimes; pesticide use; illegal collection; and disturbance to nest sites.**
- **Important protective measures for operations conducted under the *Forestry Act 1959* are: the establishment of protective buffers around nest trees; retention of wetlands; retention of habitat trees; appropriate fire regimes; the maintenance of controls on egg collection; the maintenance of confidentiality on nest site localities; restricting access to nest sites.**

SPECIES PROFILE

DESCRIPTION[7]

The body length of *Erythrotriorchis radiatus* from beak to tail tip is 450 to 580 mm, the wing span 110 to 135 cm. Mature males weigh 0.64 kg and females 1.1 kg. It is a solid-bodied bird with long broad wings and a square cut or gently rounded tail. When perched it has an upright stance, the long wings reaching just short of the tail tip, the legs and feet heavy looking. The bird is rufous brown in colour with adults having a paler head. The head plumage is generally whitish with heavy blackish streaks. Adults have a slate grey upper tail with 7 to 8 bold narrow black bars, the feathers narrowly tipped with white when new. The under side of the tail is silvery white with 7 to 8 dusky bars which become progressively paler and fainter towards the tail base. Males have eyes with a brown to yellow-brown or yellow iris, females have a pale to golden yellow iris. Legs are yellow in adults and cream to pale grey in juveniles. It can be confused with other birds of prey in the field.

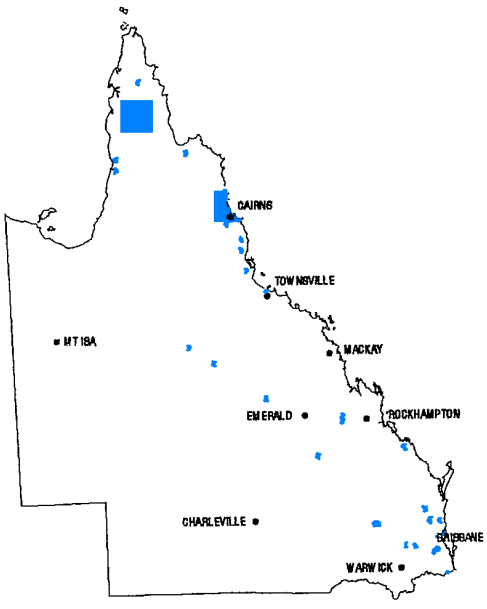
D. Hollands/NF[12]

BIOLOGY & ECOLOGY

E radiatus is essentially a sedentary, secretive and solitary bird of prey.[3,4,7] It hunts mostly at dawn and dusk by stealth from a perch, attacking prey either under, or through the forest canopy.[3,4] Though perch hunting is preferred, a number of "on the wing" hunting methods are also used.[4] The bird hunts mainly in open forest and gallery forest rather than in low woodlands,[5,7,9] although it has been suggested that they hunt over, rather than in rainforest.[4] Prey consists mainly of medium to large-sized birds, although occasional mammals, reptiles and large insects are taken. There is no evidence it is a carrion feeder.[4] Home range estimates for five former pairs in south east Queensland varied from 50 to 220 km^2,[2,4] and a NT telemetry study estimated female home range at 120 km^2, males at 200 km^2.[7] Breeding pairs appear to use the same nest and territory annually. Breeding is from April to November during the dry season in the north of its range, while in the east it possibly breeds from August to November.[3] The female incubates 1 to 2 eggs for 39 to 42 days,[5] with the young fledged in 7 to 8 weeks.[3] Nests may be used in successive years and new nests may be built within 300 m of a previous nest.[4,7]

HABITAT

E radiatus inhabits coastal and subcoastal tall open forest; tropical savannahs crossed by wooded or forested watercourses; woodlands; the edges of rainforest and gallery forests along watercourses; and wetlands, including melaleuca and casuarina.[2,4-8] It prefers forest and woodland with a mosaic of vegetation types, often at the ecotone.[7] Reported as nesting close to Hoop Pine and Slash Pine plantations, but does not hunt in mature stands.[7] In Queensland it appears to favour a mosaic of forest types that have a high bird and reptile diversity, and to prefer being close to permanent water.[4,9] Recorded in drier forest types such as *Corymbia maculata* (spotted gum) dominated forest and ironbark dominated forest.[9] Although recorded from the rainforest edge, it generally avoids very dense habitats[7] such as rainforest and tall open forest (wet sclerophyll), except as a drought refuge;[10] and very open habitats or clearings.[4,7] Although immature birds have been recorded from mangroves, open river floodplains, low open woodland, agricultural land and pasture, such habitats don't appear to be regularly used.[7] The bird often prefers to nest in riparian forests. The nest is normally high in the crown of a living tree taller than 20 m, within 1 km of, but often directly beside, a permanent waterway or wetland.[3,5,8,9]



CONSERVATION STATUS AND DISTRIBUTION

Current Conservation Status

Queensland: Endangered[1]

Former Distribution & Status

Found in coastal and subcoastal regions of Australia, from the Kimberley region in northern WA across to east Queensland, and down the east coast to about Sydney. Population densities have always been low, with an estimated 440 pairs living in Australia prior to European settlement, 180 of these in Queensland.[8]

Current Distribution & Status

Surveys from 1987 to 1990 estimated that only 350 pairs of Red Goshawks remain in Australia.[2,8] Recorded from the following State forests SF 28 (Shotover), SF 82 (Brooyar), SF 92, SF 124, SF 135(Brooloo), SF 143, SF 185, SF 194, SF 207(Monsildale), SF 242,[9] SF 256, SF 268 (Waterview), SF 274, SF 316(Winterbourne), SF 435, SF 451, SF 467, SF 572 (King), SF 575 (King), SF 605, SF 616, SF 564, SF 639, SF 679, SF 788, SF 792, SF 867, SF 918, SF 893, SF 1239, SF 1355 and SF 1662.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

E radiatus distribution has contracted from north of Sydney and throughout coastal south east Queensland. Clearing is the major threat,[8] with significant areas of privately owned coastal and subcoastal forest cleared for farming,[11] especially in riparian forest where the bird often prefers to nest.[9] In the past, clearing to establish plantations was a suspected threatening process.[7] However, its impact almost certainly was not as significant as broad scale clearing for agriculture and urban development. Red Goshawks hunt in selectively harvested native forest, but do not normally hunt in clear felled forest.[7] Practice on State forests is to selectively harvest. Continuing clearing on private land increases the importance of State forests and timber reserves for the conservation of this species. This is especially relevant as the Red Goshawk has very large home range requirements[2,4,7] and forest in protected areas will be inadequate to maintain viable populations.[9] Fire has been reported to have killed Red Goshawk nestlings.[2] The maintenance of confidentiality of nest site localities is essential for protection from the illegal trade. Close human disturbance has been known to cause nest abandonment.[2]

CONSERVATION & RECOVERY PLANS

No conservation or recovery plan available. Species Recovery Outline available.[8]

THREATENING PROCESSES

1. Destruction and fragmentation of habitat by clearing.[8,9,11]
2. Deliberate killing (shooting).[2,7,8]

POSSIBLE THREATENING PROCESSES

1. Disturbance of breeding pairs at the nest.[7]
2. Illegal collection (eggs).[4,5,7,9]
3. Modification of habitat and reduction in prey species intensive through the drainage of wetlands, especially *Melaleuca* significantly change swamps.[7] and composition.[9]
4. Reduction in prey densities in areas of timber harvesting which forest structure
5. Widespread annual burning of tropical forest and woodland, especially in combination with heavy grazing, is suspected of lowering prey densities.[2,7,8]
6. Pesticide residues threatening breeding success,[5] especially in parts of its range where cropping and pesticide use are widespread.[2]
7. Loss of suitable nest trees in harvested forest.[9]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect Red Goshawks, their nests, nest trees and habitat.

ACTION 1: Establish a protective buffer that excludes timber harvesting and clearing within at least a 200 m radius (12.5 ha) of any **known** nest tree. The rarity of nests and the bird's status deem that the final protective buffer measurements be determined on a case by case basis through Environmental Management, Department of Natural Resources (DNR).

ACTION 2: Maintain drainage patterns and water table on wetland sites where the Red Goshawk occurs when conducting activities on, adjacent to, or uphill of sites. In instances where the Red Goshawk occurs in habitat where natural hydrological conditions have already been altered, appropriate drainage patterns and water table are to be determined on a case by case basis with Environmental Management, DNR.

ACTION 3: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice. Habitat and recruitment trees and their selection process are as defined in the Code of Practice.

ACTION 4: No prescribed burning within 25 m of a nest tree while the nest is in active use. Otherwise maintain current fire management practice. Active nests are those which contain eggs, sitting birds, nestlings, or are in the process of construction.

ACTION 5: All staff and researchers are to notify DNR districts of observed heavy fuels at the base of known nest trees. Where the district considers there is a substantial risk to the nest tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season from August to November.

OBJECTIVE: Minimise illegal collection.

ACTION 1: Investigate and liaise with Environmental Protection Agency (EPA) officers on any suspected illegal taking activities. Where requested assist with prosecution under the relevant provisions of the *Nature Conservation Act 1992* . When appropriate prosecute any breaches of the *Forestry Act 1959*.

ACTION 2: Nest site locality information is to be confidential and available on a need-to-know basis only from Environmental Management, DNR.

ACTION 3: Restrict public access to nest sites.

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AUTHOR AND DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, DNR. April 1996.
FIRST REVIEW: G. Czechura, Queensland Museum.
EDITING: Environmental Management, Forest Resources, DNR. November 1999. EVR status correct as at December 1997

RECOVERY OUTLINE

Red Goshawk

1	**Family**	Accipitridae
2	**Scientific name**	*Erythrotriorchis radiatus* (Latham, 1801)
3	**Common name**	Red Goshawk
4	**Conservation status**	Vulnerable: D1

5 Reasons for listing

There may be fewer than 1,000 mature individuals (Vulnerable: D1). The species cannot be listed as (Endangered: C2b), as there is little evidence of a continuing decline, even in the south-east of its range.

	Estimate	*Reliability*
Extent of occurrence	*1,000,000 km²*	*medium*
trend	*stable*	*high*
Area of occupancy	*200,000 km²*	*medium*
trend	*stable*	*low*
No. of breeding birds	*1,000*	*medium*
trend	*stable*	*low*
No. of sub-populations	*1*	*medium*
Generation time	*10 years*	*low*

6 Infraspecific taxa

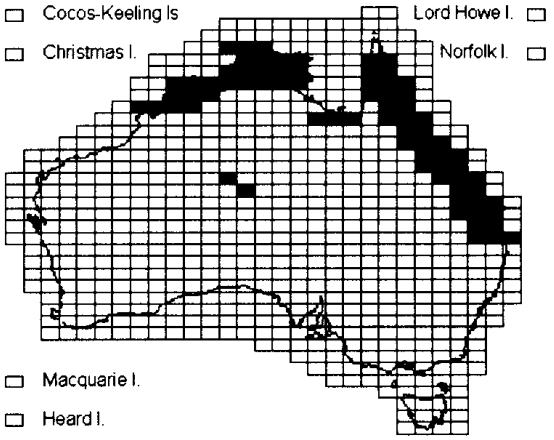
None recognised.

7 Past range and abundance

Northern and eastern Australia north of about 33°S in the east and 19°S in the west (Marchant and Higgins, 1993). Probably always occurred in central Australia, where three widely-spaced recent confirmed sightings corroborate earlier, previously doubted records (T. Aumann). Although thought not to breed in north-east New South Wales (Blakers *et al.*, 1984, Debus and Czechura, 1988) or across subcoastal areas of the Gulf of Carpentaria and western Cape York Peninsula (Aumann and Baker-Gabb, 1991), historical records (Blakers *et al.*, 1984) and recent surveys (Czechura and Hobson, 2000, Harrison, 2000) suggest breeding distribution continuous. Previous belief that sub-population in south-east Queensland isolated (Aumann and Baker-Gabb, 1991) now discounted, as birds have been seen or found breeding the length of eastern Queensland (Czechura and Hobson, 2000). Total population estimated at 440 pairs before clearing (Aumann and Baker-Gabb, 1991), but revised here following recent surveys (Czechura and Hobson, 2000, T. Aumann).

8 Present range and abundance

As above, but with a contraction of range from south of 28°S in the east. Now virtually extinct in New South Wales (Debus *et al.*, 1993, Marchant and Higgins, 1993, NSW NPWS, G. Czechura). Total population estimated at 330 pairs by Aumann and Baker-Gabb (1991). However, recent reports of birds well inland (Czechura and Hobson, 2000, T. Aumann) and on Melville and Bathurst Is (J. Woinarski) indicate a larger population. An estimated 30-35 pairs occur in the Wet Tropics and Einasleigh regions of north-eastern Queensland with 25-30 pairs in southern Queensland (Czechura and Hobson, 2000). Perceptions of rarity are at least partly a result of difficulties in identification, the species persisting in many agricultural areas where previously thought to have been eliminated.



9 Ecology

The Red Goshawk lives in coastal and subcoastal tall open forests and woodlands, tropical savannas traversed by wooded or forested rivers, and along the edges of rainforest (Marchant and Higgins, 1993). In partly cleared country in eastern Queensland, it is associated with gorge and escarpment country (Czechura and Hobson, 2000). The stick nests, in which 1-2 eggs are laid, are restricted to trees that are taller than 20 m within 1 km of a watercourse or wetland (Debus and Czechura, 1988, Aumann and Baker-Gabb, 1991). The species hunts in open forests and gallery forests, taking mostly medium to large birds, within a home range of up to 200 km2 (Blakers *et al.*, 1984, Aumann and Baker-Gabb, 1991, Czechura and Hobson, 2000). In winter in eastern Australia, the birds appear to move from nest sites in the ranges to coastal plains, where they are associated with permanent wetlands and often feed on waterbirds (Czechura and Hobson, 2000).

10 Threats

Widespread clearance for agriculture is thought to have caused the historical decline in north-eastern

New South Wales (Aumann and Baker-Gabb, 1991, Olsen, 1998) and may affect more northerly birds as clearing continues. In eastern Queensland, Red Goshawks are most scarce where lowland forests have been cleared for agriculture (Czechura and Hobson, 2000), although tolerance of fragmentation of natural habitat is yet to be determined. Nests are particularly vulnerable. Even if riparian strips are left uncleared, the Goshawks usually nest in the tallest trees that are then exposed to storm damage and other disturbance (Czechura and Hobson, 2000). Egg collecting still results in the failure of some nests, as does the burning of nest trees or disruption of breeding by fire (Aumann and Baker-Gabb, 1991, Czechura and Hobson, 2000). Shooting by pigeon and poultry owners, and possibly secondary poisoning, kill a few individuals, possibly temporarily resulting in local scarcity (Aumann and Baker-Gabb, 1991).

11 Information required

None.

12 Recovery objectives

12.1 Locate and protect breeding pairs in eastern and northern Australia.

12.2 Reduce threatening processes through continued monitoring of known nest sites in northern Australia .

13 Actions completed or under way

13.1 A six month survey was conducted in north-east New South Wales in 1987-8.

13.2 A three year study was undertaken in northern Australia 1988-1990.

13.3 Surveys have been undertaken in south-east Queensland.

13.4 A survey is currently being undertaken in north-east Queensland and Cape York Peninsula.

14 Management actions required

14.1 Locate and monitor known nest sites in settled parts of range and develop appropriate management protocols with land-holders. The location of all nest sites should remain confidential to ensure that this action does not itself become a threat.

14.2 Maintain habitat within range of known pairs, particularly open wetlands and riparian forest and woodland.

15 Organisations responsible for conservation

Environment Australia, New South Wales National Parks and Wildlife Service, Parks and Wildlife Commission of the Northern Territory, Queensland Parks and Wildlife Service, Western Australian Department of Conservation.

16 Other organisations involved

Birds Australia, other bird-watching societies, traditional owners, pastoralists, Queensland Department of Natural Resources.

17 Staff and financial resources required for recovery to be carried out

Staff resources required 2001-2005	*0.2*	*Project Officer*
	1.0	*Technical Officer*
	0.4	*Extension Officer*

Financial resources required 2001-2005

Action	*Conservation agencies*	*Other funding sources*	*Total*
Nest surveys	$162,000	$105,000	$267,000
Negotiation of management agreements	$108,000	$14,000	$122,000
Monitoring	$128,000	$25,000	$153,000
Total	$398,000	$144,000	**$542,000**

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Comments received from

Tom Aumann, Allan Burbidge, Andrew Burbidge, David Baker-Gabb, Stephen Debus, Greg Czechura, Rod Hobson, Penny Olsen.

Climacteris erythrops

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Bird FAMILY: Climacteridae

- **Distribution extends from south east Queensland, through the mountainous regions of NSW to east and south east Victoria.**
- **Currently recorded from seven State forests and three protected areas.**
- **Occurs in wet sclerophyll forest in hilly or mountainous country.**
- **Possible threatening processes are: habitat loss due to clearing; loss of roosting and nesting sites; and inappropriate fire regimes.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: the establishment of protective buffers around nest trees excluding clearing and timber harvesting; habitat tree retention; and appropriate fire regimes.**

SPECIES PROFILE

DESCRIPTION

Climacteris erythrops is a dark treecreeper, with a rich, rust coloured eyebrow and eye ring. It has a whitish throat, grey brown upper breast and heavily streaked black and white lower breast and abdomen.[2,3] The female has more conspicuous rusty-red eye markings than the male, and her upper breast is streaked chestnut. Immature birds have grey instead of rusty markings around the eye and no streaks below.[2,3] Adults measure 15 cm.[2] The similar white-throated treecreeper lacks the rust coloured eyebrow and has less heavily streaked underparts.

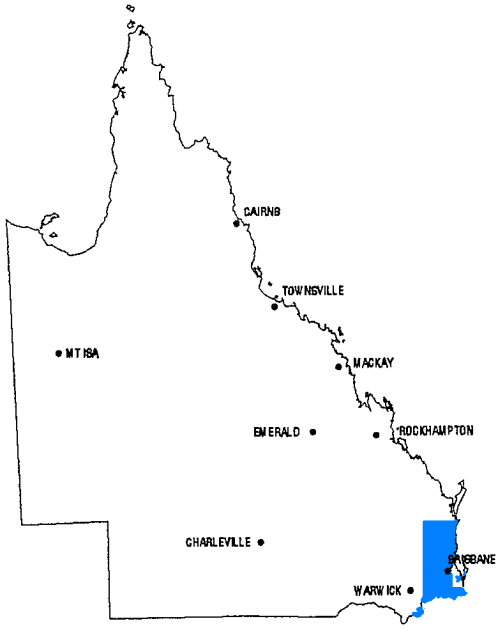
BIOLOGY & ECOLOGY

The treecreeper is sedentary and usually occurs in pairs or small groups.[2,3] The bird's flight is fast and undulating. It feeds on insects, particularly ants.[4] The species is often seen probing through ribbons of bark hanging from the trunks of smooth barked eucalypts; it also forages on fallen logs.[4] At night roosting usually occurs in the hollows of dead tree branches.[9] Breeding is sometimes communal and occurs between August and January.[3,5] The nest is a cup of bark lined with fur constructed inside a hollow limb, particularly of eucalypts.[6,9] Two to three eggs are laid, and the young are fledged at about 26 days.[3]

HABITAT

The red-browed treecreeper is found in cool, dense, wet eucalypt forests, being absent from rainforest. Can be found in areas where rainforest species are regenerating below a eucalypt canopy.[2-5,7] Hilly or mountainous country is preferred.[2-7]

NO PHOTOGRAPH CURRENTLY AVAILABLE FOR THIS SPECIES PROFILE



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Rare[1]

Former Distribution & Status

Historical records indicate the red-browed treecreeper was never common at any locality where it was recorded. Its former distribution appears to be sparse along the coast and associated highlands of south east Australia.[2,4]

Current Distribution

The treecreeper's distribution appears to be unchanged from its former distribution. It ranges from Tewantin in south east Queensland, through the coastal mountains of NSW, to the highlands of east and south east Victoria near Melbourne.[2,4] Recorded from State forests SF 274, SF 750 (East Haldon), SF 788, SF 792, SF 809, SF 1239 and SF 1355. Also recorded from Conondale, Main Range and Mapleton Falls National Parks.[10] It can be expected to occur in more State forests and protected areas.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT
There is currently no published information on known or possible threats to the red-browed treecreeper. The clearing of wet sclerophyll forest where the bird occurs is probably detrimental. This is reinforced by the fact that the bird is not recorded from cleared habitats. Loss of hollow trees for nesting and roosting may also impact on the species.

CONSERVATION & RECOVERY PLANS
No conservation or recovery plans available.

THREATENING PROCESSES
No published validated threatening processes.

POSSIBLE THREATENING PROCESSES
1. Habitat loss due to clearing for agriculture, grazing and urban development.
2. Loss of hollow habitat trees for roosting and nesting.
3. Inappropriate fire regimes particularly during the breeding period.

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*
OBJECTIVE: Protect *C. erythrops*, its nesting and roosting sites, and maintain habitat around nest trees.

ACTION 1: Establish a protective buffer that excludes timber harvesting and clearing within a 50 m radius of any known nest tree.

ACTION 2: All staff and researchers are to notify Department of Natural Resources (DNR) districts of observed heavy fuels at the base of known nest trees. Where the district considers there is a substantial risk to the nest tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season between August and January.

ACTION 3: Where *C. erythrops* nesting and roosting sites occur, the aims of fuel management must include:

- to minimises the risk of fire damage to nest trees; and
- to exclude fire from these areas during the breeding season between August and January.

The intensity, frequency and timing of prescribed burns should be consistent with achieving the aims.

ACTION 4: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice - Native Forest Timber Production.

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AUTHOR AND DATE OF COMPILATION: K. Park & A. Borsboom, Resource Sciences Centre, DNR. November 1996.
FIRST REVIEW: Dr. G. Smith, Resource Sciences Centre, DNR.
EDITING: Environmental Management, Forest Resources, DNR. November 1999.
EVR status correct as at December 1997

RECOVERY OUTLINE

Regent Honeyeater

1	**Family**	Meliphagidae
2	**Scientific name**	*Xanthomyza phrygia* (Shaw, 1794)
3	**Common name**	Regent Honeyeater
4	**Conservation status**	Endangered: C2b

5 Reasons for listing

There are only 1,500 individuals of this subspecies in a single sub-population, a number that is thought still to be decreasing (Endangered: C2b).

	Estimate	*Reliability*
Extent of occurrence	*300,000 km²*	*high*
trend	*decreasing*	*medium*
Area of occupancy	*250 km²*	*low*
trend	*decreasing*	*medium*
No. of breeding birds	*1,500*	*low*
trend	*decreasing*	*medium*
No. of sub-populations	*1*	*medium*
Generation time	*5 years*	*low*

6 Infraspecific taxa

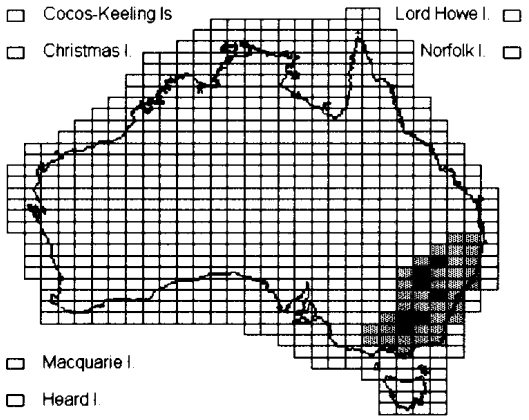
None described.

7 Past range and abundance

Throughout south-east Australia from the Adelaide, S. A. to Dalby, Qld, and from the coast, inland to the western foothills of the Great Dividing Ra. (Franklin *et al.*, 1989). Most breeding records from near-coastal south-eastern Australia and adjacent inland slopes of Great Dividing Ra. Post-breeding dispersal to the north and west, from the Mt Lofty Ra., S. A, to about Dalby, Qld. Flocks of hundreds of birds were regularly recorded (Franklin *et al.*, 1989).

8 Present range and abundance

Breeding in a few areas in north-eastern Victoria (Chiltern district, Killawarra State Forest, Benalla district), and along western slopes of Great Dividing Ra. in New South Wales (Bundarra-Barraba district, Capertee valley). Occasionally, breeding elsewhere (Franklin *et al.*, 1989, Schodde *et al.*, 1992), including Mudgee District, Warrumbungle National Park and Australian Capital Territory. Use of Warrumbungle National Park and Killawarra State Forest may have declined (Menkhorst *et al.*, 1998). Probably extinct in South Australia, and vagrant to western Victoria and Gippsland (Franklin and Menkhorst, 1988, Menkhorst *et al.*, 1998). Records in ACT have declined since 1960s (P. Ormay). Numbers fluctuate greatly between years and between sites. Movements outside breeding season, particularly in autumn, are poorly understood. Population size over two sites (Capertee Valley and Bundarra-Barraba region) estimated at maximum of 1,000 birds in 1997, but there were far fewer birds and very little breeding in 1998. There are minor behavioural differences between the three main areas, but movement of a colour-banded bird from Capertee to Canberra and lack of genetic differences between sites (Norman and Christidis, 1998) suggest the species has a single sub-population.



9 Ecology

Regent Honeyeater are mostly recorded in box-ironbark eucalypt associations. They prefer the wettest, most fertile sites within these associations, such as along creek flats, broad river valleys and foothills. In New South Wales, riparian forests of River Oak *Casuarina cunninghamiana*, those with Needle-leaf Mistletoe *Amyema cambagei*, are also important for feeding and breeding. At times of food shortage the birds also use other woodland types and wet lowland coastal forest dominated by Swamp Mahogany *Eucalyptus robusta* or Spotted Gum *E. maculata* (Franklin *et al.*, 1989, Ley and Williams, 1992, Webster and Menkhorst, 1992, Geering and French, 1998, Oliver *et al.*, 1999). Nectar is the principal food, but sugary exudates from insects are also used, and insects are essential for breeding (Oliver, 1998, 2000). Mugga Ironbark *E. sideroxylon*, White Box *E. albens*, Yellow Box *E. melliodora* and Yellow Gum *E. leucoxylon* are particularly important food trees. Regent Honeyeaters build cup nests, and usually lay 2-3 eggs. Breeding success does not appear to be limiting (Ley and Williams, 1992, 1994, 1998, Geering and French, 1998, Oliver *et al.*, 1998). However, absence of breeding at some sites in some years indicates that the birds either fail to nest, or shift elsewhere to breed (Geering and French, 1998, Oliver *et al.*, 1998).

10 Threats

Clearance has destroyed about 75% of the Regent Honeyeaters' habitat, particularly the most-favoured vegetation communities. The remainder is fragmented, and continues to be degraded by removal of the larger trees for posts, sleepers and firewood, and by ongoing declines in tree health (Robinson and Traill, 1996, Oliver *et al*, 1999, B. J. Traill). Fragmentation has apparently advantaged more aggressive honeyeaters, particularly the Noisy Miner *Manorina melanocephala* which may be displacing the Regent Honeyeater (Franklin *et al*, 1989, Grey *et al*, 1998).

11 Information required

11.1 Determine movement patterns, particularly post breeding, and the degree of isolation between breeding colonies.

11.2 Determine differences in resource utilisation between northern N. S. W. and Vic.

12 Recovery objectives

12.1 Ensure the species persists in the wild.

12.2 Achieve a down-listing from nationally endangered to vulnerable by stabilising the population and securing habitat extent and quality in the main areas of occupancy.

12.3 Achieve increasing reporting rates (5% per annum) in areas previously used regularly.

13 Actions completed or under way

13.1 Surveys of range and abundance are conducted annually.

13.2 Detailed research has been conducted on the breeding biology at several sites.

13.3 Restrictions have been placed on grazing and timber extraction at some important sites.

13.4 Extensive replanting of habitat trees has occurred in north-east Vic. and central N. S. W.

13.5 A captive colony has been established.

13.6 A Recovery Plan has been prepared which is being implemented by a Recovery Team and local Operations Groups.

13.7 The composition, influence and resources of Operations Groups in the four key regions are being expanded so that they are able to implement regional works plans.

14 Management actions required

14.1 Protect woodland types in which Regent Honeyeaters have been recorded regularly from activities such as clearing, logging and firewood collection, and monitor compliance biennially.

14.2 Protect all regularly-used Regent Honeyeater sites on public land in secure conservation reserves.

14.3 Manage at least 15% of the pre-European area of all woodland communities on public or private land for nature conservation, using incentives where necessary.

14.4 Initiate a population monitoring program at the three main breeding areas

14.5 Use existing sightings database and Birds Australia Atlas Project to determine trends.

14.6 Conduct a public education program about the species and its requirements, aimed particularly at developing habitat management partnerships with land owners within the range of the species.

14.7 Establish an educational Regent Honeyeater exhibit at Taronga Zoo.

14.8 To act as insurance against the demise of the wild population, increase the captive population to at least three institutions that are accredited by the Australian Regional Association of Zoological Parks and Aquaria.

14.9 Conduct trials of hard-release techniques.

14.10 Complete the captive husbandry manual and a guide to aging and sexing Regent Honeyeaters.

15 Organisations responsible for conservation

Environment ACT, New South Wales National Parks and Wildlife Service, Queensland Parks and Wildlife Service, Victorian Department of Natural Resources and Environment.

16 Other organisations involved

Birds Australia, other bird-watching societies, Environment Australia, Australian Regional Association of Zoological Parks and Aquaria, Australian Passerine Taxon Advisory Group, Greening Australia, Bundarra-Barraba Operations Group, Capertee Valley Operations Group, Central Coast Operations Group, North-east Victoria Operations Group, Adelaide Zoo, Taronga Zoo, Latrobe University, University of New England, World Wide Fund for Nature (Australia), road transport authorities, Rural Lands Protection Boards, Trust for Nature, Parks Victoria, Queensland Department of Primary Industry, State Forests of New South Wales, Landcare groups, shire councils, private land-holders.

17 Staff and financial resources required for recovery to be carried out[1]

Staff resources required 2001-2005

1.0	*Project Officer*
3.0	*Operations Group facilitators*
1.0	*Contract biologist*

Financial resources required 2001-2005

Action	*Conservation agencies*	*Other funding sources*	*Total*
Expand Operations Groups	$617,500	$21,000	$638,500
Prepare regional guidelines and incorporate into planning	$52,000	$54,600	$106,600
Population monitoring at breeding sites	$92,500	$45,000	$137,500
Use existing data to determine trends	$32,000	$0	$32,000
Investigate movement patterns	$135,000	$25,000	$160,000
Investigate impact of Noisy Miner	$51,000	$0	$51,000
Determine regional variation in resource utilisation	$5,000	$0	$5,000
Public education	$94,000	$136,000	$230,000
Establish zoo exhibit	$0	$20,000	$20,000
Maintain viable captive population and complete manual	$2,000	$81,300	$83,300
Conduct trials of hard-release techniques	$37,000	$8,000	$45,000
Recovery coordinator and management of recovery team	$569,700	$67,400	$637,100
Total	$1,687,700	$458,300	**$2,146,000**

1 All costings from Menkhorst *et al.* (1998).

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Comments received from

Richard Loyn, Peter Menkhorst, Doug Robinson, Barry Traill.

Saproscincus rosei no common name

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Skink Lizard **FAMILY:** Scincidae

- **Restricted distribution from Gympie, south east Queensland, to Barrington Tops, New South Wales.**
- **Currently recorded from eight State forests and two protected areas.**
- **Occurs in gullies and near creeks in closed forest and fringing wet sclerophyll forest.**
- **Possible threatening processes are: destruction of habitat by clearing; inappropriate fire regime; and predation by cats and foxes.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: modifying timber harvesting; appropriate fire regimes; and control of feral cats and foxes.**

S. Wilson[5]

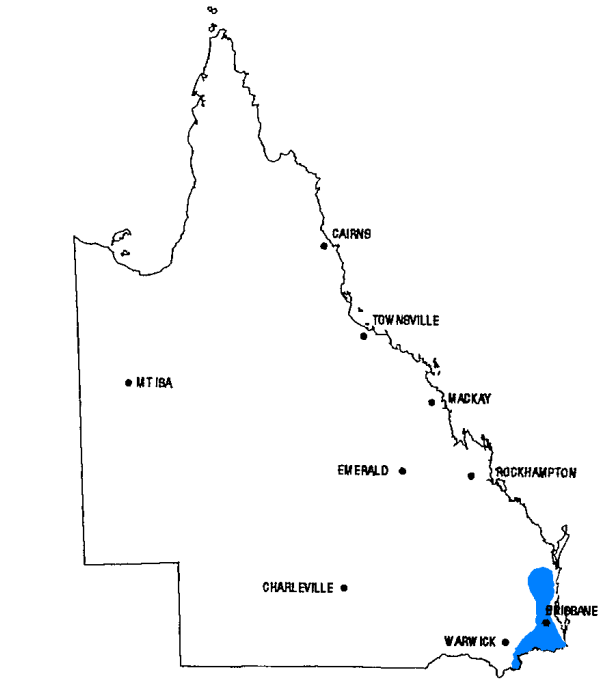
SPECIES PROFILE

DESCRIPTION[2]

Saproscincus rosei is a small, moderately built skink lizard that grows to a total length of approximately 160 mm. The tail is long and tapering, and the legs and claws are long and slender. Populations of *S. rosei* vary in appearance. *S. rosei* may be uniformly brown on the upper body or have a mosaic of darker and lighter scales. The tail is reddish brown. The underside of the body has faint brown spots, irregularly scattered or regularly aligned to form longitudinal rows. A bold russet hipstripe is present on female and sub-adult individuals. The belly of adult males usually has a pale yellow wash. *S. rosei* is easily confused with other *Saproscincus* species. Despite being described in 1985,[7] *S. rosei* could not be easily distinguished from similar species until a 1993 revision[2] of the *S. challengeri* complex to which *S. rosei* belongs.

BIOLOGY & ECOLOGY

The biology of *S. rosei* is not well known. It has been described as "... a conspicuous and active terrestrial lizard which inhabits the edge of closed forest, or open sunlit patches within the forest". It is commonly observed basking among debris piles.[2] The diet probably comprises small arthropods. Clutches of two to nine eggs, and communal egg-laying are recorded for the species complex.[G,3]



HABITAT

S. rosei has been recorded from thick leaf litter in rainforest and fringing wet sclerophyll forest, from under the bark of a live tree and from under a house.[6] Many records are from near creeks.[6] *S. rosei* has also been recorded in an ecotone between closed forest and low open forest.[6]

CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Rare[1]

Former Distribution & Status

First described in 1985.[7] The former distribution and status are not known to have differed from the present.

Current Distribution

Recorded from the Sydney area, coastal and sub-coastal north NSW, and from south east Queensland.[2] The distribution is patchy with populations being apparently restricted to moist, closed forest.[2] Recorded from SF 207 (Monsildale), SF 298 (Gallangowan), SF 435, SF 546, SF 639, SF 663, SF 788, SF 1355, Girraween National Park and Lamington National Park.[6]

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Because of taxonomic[G] confusion with two similar species, information directly relating to the ecology of *S. rosei* is scarce and largely limited to the period after 1993. While *S. rosei* largely inhabits fire-resistant vegetation types, inappropriate fire regimes in fringing sclerophyll forests probably contribute to fragmentation and isolation of populations. *S. rosei's* response to disturbance is not well known, but it is probably disadvantaged by reduction of canopy cover.

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans available.

THREATENING PROCESSES

No substantiated threatening processes recorded in the literature.

POSSIBLE THREATENING PROCESSES

1. Destruction of habitat by clearing.
2. Inappropriate fire regime.
3. Predation by feral cats and foxes.

PROTECTIVE MEASURES FOR OPERATIONS UNDER THE *FORESTRY ACT, 1959*

OBJECTIVE: Protect *S. rosei* and maintain its habitat.

ACTION 1: Where *S. rosei* occurs in non-rainforest habitats, timber harvesting should retain at least 50% of the original canopy cover.

ACTION 2: Where *S. rosei* occurs in non-rainforest habitats, the aims of fuel management must include:

- to minimise damage and destruction of fallen timber;
- to ensure a mosaic burn throughout the species' habitat, and
- to retain a minimum of approximately 25% of ground layer vegetation and 25% of the leaf litter.

The intensity, frequency and timing of prescribed burns should be consistent with achieving the aims.

ACTION 3: Control or eradicate feral cats and foxes in areas where *S. rosei* occurs. Please consult with the district Department of Natural Resources (DNR) Land Protection Officer for appropriate control and eradication procedures.

GLOSSARY

Species complex: members of related species incorporated under the one name, until diagnosed as separate species.

Taxonomic: pertaining to the science of classifying organisms.

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AUTHOR AND DATE OF COMPILATION: M. Fitzgerald, Resource Sciences Centre, DNR. September, 1996.
FIRST REVIEW: A. Borsboom, Resource Sciences Centre, DNR.
EDITING: Environmental Management, Forest Resources, DNR. October 1998.
Amended to EVR Status December 1997

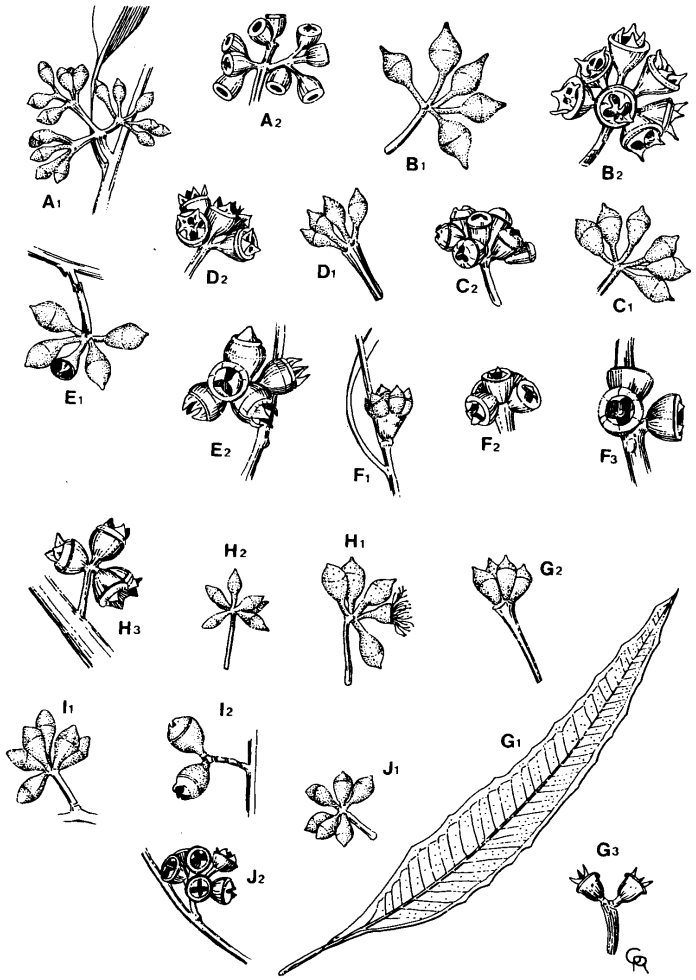


Fig. 27 MYRTACEAE — *Eucalyptus* spp. — A_1–A_2 *E. michaeliana*, A_1 inflorescence with buds x1, A_2 fruits x1; B_1–B_2 *E. camphora*, B_1 buds x1, B_2 fruits x1; C_1–C_2 *E. scoparia*, C_1 buds x1, C_2 fruits x1; D_1–D_2 *E. dunnii*, D_1 buds x1, D_2 fruits x1; E_1–E_2 *E. bridgesiana*, E_1 buds x1, E_2 fruits x1; F_1–F_3 *E. banksii*, F_1 buds x1, F_2–F_3 fruits x1; G_1–G_3 *E. quadrangulata*, G_1 leaf showing glands along margin x1, G_2 buds x1, G_3 fruits x1, H_1–H_3 *E. viminalis*, H_1–H_2 buds x1, H_3 fruits x1; I_1–I_2 *E. dalrympleana* subsp. *heptantha*, I_1 buds x1, I_2 fruits x1; J_1–J_2 *E. nova-anglica*, J_1 buds x1, J_2 fruits x1.

62. **Eucalyptus quadrangulata** Deane & Maiden — SOFT WHITE BOX; WHITE TOPPED BOX

Tree up to 45 m tall; bark persistent, shortly fibrous, narrowly fissured (box). Adult leaves alternate; petioles 0.8–2(–4.5) cm long; blades narrowly ovate, apex attenuate, base cuneate to narrowly cuneate, margin commonly crenate to sinuate often with visible marginal glands, 9–20(–25) cm × 1–2(–2.8) cm, concolourous or slightly paler below, venation faint but visible, 40°–50° to midrib, intramarginal vein usually distinct from margin. Inflorescences axillary 4–8-flowered umbels, peduncles 0.5–1.5 cm long, slightly flattened, pedicels 0–2 mm long; buds obovoid to ellipsoid, 5–8 mm long; operculum conical, usually beaked, shorter than hypanthium. Fruits woody, conical, campanulate or truncate-ovoid, 4–8 mm × 4–5 mm, disc flat and narrow, valves 3 rarely 4, exserted. **Fig. 27G.** (SPIHA)

McPherson Ra., and Great Dividing Ra. north to Mt. Mistake on basaltic soils at high altitudes. Flowers late summer–autumn. Timber pale, heavy, hard and very durable, useful for both light and heavy construction.

Tyto tenebricosa sooty owl

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Owl **FAMILY: Tytonidae**

- **Distribution extends through east Australia from the Conondale and Blackall Ranges of south east Queensland to south Victoria.**
- **Recorded from nine State forests and four protected areas.**
- **Prefers tall wet sclerophyll forest and rainforest. Nests and roosts in tree hollows.**
- **Threatening process is destruction and fragmentation of habitat due to clearing. Potential threatening processes are: loss of hollow habitat trees; and inappropriate fire regimes.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: the establishment of water course protection zones and protective buffers around nest trees; habitat tree retention; the implementation of a suitable harvesting sequence; and appropriate fire regimes.**

SPECIES PROFILE

DESCRIPTION[2]

Tyto tenebricosa is a large bird weighing 500 to 1000 g. Females weigh 750 to 1000 g, males 500 to 700 g. Adult body length is 38 to 50 cm, and the wingspan about 100 cm. The body plumage, which is darker on the upperparts, is sooty black with fine white spots on the head, wings and underbody. The facial feathers form a distinctive round disc. The disc is sooty black to grey or silver in colour, and surrounded by a rim of darker feathers. The legs have feathers extending to the large, black feet. The tail is very short. The dark eyes give off a very bright red reflection in torch light.

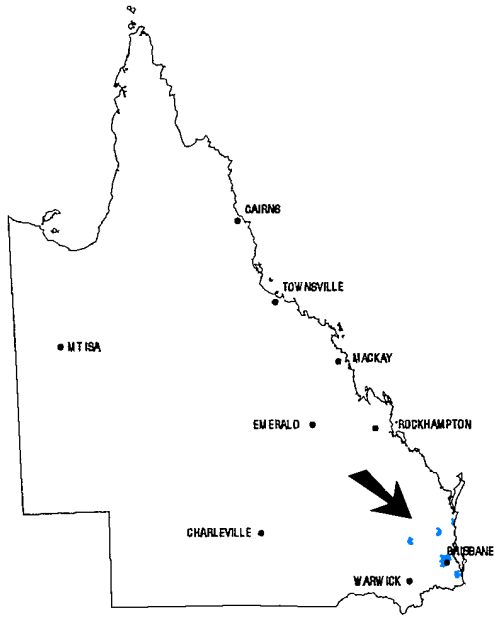
PHOTO STILL TO BE OBTAINED

BIOLOGY & ECOLOGY

A nocturnal predator, the Sooty Owl inhabits tall forest in coastal and upland areas of east Australia from sea level up to 1500m altitude.[7] It feeds on tree dwelling marsupials (eg. common ringtail possum, sugar glider, eastern pygmy possum, common brushtail possum and greater glider), rodents (eg. black rat, house mouse, bush rat and fawn-footed melomys) and other marsupials (eg. brown antechinus and long-nosed bandicoot).[2-5] It also takes insects, birds and rabbits.[2-5] The hunting behaviour of this species has not been recorded, however, it appears to prefer tree dwelling prey species.[2,4] The sooty owl roosts during the day in large hollows in tall trees, and in dense vegetation; often low to the ground. It prefers to roost and nest in gullies.[7] The home range of this species is not known, however, it has been tentatively estimated at 200 to 800 ha.[7]

HABITAT

The sooty owl is usually recorded from either closed forest or tall, high nutrient/wet sclerophyll forests; as well as transition forest between the two.[7,8] It is infrequently recorded from dry sclerophyll forest.[2] Nests are located in large hollows 10 to 50 m above the ground.[2,6] Hollows used by sooty owls have been located in eucalypts, figs and rainforest trees. Hollow habitat trees are important to both the owl and its prey.



CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland:	Rare[1]
NSW:	Vulnerable[9]
Australia:	Rare[6]

Former Distribution & Status

The former range is similar to the current except for areas where habitat has now been cleared.[7] Its former status is unknown.

Current Distribution

The sooty owl occurs from the Conondale and Blackall Ranges in south east Queensland, south through New South Wales to the Dandenong and Strezlecki Ranges of central Victoria.[6] It is largely restricted to suitable habitat from the escarpments of the Great Dividing Range east to the coast. Recorded from the following State forests: SF 274, SF 309, SF 528, SF 750 (East Haldon), SF 788, SF 792, SF 809, SF 832 (Durundur), SF 1355. Areas which support sizeable numbers of sooty owls include Main Range National Park, Lamington National Park, Bunya Mountains National Park, Brisbane Forest Park and the Conondale Range (including Conondale National Park).

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Recent survey work indicates that the owl is more common than previously thought,[7] and evidence suggests the sooty owl is not at risk of serious decline in Queensland.[11] However, the clearing of large tracts of wet sclerophyll forest and rainforest for agriculture has significantly reduced the habitat available to the sooty owl since European settlement of Australia.[7] Although the owl still occurs on freehold land, some 90% of its remaining habitat is on State forests and protected areas.[11] Owl populations should remain secure in these locations provided effective management options are taken. The cessation of timber harvesting in rainforest on State forests has considerably reduced the potential impact of harvesting on this species. Watercourse and nest tree protection will provide important undisturbed habitat for the owl in selectively harvested wet sclerophyll areas. Studies in south east Australia suggest the owl strongly prefers forest with a development age of 60 years or more.[8,13] However, evidence suggests the owl also uses young forest stands provided older stands are present nearby.[13] Currently there is no published information on the time taken by Queensland trees to form hollows for fauna. For *E. pilularis* (Blackbutt) in NSW, suitable medium sized hollows take in the order of 100 or more years to form.[14] While the optimum fire regime is unknown, it is suspected that a high frequency of cool, autumn prescribed burns may reduce the quality of habitat available to some of the owl's prey species.[7] Regular prescribed burning in sclerophyll forest is still important to reduce the risk of wild fire affecting prey or destroying hollow trees.

CONSERVATION & RECOVERY PLAN

No conservation or recovery plan available.

THREATENING PROCESSES

1. Destruction and fragmentation of habitat due to clearing of rainforest and wet sclerophyll forest.[6]

POSSIBLE THREATENING PROCESSES

1. Removal of trees containing hollows by timber harvesting.[7]
2. Inappropriate fire regimes in sclerophyll forest where the owl occurs, especially in gullies where it is known to roost and nest.[7]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect the owl, its roosting and nesting sites.

ACTION 1: Apply current watercourse protection zone prescriptions.

ACTION 2: Establish a protective buffer that excludes timber harvesting and clearing within a 100 m radius of any known nest tree while it is in active use.

ACTION 3: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice.

ACTION 4: In the owl's habitat, adjacent MUIDs within 1.5 km of each other where timber harvesting removes more than 50% of the forest cover, shall be harvested at least 5 years apart. The timber harvesting sequence should result in a mosaic of differently aged stands throughout the forest.

ACTION 5: Minimise the frequency of cool autumn prescribed burns while continuing to ensure the risk of wildfire within sclerophyll forest where the owl occurs, is minimised.

ACTION 6: All staff and researchers are to notify Department of Natural Resources (DNR) districts of observed heavy fuels at the base of known nest trees. Where the district considers there is a substantial risk to the nest tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season.

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AUTHOR AND DATE OF COMPILATION: C. Pavey, consultant; A. Borsboom, Resource Sciences Centre, DNR. January 1996.
FIRST REVIEW: G. Czechura, Queensland Museum.
EDITING: Environmental Management, Forest Resources, DNR. October 1998.

TAXON SUMMARY

Sooty Owl (Australian)

1	**Family**	Tytonidae
2	**Scientific name**	*Tyto tenebricosa tenebricosa* (Gould, 1845)
3	**Common name**	Sooty Owl (Australian)
4	**Conservation status**	Least Concern

5 Reasons for listing

Most suitable habitat within the historical range of this subspecies is uncleared and surveys have shown that current logging practices do not reduce Sooty Owl density in at least 50% of their range. There are at least two sub-populations, one of which contains more than 1,000 mature individuals (so not Vulnerable: C, even were the population found to be declining).

	Estimate	*Reliability*
Extent of occurrence	*230,000 km²*	*medium*
trend	*stable*	*high*
Area of occupancy	*50,000 km²*	*low*
trend	*stable*	*medium*
No. of breeding birds	*10,000*	*low*
trend	*stable*	*medium*
No. of sub-populations	*2*	*medium*
Largest sub-population	*9,700*	*low*
Generation time	*5 years*	*low*

6 Infraspecific taxa

T. t. arfaki of New Guinea is the only other recognised subspecies. Global status of species is Least Concern.

7 Past range and abundance

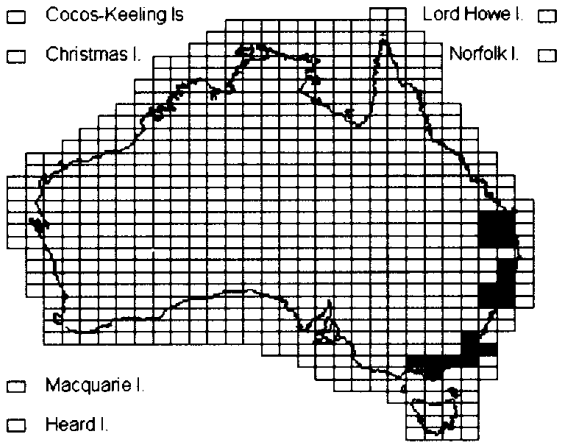
Disjunct distribution through coastal and near-coastal eastern Australia, between Clarke Ra., central Qld, and Kinglake National Park, Dandenong and Strzelecki Ra., Vic. (Schodde and Mason, 1980, Higgins, 1999).

8 Present range and abundance

Although the overall distribution of Sooty Owls is little changed, there have been local declines and extinctions, particularly from Big Scrub area, northern N. S. W. and probably central Gippsland, Vic. In north-east New South Wales, both numbers and area occupied (now ca. 3,000-3,500 pairs) are estimated to be at 80% of pre-European levels (Debus, 1994, Kavanagh *et al.*, 1995, NSW NPWS, 1998). In Victoria, fewer than 800 (and probably 500) individuals (Silveira, 1997, Higgins, 1999). Estimated 175 individuals in 3,200 km^2 of State Forest and National Park in south-eastern New South Wales (Kavanagh, 1997).

9 Ecology

Sooty Owls live in wet eucalypt forest and rainforest that grows on fertile soils, where there are tall emergent trees. They are most frequently found in tall old-growth forests, with a dense understorey, but may also live in younger forests if there are suitable nesting trees nearby (Higgins, 1999). Suitable habitat is largely confined to gullies and valley slopes (Smith, 1984a, Kavanagh and Jackson, 1997). Optimal habitat contains tall eucalypts with large hollows suitable for nesting and roosting, but also a range of hollows that provide shelter for prey (Milledge and Palmer, 1990). The same nest is used repeatedly, and the owls also roost, and occasionally nest, in caves (Hyem, 1979, Schodde and Mason, 1980, Hollands, 1991). Within forests, Sooty Owls hunt in both open and closed forest, but apparently avoid clearings (Loyn *et al.*, 1986, Lundie-Jenkins, 1993). Their diet is dominated by a range of arboreal and terrestrial mammals, including introduced species in disturbed areas, as well as some birds (Schodde and Mason, 1980, Smith, 1984b, Loyn *et al.*, 1986, Lundie-Jenkins, 1993, Holmes, 1994, Higgins, 1999).



10 Threats

Clearance of habitat for agriculture is likely to have adversely affected Sooty Owls, with some of the remaining habitat fragmented or degraded by logging, burning, dieback and urbanisation (Lundie-Jenkins, 1993, Kavanagh and Peake, 1993, Chafer and Anderson, 1994, Debus, 1994, Kavanagh and Jackson, 1997). In the Victorian Mountain Ash *Eucalyptus regnans* forests, the Sooty Owl is mainly found in forest that has not been logged or burnt for over 150 years (Milledge and Palmer, 1990, Milledge *et al.*, 1991). However, more than 50% of former habitat still remains uncleared and un-fragmented, and in northern New South Wales, the owl's presence is either independent of logging history, or associated with logged sites that have few old, hollow trees.

Recolonisation of 20 year old regrowth has been described (Kavanagh *et al*, 1995). This apparent discrepancy may be related to differences in either floristic diversity with the Mountain Ash forests studied being less diverse than those studied elsewhere, or in logging practices (Kavanagh *et al*, 1995). Listing at a State level may be warranted because of low regional numbers.

11 Recommended actions

11.1 Undertake follow-up surveys in N. S. W. forests to determine trends in abundance and baseline surveys in forests of south-east Qld.

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Comments received from

Stephen Debus, Rod Kavanagh, Peter Menkhorst, Penny Olsen.

Dasyurus maculatus maculatus

QUEENSLAND CONSERVATION STATUS: Vulnerable[1]

SPECIES TYPE: Carnivorous Marsupial **Family: Dasyuridae**

- **Disjunct distribution in east Australia from south east Queensland to Victoria and Tasmania. Densities are low where it occurs.**
- **Recorded from six State forests. Records from protected areas are currently unavailable.**
- **Found in a range of habitats, but mainly recorded in rainforest and wet sclerophyll forest.**
- **Threatening processes are: destruction and fragmentation of habitat by clearing; and illegal killing. Possible threats include: destruction of den sites; disturbance due to timber harvesting during the breeding season; inappropriate fire regimes; inappropriate feral animal control; disease and competition from feral animals; and poisoning from cane toads.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: the establishment of protective buffers around known den sites; the retention of habitat trees; restrictions on clearing and timber harvesting; appropriate fire regimes; and appropriate feral animal control methods.**

SPECIES PROFILE

DESCRIPTION

Dasyurus maculatus maculatus is the southern subspecies of the Spotted-tailed Quoll. It is the largest native marsupial carnivore on the Australian mainland with males of this cat-sized animal reaching up to 7 kg in weight.[2] It is distinguished from other quolls by spots on the tail.

BIOLOGY & ECOLOGY

D. maculatus maculatus is normally nocturnal,[2] and although an agile climber, spends much of its time on the ground.[9] It shelters in nests made inside either hollow trees, hollow logs, caves or rock crevices.[2,9] It is known to use cavities in fig trees (*Ficus* spp.) as den sites.[6] Adult males at Girraween National Park occupy a mean home range of 875 ha, with a 35% overlap between the home ranges of adjacent males.[3] There is no home range data for females. Mating occurs from April to July, the average litter size is five and the young are fully independent at 18 weeks of age.[2] *D. maculatus maculatus* is an efficient opportunistic hunter taking a range of prey including echidnas, possums, rabbits, small mammals, native birds, poultry, reptiles and insects.[2,3,9,11,13] The remains of large mammals in their scats indicate they either feed on carrion from dingo and wild dog kills or take the young of these species.[11]

HABITAT

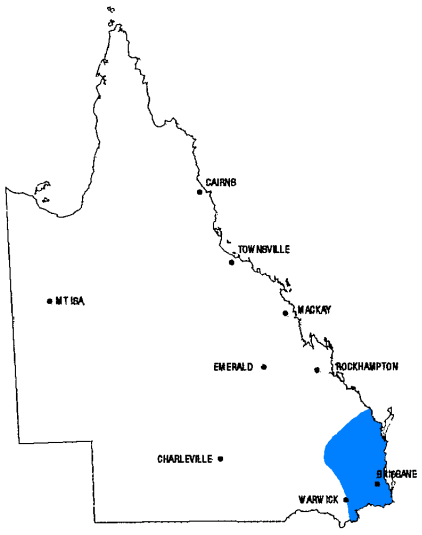
Occurs in a wide range of habitats.[2] In Queensland, it is recorded from dry and wet sclerophyll forest, riparian forest, rainforest and open pasture.[3] About 62% of reported sightings in Queensland are from closed canopy/wet forest, with half of these records from rainforest.[3] It has also been recorded from woodland and coastal heathland.[2]

G.B. Baker/NPIAW[7]

CONSERVATION STATUS & DISTRIBUTION

CURRENT CONSERVATION STATUS

Queensland: Vulnerable[1]



FORMER DISTRIBUTION & STATUS

D. maculatus maculatus was originally found in east Australia from south east Queensland to Tasmania, and west into South Australia.[2,10] It was not common during the first century of settlement in Australia.[10]

CURRENT DISTRIBUTION

Since European settlement the range has contracted. Its current occurrence is patchy and densities are extremely low.[2,3,10] It is probably extinct in South Australia and uncommon to rare in Victoria and New South Wales.[2] Numbers in Tasmania appear to have recovered from a dramatic decline early this century which was attributed to a supposed epidemic disease.[2,4] Currently recorded in SF 135 (Brooloo),[3] SF 274 (including FPA 109),[3] SF 327 (Gilbert),[3] SF 435, SF 750 (East Haldon)[3] and SF 1004. It is expected to occur in many more State forests. The lack of State forest records reflects the secretive nature of *D. maculatus maculatus* in combination with low population densities.

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Since European settlement, *D. maculatus maculatus* numbers have declined significantly.[2,3] As it has large home range requirements,[3] forest set aside in protected areas may not be enough to maintain viable populations. Therefore, appropriately managed habitat in State forests will be important in maintaining viable populations, especially where it supplements habitat in protected areas. *D. maculatus maculatus* was extensively shot, poisoned and trapped in the past,[2,3,1] and illegal killing still occurs.[3]

CONSERVATION & RECOVERY PLANS

No conservation or recovery plans available.

THREATENING PROCESSES

1. Clearance and fragmentation of habitat.[2,3] **2.** Illegal shooting, trapping and poisoning.[3,4]

POSSIBLE THREATENING PROCESSES

1. Loss of hollow trees and hollow logs as den sites,[3] especially as a result of fire.

2. Prescribed burning and timber harvesting during the breeding period.[3]

3. Poisoning from 1080 meat baits set for dingoes and foxes; traps set for feral animals.[2,3]

4. Disease transmitted by feral animals.[3,5]

5. Direct competition with feral dogs, foxes and cats.[2,3]

6. Poisoning from feeding on Cane Toads.[3,6]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect *D. maculatus maculatus* and maintain its habitat

ACTION 1: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice.

ACTION 2: Retain all fig-trees (*Ficus spp.*) in timber harvested forest within the *D. maculatus maculatus* distribution.

ACTION 3: Establish a protective buffer that excludes timber harvesting and clearing in native forest within at least 100 m of **known** den sites. Refer to Environmental Management, Department of Natural Resources (DNR) for den site information.

ACTION 4: No timber harvesting or prescribed burning within 500 m of a known breeding den between September and January.

ACTION 5: All staff and researchers are to notify DNR districts of observed heavy fuels at the base of known den trees. Where the district considers there is a substantial risk to the den tree, the District should remove the fuels from around the base of the tree. This operation is to occur outside the breeding season between September and January.

ACTION 6: Where *D. m. maculatus* occurs, the aims of fuel management must include the minimisation of damage and destruction to hollow logs and hollow trees by fire. Practices should exclude heaping.

ACTION 8: Where practical control or eradicate feral dogs, foxes and feral cats on sites where *D. m. maculatus* occurs. Please consult with the district DNR Land Protection Officer for appropriate control or eradication procedures. Trapping or baiting methods are to use non-meat baits and/or chemical lures that won't attract quolls. Where 1080 is used, bait concentrations are not to exceed 0.014 mg/gram.[3]

COMMENT: If advised by DNR Land Protection Division that a significant risk to quolls is posed by secondary poisoning, then poisoned animal carcasses are to be searched for and hygienically removed from the baited area during the baiting period.

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AUTHOR & DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, DNR. March 1996.
FIRST REVIEW: Dr. A. Watt, Qld. Environmental Protection Agency (EPA); S. Burnett, James Cook University; Dr G. Smith, DNR.
EDITING: Environmental Management, Forest Resources, DNR. November 1999. EVR status correct as at December 1997

Hoplocephalus stephensii

QUEENSLAND CONSERVATION STATUS: Rare[1]

SPECIES TYPE: Snake FAMILY: Elapidae

- **Distributed along the coast and coastal ranges from Gosford in NSW to Gympie in south east Queensland, with an isolated population at Kroombit Tops (south west of Gladstone).**
- **Recorded in eighteen State forests.**
- **Usually found in wet sclerophyll forest and rainforest.**
- **Possible threatening processes are: destruction and fragmentation of habitat due to clearing (loss of shelter and basking sites); inappropriate fire regimes; deliberate killing; and illegal collection.**
- **Protective measures for operations conducted under the *Forestry Act 1959* are: protective buffers excluding clearing; habitat tree retention; minimising disturbance to habitat by timber harvesting; restrictions on the harvesting of fallen and hollow timber and the removal of rocks, appropriate fire regimes; discouraging deliberate killing; and minimising illegal collection.**

SPECIES PROFILE

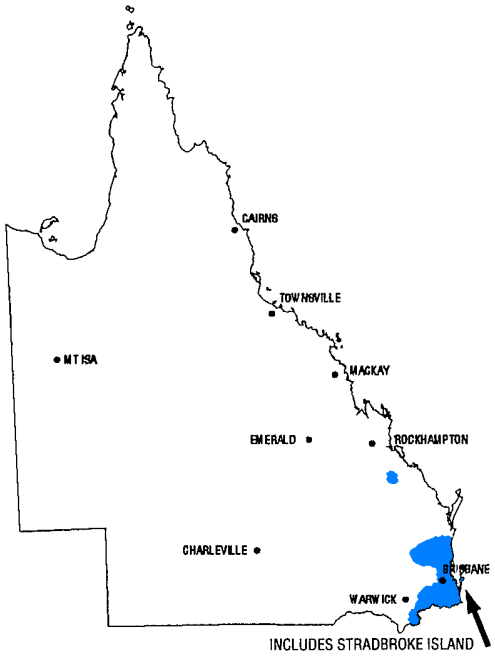
DESCRIPTION

Hoplocephalus stephensii grows to 1.2 m in length.[3] It is usually dark grey to black above with a series of narrow brown, orange brown or cream bands that can become obscure or broken at the end of the body.[3,11] Some specimens lack bands entirely.[3,11] The top of the head normally bears a large brown patch.[3,11] The lips are barred with black and cream.[11] The underside of the snake is cream to white with each scale infused with grey.[3] Dark blotches may also be present underneath.[3] The body scales are smooth.[11] The scales mid body form diagonal rows of 21 scales across the body.[3,11] The rows commence and finish at the large scales (caudals) beneath the snake, which should not be included in the scale count.

ADULT SNAKE (photo by P. German/NF[2])

BIOLOGY & ECOLOGY

A venomous snake, its bite may cause severe symptoms.[3] Can be pugnacious and strike repeatedly when provoked.[3] This cryptic snake is nocturnal and partly arboreal,[3,9,11] but will bask during the day in mild weather.[3] Feeds on lizards, birds, mammals,[11] and frogs.[3] The snake is live bearing and mating occurs from late spring to early summer, with 3 to 8 (average 6) young born between February and March.[3,11]



HABITAT

Usually found in wet sclerophyll forest[10,12,14] and rainforest,[3,7,8,11,14] including vine forest.[10,12] However, it has also been recorded in dry sclerophyll forest[3] including spotted gum forest, and in heath.[8,12] The snake shelters in hollow trees, logs, beneath loose bark and rock slabs or in rock crevices.[3]

CONSERVATION STATUS & DISTRIBUTION

Current Conservation Status

Queensland: Rare[1]
Australia: Rare or Insufficiently Known[13]

Former Distribution & Status

Former distribution and status unknown.

Current Distribution

Extends along the coast and coastal ranges from Gosford in NSW to Gympie in south east Queensland, with an isolated population at Kroombit Tops (south west of Gladstone).[7] Recorded from the following State forests: SF 117 (Kunioon),[16] SF 124,[4] SF 135 (Brooloo),[5] SF 207(Monsildale),[16] SF 258,[16] SF 274,[15] SF 309,[16] SF 316 (Winterbourne),[15,16] SF 401,[16] SF 467,[5] SF 546,[16] SF 571,[15,16] SF 663,[16] SF 673,[16] SF 788,[5,16] SF 792,[5] SF 1004[16] and SF 1239.[4,16]

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Hoplocephalus stephensii is difficult to manage as it is cryptic, inhabits a variety of habitats and probably occurs in low densities. Fire regimes could be very important in determining habitat quality for the snake. *H. stephensii* is highly sought by reptile collectors. However, it is difficult to assess the impact of illegal collecting. Clearing of rainforest for plantation establishment and rainforest harvesting has ceased on State land in accordance with current policy and do not pose a possible threat.

CONSERVATION & RECOVERY PLANS

No Conservation or Recovery plans available.

THREATENING PROCESSES

No substantiated threatening processes in the literature.

POSSIBLE THREATENING PROCESSES

1. Inappropriate fire regime.
2. Deliberate killing.
3. Illegal collection.
4. Destruction of habitat (large logs, hollow trees and rocks used for shelter)and habitat fragmentation by clearing.

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT* 1959

OBJECTIVE: Minimise deliberate killing of *H. stephensii* .

ACTION: All field staff, contractors and permit holders should be made aware that deliberate killing of this snake is an offence under the Queensland *Nature Conservation Act 1992*.

OBJECTIVE: Minimise illegal collection of *H. stephensii* .

ACTION: Investigate and liaise with local Environmental Protection Agency (EPA) officers on any suspected illegal taking activities. Where requested assist with prosecution under the relevant provisions of the *Nature Conservation Act 1992* . When appropriate prosecute any breaches of the *Forestry Act 1959.*

OBJECTIVE: Protect *H. stephensii* and maintain its habitat.

ACTION 1: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice - Native Forest Timber Production. These trees are to be protected during all harvesting and silvicultural operations.

ACTION 2: Other than for essential roads, fire breaks and infrastructure, no clearing in State forests and timber reserves where *H. stephensii* is known to occur.

ACTION 3: To maintain refuge and basking sites for *H. stephensii* and its prey, no removal or disturbance of rock outcrops or loose rocks greater than 50 cm in diameter in any State forest and timber reserve where *H. stephensii* is known to occur.

ACTION 4: To maintain refuge and basking sites for *H. stephensii* and its prey, no removal of fallen timber with a diameter of 30 cm or more (exceeding 20 cm if it is at least partially hollow). To be applied in appropriate habitat in any State forest or timber reserve where *H. stephensii* is known to occur. This must be included as a sale condition for permits to collect firewood, landscape logs or fencing timber. **COMMENT:** This must be included as a sale condition for permits to collect firewood, landscape logs or fencing timber.

ACTION 5: In State forests and timber reserves where *H. stephensii* occurs, the aims of fuel management must include the minimisation of damage and destruction to fallen timber and hollow trees by fire. Practices to include no heaping fallen timber or heads of trees.

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AUTHOR AND DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, DNR. October 1996.

FIRST REVIEW: J. Covacevich and P. Couper, Queensland Museum.

EDITING: DNR EM, November 1999. EVR

status correct as at December 1997

Callitris glaucophylla

Photo: View of Mt Machar from Blackfellow Creek valley with *Callitris glaucaphylla* shown in the foreground. A significant refuge area for the Brush-tailed Rock-wallaby is located directly below the cliffs of Mt Machar.

Petaurus australis australis

QUEENSLAND CONSERVATION STATUS: Common [1] (Management Concern)

SPECIES TYPE: Arboreal Marsupial **FAMILY: Petauridae**

- **Occurs at low densities with a patchy distribution and large home range requirements in south and east Australia, as far north as Mackay in Queensland.**
- **Recorded in seventy-three State forests and one timber reserve.**
- **Prefers mature dry sclerophyll forest with hollow habitat trees for shelter and suitable trees for sap feeding.**
- **The main threatening process is destruction and fragmentation of habitat by clearing, especially old growth forest. Possible threatening processes are timber harvesting and inappropriate fire regimes.**
- **Important protective measures for operations conducted under the *Forestry Act 1959* are: the protection of sap feed trees and known den trees; the establishment of protective buffers around sap feed trees and known den trees in which timber harvesting is modified; the retention of habitat trees; and appropriate fire regimes.**

SPECIES PROFILE

DESCRIPTION[9]

Petaurus australis is an arboreal gliding marsupial. Adults weigh 450 to 700 grams, have a head-body length of 27 to 30 cm and a tail 42 to 48 cm long. It is whitish to orange below and grey above with an oblique black stripe on the thigh. The gliding membranes extend from the wrists to the ankles. The glider has several distinctive calls but the most characteristic is a short, high pitched shriek that subsides into a throaty rattle.

Whitford/NF[11]

BIOLOGY & ECOLOGY[3-10,14,15]

The Yellow-bellied Glider is the largest insect and exudate feeding arboreal mammal in Australia. The glider is dependent on live hollow habitat trees for shelter and lives in family groups of 2 to 6 individuals. Each group has an estimated home range of 22 to 84 ha, from which other groups are excluded. A single young is born between November and May, and is independent about 160 days after birth. Diet includes arthropods, insects, pollen and exudates. Exudates eaten include nectar, sap, manna, and honeydew. When feeding on sap, characteristic scars are left on the trunks of sap feed trees. Currently 18 species of trees are known to be used as sap feed trees in Queensland.

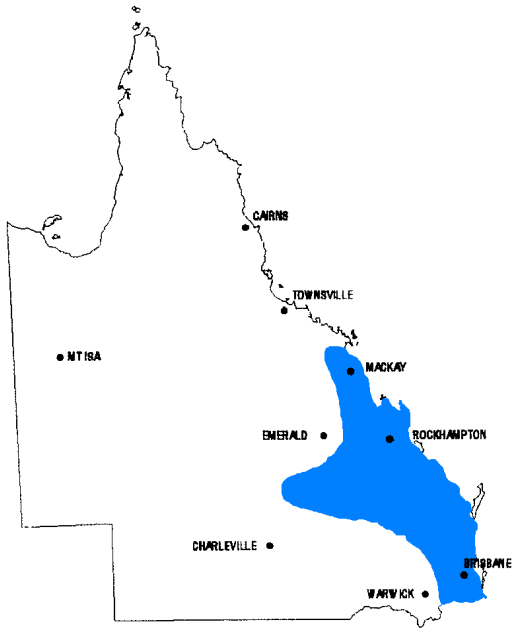
HABITAT

In Queensland the glider's sap feed tree sites occur in seven broad forest types with over 78% of sites in dry, tall, open sclerophyll forests; 6.5% on the ecotone between dry sclerophyll and wet sclerophyll forest; and 1% in wet sclerophyll forest.[3,12] In south Queensland spotted gum/ironbark forest is the glider's preferred habitat.[3,12]

CONSERVATION STATUS & DISTRIBUTION

CURRENT CONSERVATION STATUS

Queensland: Common[1]



FORMER DISTRIBUTION & STATUS

Distribution and status at the time of European settlement unknown.

CURRENT DISTRIBUTION

Today the Yellow-bellied Glider subspecies *Petaurus australis australis* is found in south and east Australia from South Australia to about Mackay, in Queensland. Within its range populations are patchy and densities low.[13] Museum specimens, sightings and sap feed tree records, indicate the Yellow-bellied Glider occurs in the following State forests: SF 11 (Serocold), SF 12 (Cherbourg), SF 28 (Coominglah), SF 46, SF 47 (Dyngie), SF 50 (Presho), SF 54 (Bania), SF 57 (St Mary), SF 62 (Eungella), SF 67, SF 82 (Brooyar), SF 119, SF 127 (Dangore), SF 131, SF 132 (Brovinia), SF 137, SF 146, SF 175 (Mimosa), SF 197, SF 198, SF 207, SF 210, SF 212 (Coomooboolara), SF 218, SF 253, SF 254, SF 255, SF 258, SF 269, SF 274 (FPA 109), SF 283 (Alford), SF 287 (Borilla), SF 302, SF 309, SF 316 (Winterbourne), SF 327 (Gilbert), SF 343, SF 365, SF 370, SF 381 (Wonbah), SF 391, SF 401, SF 406, SF 424, SF 431, SF 467, SF 528, SF 546, SF 575 (King), SF 616, SF 627, SF 632, SF 639, SF 652, SF 679, SF 682, SF 700 (Gympie), SF 750 (East Haldon), SF 788, SF 792, SF 832 (Stanton), SF 832 (Durundur), SF 898, SF 932, SF 957, SF 958, SF 986, SF 1294, SF 1344, SF 1355 and SF 1419. Also found in TR353

THREATS & MANAGEMENT

INTRODUCTORY COMMENT

Listed as common in Queensland, elsewhere in Australia it is endangered or vulnerable.[13] The species requires management because it only occurs at low densities, has large area requirements, and is forest hollow dependent. To maintain a viable population a minimum 9,750 ha area of unfragmented forest habitat is required.[13] The Yellow-bellied Glider is no longer present at a number of locations in Queensland due to clearing of forest.[3] In south and central Queensland an estimated 79% of potential Yellow-bellied Glider habitat is on freehold and leasehold land where it is at risk from clearing. Approximately 90% of potential habitat in south Queensland is subject to threatening processes.[3] The proportion of potential habitat in protected areas and State forests is estimated at 3.8% and 15.5% respectively.[12] Consequently, the populations on State forests are very important to the conservation of the species across its range.

CONSERVATION & RECOVERY PLANS

Australasian marsupials and monotremes: an action plan for their conservation, p. 48.[2]

THREATENING PROCESSES

1. Loss and fragmentation of old growth forest habitat due to clearing and timber harvesting.
2. Loss of habitat and habitat fragmentation due to clearing of forest.[3,13]

POSSIBLE THREATENING PROCESSES

1. Timber harvesting in native hardwood forests[12] that leads to:
   - i. loss of hollow trees as den sites;
   - ii. loss of critical resources such as sap feed trees;
   - iii. Increased distance between food resources;
   - iv. Increased exposure to predatory owls by the opening up of the forest canopy;
2. Wildfire and hot prescribed burns that damage, kill or destroy den trees and sap feed trees.[12]

PROTECTIVE MEASURES FOR OPERATIONS CONDUCTED UNDER THE *FORESTRY ACT 1959*

OBJECTIVE: Protect Yellow-bellied Gliders, their feed and den trees and maintain their habitat.

ACTION 1: No harvesting of sap feed trees bearing 5 or more recent Yellow-bellied Glider feed marks. No logging, clearing or disturbance of known Yellow-bellied Glider den trees

COMMENT: "Recent" is where the callusing around the feed marks has not completely grown across the cut.

ACTION 2: Establish a protective buffer that excludes timber harvesting and clearing of trees with hollow entrances greater than 75 mm in diameter within 100 m of any sap feed tree bearing 5 or more recent Yellow-bellied Glider feed marks. Timber harvesting within the buffer is to retain at least 75% of the canopy.

ACTION 3: Where den trees are outside a sap feed tree protected buffer, establish a protective buffer within 50 m of the den tree, in which timber harvesting is to retain at least 75% of the canopy.

ACTION 4: A minimum of six (6) live habitat trees and two recruitment trees per hectare are to be retained. Where six (6) live habitat trees are not available per hectare then additional recruitment trees must be retained as per Table 1 of the Code of Practice - Native Forest Timber Production. Where the timber harvesting intensity will remove >50% of the basal area, additional recruitment trees must be retained as per Table 2 of the Code of Practice - Native Forest Timber Production. Habitat and recruitment trees and their selection process are as defined in the Code of Practice - Native Forest Timber Production.

ACTION 5: Maintain current fire management practices where Yellow-bellied Gliders occur, provided the intensity of prescribed burns presents a minimal risk to den trees and sap feed trees.

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AUTHOR AND DATE OF COMPILATION: A. Borsboom, Resource Sciences Centre, Department of Natural Resources (DNR)**.** February 1996.

FIRST REVIEW: T. Eyre and G. Smith, Resource Sciences Centre, DNR.

EDITING: Environmental Management, Forest Resources, DNR November 1999.

EVR status correct as at December 1997

Appendix 4B Regional Ecosystem Profiles

Regional Ecosystem	Glen Rock Veg Code	General Forest Type	NatCAM Status	VM Status	S&W Status	Absolute Area Remaining (ha)	% of pre 1770 Distribution Remaining	% of Pre European Area in Protected Area Estate
12.3.3	3c	eucalypt open forest	8	E	O	72945	10.5	0.2
12.3.7	3a	riparian	6	N	N	13739	44.9	0.7
12.8.4	8n	rainforest	1	N	N	16959	66.2	34.6
12.8.9	8e	eucalypt closed forest	1	O	N	5267	98.3	62.1
12.8.14	8a	eucalypt open forest	1	N	N	39901	82.2	18.8
12.8.14	8b	eucalypt open forest	1	N	N	39901	82.2	18.8
12.8.16	8k	eucalypt open forest	7	N	N	34963	27.0	4.3
12.8.17	8d	eucalypt open forest	5	N	O	23716	51.5	3.6
12.8.19	8j	heath	1	O	N	2920	90.8	50.2
12.8.21	8m	rainforest	10	E	O	4201	11.5	2.8
12.9/10.7	9h	eucalypt open forest	9	O	O	33892	17.6	0.3
cleared	C	cleared						
regrowth	R	regrowth						

Status Codes	
VM	Vegetation Management
S&W	Sattler & Williams
NatCAM	Inventory/Book value from NatCAM model
E	Endangered
O	Of Concern
N	Not of Concern

Text from
Sattler, P. and Williams, R. 1999 *The Conservation Status of Queensland's Bioregional Ecosystems*, EPA.

Photos from
Krieger,G. and Lehmann,P. 2000 Survey of Vertebrate Fauna at Glen Rock in the Gatton Shire

Regional Ecosystem: 12.3.3

Vegetation Type: **3c**

Nat CAM Status: 8

Supplementary Description: Sparshott et al. (1997): E10

Description: *Eucalyptus tereticornis* open forest to woodland on Cainozoic alluvial plains including older floodplain complexes. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains. *Corymbia intermedia* is commonly associated with *Eucalyptus tereticornis* in moister areas. Other species that may be present as scattered individuals or clumps include *Angophora subvelutina* or *A. floribunda*, *Corymbia clarksoniana, C. tessellaris*, *Eucalyptus siderophloia*, *E. melanophloia* and *Lophostemon suaveolens*.

Provinces: 1, 2, 3, 4, 5, 6, 7, 8, 10.

Protected Areas: Bunya Mountains NP (100 ha), Deepwater NP (140 ha), Eurimbula NP (80 ha), Great Sandy NP (600 ha), Main Range NP (60 ha), Noosa NP (130 ha).

Extent Reserved: Low

Comments: While *Eucalyptus tereticornis* remains common in the landscape, very few intact stands remain. *Eucalyptus tereticornis* grows into a very large hollow-forming tree and has a special significance for fauna species, especially in drier areas. The type is variable, ranging from woodland in drier parts to tall open forest in higher rainfall areas and monospecific to intermixed with other canopy species. *Eucalyptus tereticornis* will regenerate readily but there is a lack of recruitment to replace old trees in stands that are logged, thinned or grazed and regularly burnt. The grasses and herbs associated with intact *Eucalyptus tereticornis* communities also persist in the landscape, so there is a potential for re-establishing the RE and increasing its remnant area. *Eucalyptus tereticornis* is replaced by *E. grandis* in highest-rainfall parts of the bioregion.

Special Ecological Values: Habitat for rare and threatened flora species including *Stemmacantha australis.*

Estimated extent: 10% remains of a preclearing area of about 694 000 ha.

Conservation Status: Of concern While only 10% remains, an 'of concern' status has been ascribed in recognition of the resilience of the RE and the potential for its re-establishment

Regional Ecosystem: 12.3.7

Vegetation Type: **3a**

Nat CAM Status: 6

Vegetation Type 3a: very tall open forest/woodland/open woodland extends along Blackfellow, Shady and Flaggy Creek valleys and the dominant species are *Eucalyptus tereticornis* and *Casuarina cunninghamiana*

Supplementary Description: Sparshott et. al. (1997): E11, E12

Description: Narrow fringing community of *Eucalyptus tereticornis*, *Callistemon viminalis*, *Allocasuarina cunninghamiana* +- *Waterhousea floribunda* on Cainozoic alluvial plains along watercourses. *Lomandra hystrix* often present in stream beds.

Provinces: 1, 2, 3, 5, 6, 7, 8, 10.

Protected Areas: Small areas in Lamington NP, and protected areas <1000 ha

Extent Reserved: Low.

Comments: Too small to map at 1:100 000 scale. Prone to invasions by weeds such as Chinese elm *Celtis sinensis* and cat's claw creeper *Macfadyena unguiscati*. Other species associated with this RE include *Melaleuca bracteata*, *M. linariifolia* var. *trichostachy*a and *M. fluviatilis* in north of bioregion.

Estimated extent: 44 % remains of a mappable area of about 30 600 ha.

Conservation Status: No concern at present

Regional Ecosystem: 12.8.4

Vegetation Type: **8n**

Nat CAM Status: 1

Vegetation Type 8n: extremely tall /very tall closed forest of *Argyrodendron actinophyllun, Sloanea woollsii and Elaeocarpus kirtonii.* This community only occurs in the Flaggy Creek Valley and is common in the adjoining Mt Mistake section of Main Range National Park

Supplementary Description: Sparshott et al. (1997): G3, G16, G17

Description: Complex notophyll rainforest with scattered *Araucaria bidwillii* or *A. cunninghamii* on Cainozoic igneous rocks especially basalt and lateritised basalt. Characteristic species include *Argyrodendron actinophyllum*, *Baloghia inophloia*, *Brachychiton acerifolius*, *Dendrocnide excelsa*, *Elaeocarpus kirtonii*, *Diospyros pentamera*, *Dysoxylum fraserianum*, *Toona australis*, *Orites excels*a and *Sloanea woollsii*

Provinces: 1,6.

Protected Areas: 'Bunya Mountains NP (1030 ha), Lamington NP (2530 ha), Main Range NP (3090 ha), Mount Barney NP (2340 ha), Mount Chinghee NP (60 ha).

Extent Reserved: High

Special Ecological Values: Habitat for rare and threatened flora species including *Pandorea baileyi*, *Sarcochilus weinthalii* and *S. hartmannii*, and cool subtropical species at limits of climatic range.

Comments: Characteristic localities for this type are Levers Plateau on the Qld-NSW border and the Bunya Mountains.

Estimated extent: 66% remains of a total area of about 25 600 ha.

Conservation Status: No concern at present

Regional Ecosystem: 12.8.9

Vegetation Type: 8e

Nat CAM Status: 1

Vegetation Type 8e: very tall/tall/open forest or mid high closed forest dominated by *Lophostemon confertus.* This community occurs in sheltered parts of Glen Rock including gullies.

Supplementary Description: Sparshott et al. (1997): G27

Description: *Lophostemon confertus* tall open forest to open forest often with rainforest understorey ('wet sclerophyll') on Cainozoic igneous rocks. Tends to occur mostly in gullies and on exposed ridges.

Provinces: 1, 2, 6.

Protected Areas: Lamington NP (970 ha), Main Range NP (1210 ha), Mount Barney NP (850 ha), Springbrook NP (250 ha).

Extent Reserved: High

Comments: Tends to occur on exposed ridges among rainforest on basalt and in gullies on lower fertility substrates such as rhyolite. Patches are often too small to map at 1:100 000.

Estimated extent: 98% remains of a total area of about 5400 ha (naturally restricted type).

Conservation Status: No concern at present

Regional Ecosystem: 12.8.14 (8a)

Vegetation Type: **8a**

Nat CAM Status: 1

Vegetation Type 8a: very tall open forest/woodland occurs on the high elevation areas of Cook's Tableland and the steep slopes adjoining Mount Mistake section of Main Range National Park. Dominant species include *Eucalyptus biturbiinata and Eucalyptus eugenioides*

Supplementary Description: Sparshott et al. (1997): G26 (in part)

Description: *Eucalyptus eugenioides*, *E. tereticornis*, *E. melliodora*, *E. biturbinata*, *Allocasuarina torulosa* +- *E. moluccana* grassy open forest on Cainozoic igneous rocks, especially basalt.

Provinces: 1, 2, 6.

Protected Areas: Bunya Mountains NP (200 ha), Lamington NP (3200 ha), Main Range NP (5400 ha), Mount Barney NP (260 ha).

Extent Reserved: Medium

Special Ecological Values: Habitat for rare and threatened flora species including Plectranthus suaveolens and Sophora fraseri. Mapping units associated with this RE contain localised occurrences of Eucalyptus laevopinea and E. banksii.

Estimated extent: 82% remains of a preclearing area of about 48 500 ha.

Conservation Status: No concern at present

Regional Ecosystem: 12.8.14 (8b)

Vegetation Type: **8b**

Nat CAM Status: 1

Vegetation Type 8b: very tall open forest/tall/very tall woodland of *Eucalyptus tereticornis, E. melliodora* occurs on higher elevated slopes with shallow soils. This community is common throughout the Glen Rock landscape

Supplementary Description: Sparshott et al. (1997): G26 (in part)

Description: *Eucalyptus eugenioides*, *E. tereticornis*, *E. melliodora*, *E. biturbinata*, *Allocasuarina torulosa* +- *E. moluccana* grassy open forest on Cainozoic igneous rocks, especially basalt.

Provinces: 1, 2, 6.

Protected Areas: Bunya Mountains NP (200 ha), Lamington NP (3200 ha), Main Range NP (5400 ha), Mount Barney NP (260 ha).

Extent Reserved: Medium

Special Ecological Values: Habitat for rare and threatened flora species including Plectranthus suaveolens and Sophora fraseri. Mapping units associated with this RE contain localised occurrences of Eucalyptus laevopinea and E. banksii.

Estimated extent: 82% remains of a preclearing area of about 48 500 ha.

Conservation Status: No concern at present

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Regional Ecosystem: 12.8.16

Vegetation Type: **8k**

Nat CAM Status: 7

Supplementary Description: Sparshott et al. (1997): G31

Description: 'Euc*alyptus crebra*, generally with *E. melliodora*, *E. tereticornis*, *E. albens* grassy woodland on Cainozoic igneous rocks, especially basalt. Dry hill slopes in south-west of bioregion

Provinces: 2, 6.

Protected Areas: Bunya Mountains NP (3200 ha), Main Range NP (1700 ha includes small areas of RE 12.8.17), Lamington NP (910 ha).

Extent Reserved: Low.

Special Ecological Values: Habitat for rare and threatened flora species including *Callitris baileyi*.

Comments: Most extensive occurrences are on basalt in southern part of bioregion.

Estimated extent: 80% remains of a preclearing area of about 28 400 ha

Conservation Status: No concern at present

Regional Ecosystem: 12.8.17

Vegetation Type: 8d

Nat CAM Status: 5

Vegetation Type 8d: very tall woodland/open woodland of *Eucalyptus crebra, E. melanophloia.* This community tends to occur on crests and ridges with basalt flows or residual basalt capping. Weed invasion is prevalent, in particular *Lantana camara.*

Supplementary Description: Sparshott et al. (1997): G32, G41 (in part)

Description: *Eucalyptus crebra*, *E. melanophloia* +- *E. erythrophloia*, *Corymbia tessellaris*, *C. clarksoniana*, *E. tereticornis*, *E. melliodora* grassy woodland on Cainozoic igneous rocks, especially basalt.

Provinces: 1, 2, 5, 6, 10.

Protected Areas: Main Range NP (1530 ha); small areas in protected areas <1000 ha.

Extent Reserved: Low

Estimated extent: About 30% remains of a preclearing area of 90 000 ha.

Conservation Status: Of concern.

Regional Ecosystem: 12.8.19

Vegetation Type: **8j**

Nat CAM Status: 1

Vegetation Type 8j: mid-high woodland/open woodland (usually associated with steep exposed rock surfaces) of a heterogeneous mix of trees (stunted shrubs, forbs and grasses). Tree species include *Eucalyptus teteticornis, E. melliodora, E. biturbinata and E. eugenioides.* These areas provide significant habitat for the Brush-tailed rock-wallaby *Petrogale penicillata*

Supplementary Description: Sparshott et al. (1997): J24, J25

Description: Montane heath and rock pavement with scattered shrubs or open woodland on Cainozoic igneous rocks especially rhyolite and trachyte.

Provinces: 1,4.

Protected Areas: Lamington NP (20 ha), Main Range NP (550 ha), Mount Barney NP (1260 ha), Springbrook NP (10 ha); also represented in protected areas <1000 ha

Extent Reserved: High

Special Ecological Values: Habitat for rare and threatened flora species *including Acacia saxicola, A. melanoxylon*, *Allocasuarina emuina*, *A. thalassoscopica*, *Arundinella grevillensis*, *A. montana*, *Banksia conferta var. conferta*, *Callitris monticola*, *Calochilus gracillimus*, *Comesperma breviflorum*, *C. esulifolium*, *Coopernookia scabridiuscula*, *Dodonaea rupicola*, *Doryanthes palmeri*, *Eucalyptus approximans*, *E. kabiana*, *Gahnia insignis*, *Gonocarpus effusus*, *Grevillea linsmithii*, *Helichrysum lindsayanum*, *Kunzea flavescens*, *Leptospermum luehmannii*, *L. oreophilum*, *Leucopogon cicatricatus*, *L. rupicola*, *Phebalium elatius subsp. beckleri*, *Plectranthus torrenticola*, *Pomaderris notata*, *Pultenaea whiteana*, *Thelionema grande*, *Westringia blakeana*, *W. rupicola*, *W. grandifolia*, *W.* sericea and Zieria granulata var. adenomata. Also contains many other species with restricted or disjunct distributions.

Comments: Mapped area includes bare rock pavement. Montane heaths exhibit a high level of species endemism. Frequent fire favours fire-tolerant species at the expense of fire-sensitive species. Often too small to map at 1:100 000 scale.

Estimated extent: 90% remains of a total area of about 3200 ha (naturally restricted type).

Conservation Status: No concern at present

Regional Ecosystem: 12.8.21

Vegetation Type: **8m**

Nat CAM Status: 10

Vegetation Type 8m: very tall/tall/mid-high closed forest/vine thicket of *Flindersia australis, Vitex lignumvitae, Flindersia collina and Ficus obliqua/platypodia/virens.* This community occurs on olivine basalt scree slopes

Supplementary Description: Sparshott et al. (1997): G7 (in part)

Description: Low microphyll rainforest and semi-evergreen vine thicket +- *Araucaria cunninghamii* on Cainozoic igneous rocks, especially basalt and lateritised basalt. Characteristic species include *Brachychiton rupestris*, *Flindersia collina*, *F. australis*, *Alectryon diversifolius*, *A. subdentatus*, *Elattostachys xylocarpa*, *Erythroxylum australe*, *Canthium buxifolium*, *Diospyros geminata*, *Planchonella cotinifolia*, *Croton insularis*, *Briedelia exaltata* and *Bursaria incana*. *Melaleuca bracteata* is often present along watercourses.

Provinces: 2,6.

Protected Areas: Bunya Mountains NP (920 ha on margins of Brigalow Belt bioregion); also represented in protected areas <1000 ha.

Extent Reserved: Low.

Special Ecological Values: Habitat for rare and threatened flora species including *Callitris baileyi* and *Cryptocarya floydii*

Comments: RE 12.8.21 confined to south of bioregion. Remnants require intensive management because of invasion by weeds and fire damage on margins. Characteristic localities for the RE are on basalts in Lockyer Valley and Bunya Mountains.

Estimated extent: 11% remains of a preclearing area of about 36 500 ha

Conservation Status: Of concern

Regional Ecosystem: 12.9/10.7

Vegetation Type: 9h

Nat CAM Status: 9

Supplementary Description: Sparshott et al. (1997): I13 (in part)

Description: Eucalyptus crebra, E. tereticornis +- Corymbia tessellaris, Angophora spp., E. melanophloia woodland on Cainozoic to Proterozoic sediments.

Provinces: 2, 5, 6.

Protected Areas: Small areas in Tarong NP and Crows Nest NP.

Extent Reserved: Low.

Comments: Extensively cleared for pasture.

Estimated extent: 17% remains of a preclearing area of about 200 000 ha.

Conservation Status: Of concern

Cleared

Vegetation Type: **C**

Vegetation Type C: (Clearing, non intensive farming, grazing paddocks). Areas of Blackfellow Creek valley have been cleared in the past for grazing purposes. Weed species associated with land clearing have invaded the understorey, including *Lantana camara.*

Vegetation Type: **R**

Regrowth. R: (Regrowth with exotic weed understorey. There is a possibility that within 15 to 20 years, with appropriate management regimes (no overgrazing, no high frequency fires and with weed control) that some of the areas classified as regrowth may recover sufficiently to be reclassified as remnant vegetation.