Worked example: Beaudesert subdivision offset

Method: Guide to determining terrestrial habitat quality v1.3 (DES 2020); BioCondition Assessment Manual v2.2 (Eyre et al. 2015); BioCondition benchmarks v3.6 (2025-08, Queensland Herbarium, CC BY 4.0).

Client	Example Developments Pty Ltd
Reference	EX-2026-014
Assessor	A. Ecologist, Example Environmental
Qualifications and experience	BSc (Ecology), 12 years of vegetation assessment in South East Queensland; BioCondition training with the Queensland Herbarium (2019).

Illustrative data only. Field values were generated at set fractions of the published benchmarks so every calculation can be checked by hand.

SUMMARY

Site	Role	Matter area	Method	Area (ha)	Habitat quality (site-based)	Species habitat	Landscape score
Impact site: Lot 12 SP123456	impact	RE 12.3.3 matter area	Chapter 1: Regional ecosystems	5.80	8.01		not entered
Impact site: Lot 12 SP123456	impact	Greater glider habitat	Chapter 2: Terrestrial fauna habitat	3.50	7.72	6.35	not entered
Offset site: Lot 3 RP765432	offset	RE 12.3.3 offset matter area	Chapter 1: Regional ecosystems	14.00	4.86		15 / 20
Offset site: Lot 3 RP765432	offset	Koala habitat matter area	Chapter 3: Koala habitat in South East Queensland	n/a	n/a		15 / 20

IMPACT SITE: LOT 12 SP123456 (IMPACT SITE)

Rural residential lot near Beaudesert, Scenic Rim. Proposed subdivision clears 5.8 ha of remnant and regrowth vegetation.

IMPACT SITE: LOT 12 SP123456: RE 12.3.3 MATTER AREA

Prescribed environmental matter	Regional ecosystem 12.3.3 (endangered), category B
Method	Chapter 1: Regional ecosystems
Site role	impact
Matter area size	5.80 ha

Matter area delineated from RE v13.1 mapping and confirmed on site. Two condition states present.

Assessment units (Guide 1.4.1)

Unit	Regional ecosystem / benchmark	Broad condition state	Area (ha)	Sampling sites	Suggested	Unit BC	Area-weighted
AU1 remnant	12.3.3 Eucalyptus tereticornis woodland. Eucalyptus crebra and E. moluccana are sometimes present...	Remnant	4.20	2	2	0.9094	0.6585

AU2 high-value regrowth	12.3.3 Eucalyptus tereticornis woodland. Eucalyptus crebra and E. moluccana are sometimes present...	High-value regrowth	1.60	2	2	0.5156	0.1422

Sampling sites (Guide 1.4.2)

Unit	Site	Date	Latitude	Longitude	Bearing	Notes
AU1 remnant	AU1 site 1	2026-05-12	-27.9861	152.9954	40	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU1 remnant	AU1 site 2	2026-05-12	-27.9874	152.9971	35	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU2 high-value regrowth	AU2 site 1	2026-05-13	-27.9889	152.9938	120	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU2 high-value regrowth	AU2 site 2	2026-05-13	-27.9895	152.9949	115	Photos N, S, E, W at 50 m point; quadrat spot photos.

Site-based attribute scores (Guide 1.4.3; Manual Section 5)

AU1 remnant (12.3.3, maximum site score 80)

Attribute	Benchmark	AU1 site 1			AU1 site 2		
		Value	% of BM	Score	Value	% of BM	Score
Number of large native trees	14	16.0	114.3%	15.0	12.0	85.7%	10.0
Tree canopy height	canopy 25, subcanopy 9	c:26.1 s:8.3	c:104 s:92	5.00	c:25.7 s:9.1	c:103 s:101	5.00
Recruitment of dominant canopy species	100	100.0	100.0%	5.0	100.0	100.0%	5.0
Tree canopy cover	canopy 40, subcanopy 8	c:33.3 s:7.9	c:83 s:99	5.00	c:31.9 s:5.6	c:80 s:70	5.00
Native shrub layer cover	4	4.2	105.0%	5.0	4.1	102.5%	5.0
Coarse woody debris	588	438.0	74.5%	5.0	361.0	61.4%	5.0
Native species richness: trees	5	5.0	100.0%	5.0	5.0	100.0%	5.0
Native species richness: shrubs	5	5.0	100.0%	5.0	4.0	80.0%	2.5
Native species richness: grasses	9	8.0	88.9%	2.5	9.0	100.0%	5.0
Native species richness: forbs and other	25	23.0	92.0%	5.0	19.0	76.0%	2.5
Non-native plant cover	0	2.2	abs.	10.0	2.9	abs.	10.0
Native perennial grass cover	52	53.0	101.9%	5.0	42.2	81.2%	3.0
Organic litter cover	20	20.8	104.0%	5.0	16.2	81.0%	5.0
Total site score	**80**			**77.50 / 80**			**68.00 / 80**
BioCondition score (0 to 1)				**0.9688**			**0.8500**

AU2 high-value regrowth (12.3.3, maximum site score 80)

Attribute	Benchmark	AU2 site 1			AU2 site 2		
		Value	% of BM	Score	Value	% of BM	Score
Number of large native trees	14	6.0	42.9%	5.0	6.0	42.9%	5.0
Tree canopy height	canopy 25, subcanopy 9	c:16.4 s:5.5	c:66 s:61	3.00	c:16.3 s:5.9	c:65 s:66	3.00
Recruitment of dominant canopy species	100	66.7	66.7%	3.0	33.3	33.3%	3.0
Tree canopy cover	canopy 40, subcanopy 8	c:16.1 s:4.0	c:40 s:50	3.50	c:20.1 s:4.0	c:50 s:50	5.00
Native shrub layer cover	4	1.8	45.0%	3.0	2.0	50.0%	5.0
Coarse woody debris	588	267.0	45.4%	2.0	188.0	32.0%	2.0
Native species richness: trees	5	2.0	40.0%	2.5	2.0	40.0%	2.5
Native species richness: shrubs	5	3.0	60.0%	2.5	2.0	40.0%	2.5

Native species richness: grasses	9	5.0	55.6%	2.5	4.0	44.4%	2.5
Native species richness: forbs and other	25	11.0	44.0%	2.5	13.0	52.0%	2.5
Non-native plant cover	0	15.9	abs.	5.0	26.9	abs.	3.0
Native perennial grass cover	52	30.0	57.7%	3.0	23.8	45.8%	1.0
Organic litter cover	20	11.0	55.0%	5.0	9.6	48.0%	3.0
Total site score	**80**			**42.50 / 80**			**40.00 / 80**
BioCondition score (0 to 1)				**0.5313**			**0.5000**

Habitat quality calculation (Guide 1.4.4)

Assessment unit	Mean of sampling sites (BC)	Area (ha)	Share of matter area	Area-weighted BC
AU1 remnant	0.9094	4.20	72.4%	0.6585
AU2 high-value regrowth	0.5156	1.60	27.6%	0.1422
Matter area BioCondition score		**5.80**		**0.8008**
Habitat quality score (out of 10)				**8.01**

IMPACT SITE: LOT 12 SP123456: GREATER GLIDER HABITAT

Prescribed environmental matter	Habitat for greater glider (Petauroides volans), endangered
Method	Chapter 2: Terrestrial fauna habitat
Site role	impact
Matter area size	3.50 ha

Assessment units (Guide 1.4.1)

Unit	Regional ecosystem / benchmark	Broad condition state	Area (ha)	Sampling sites	Suggested	Unit BC	Area-weighted
AU1 remnant	12.9-10.2 Corymbia citriodora subsp. variegata open forest or woodland usually with Eucalyptus crebr...	Remnant	3.50	2	2	0.7719	0.7719

Sampling sites (Guide 1.4.2)

Unit	Site	Date	Latitude	Longitude	Bearing	Notes
AU1 remnant	GG site 1	2026-05-14	-27.9902	153.0011	60	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU1 remnant	GG site 2	2026-05-14	-27.9917	153.0026	65	Photos N, S, E, W at 50 m point; quadrat spot photos.

Site-based attribute scores (Guide 1.4.3; Manual Section 5)

AU1 remnant (12.9-10.2, maximum site score 80)

Attribute	Benchmark	GG site 1			GG site 2		
		Value	% of BM	Score	Value	% of BM	Score
Number of large native trees	38	40.0	105.3%	15.0	34.0	89.5%	10.0
Tree canopy height	canopy 21, subcanopy 12	c:22.8 s:11.3	c:109 s:94	5.00	c:19.1 s:11.4	c:91 s:95	5.00
Recruitment of dominant canopy species	100	100.0	100.0%	5.0	66.7	66.7%	3.0
Tree canopy cover	canopy 64, subcanopy 20	c:62.4 s:14.7	c:98 s:74	5.00	c:51.2 s:17.4	c:80 s:87	5.00
Native shrub layer cover	6	5.1	85.0%	5.0	5.0	83.3%	5.0
Coarse woody debris	506	335.0	66.2%	5.0	405.0	80.0%	5.0
Native species richness: trees	6	5.0	83.3%	2.5	5.0	83.3%	2.5

Native species richness: shrubs	7	6.0	85.7%	2.5	6.0	85.7%	2.5
Native species richness: grasses	7	6.0	85.7%	2.5	6.0	85.7%	2.5
Native species richness: forbs and other	13	14.0	107.7%	5.0	11.0	84.6%	2.5
Non-native plant cover	0	5.9	abs.	5.0	6.4	abs.	5.0
Native perennial grass cover	21	18.6	88.6%	3.0	19.0	90.5%	5.0
Organic litter cover	48	47.6	99.2%	5.0	47.2	98.3%	5.0
Total site score	**80**			**65.50 / 80**			**58.00 / 80**
BioCondition score (0 to 1)				**0.8188**			**0.7250**

Habitat quality calculation (Guide 1.4.4)

Assessment unit	Mean of sampling sites (BC)	Area (ha)	Share of matter area	Area-weighted BC
AU1 remnant	0.7719	3.50	100.0%	0.7719
Matter area BioCondition score		**3.50**		**0.7719**
Habitat quality score (out of 10)				**7.72**

Species habitat attributes (Guide 2.4.4)

Species: Greater glider (Petauroides volans)

Timing of assessment: May 2026, after the wet season and within the recommended March to June window; nocturnal spotlighting on three nights.

Literature review summary

Conservation Advice (2022), Recovery Plan, SPRAT profile, WildNet records within 5 km, essential habitat factors from the Vegetation Management property report. Data deficiency: no local den-tree density data; assumed from regional studies.

Quality and availability of food and habitat required for foraging

Indicator	Method and rating scale	Rating (0-5)	Score (0-25)	Justification
Preferred feed trees (E. tereticornis, E. microcorys, C. citriodora) per ha	Count in 100 x 50 m plots; 0 none, 5 above 40 per ha	4	20	Mean 34 preferred feed trees per ha across plots.
Canopy connectivity for foraging movement	Line intercept canopy cover; 0 under 10%, 5 above 40%	4	20	Canopy cover 36 to 41%.
Attribute score (mean of indicators)			**20.00**	

Quality and availability of habitat required for shelter and breeding

Indicator	Method and rating scale	Rating (0-5)	Score (0-25)	Justification
Hollow-bearing trees per ha (hollows over 10 cm)	Count in plots; 0 none, 5 above 8 per ha	3	15	5 to 6 hollow-bearing trees per ha.
Large trees over 50 cm DBH per ha	BioCondition large tree count; 0 none, 5 at benchmark	3	15	About 60% of benchmark.
Attribute score (mean of indicators)			**15.00**	

Quality and availability of habitat required for mobility

Indicator	Method and rating scale	Rating (0-5)	Score (0-25)	Justification
Gap distance between canopy trees	Transect gaps; 0 gaps over 50 m, 5 gaps under 20 m	4	20	Most gaps under 25 m.
Connection to adjoining habitat patch	GIS; 0 isolated, 5 continuous	5	25	Continuous with 180 ha remnant to the east.
Attribute score (mean of indicators)			**22.50**	

Absence of threats (Guide 2.4.4.4, Table 2.4)

Threat factor	Scope	Severity	Score	Justification
Clearing for adjoining development	Medium (40-59%)	High (40-79%)	6	Approved subdivision on the western boundary.
Inappropriate fire regime	High (60-79%)	Low (6-10%)	8	No fire for 15 years; fuel loads moderate.
Barbed wire fencing	Low (20-39%)	Low (6-10%)	16	Two boundary fences with barbed top strand.
Absence of threats score (lowest threat factor)			**6**	

Species habitat score (out of 100)	**63.50**
Species habitat score (out of 10)	**6.35**

OFFSET SITE: LOT 3 RP765432 (OFFSET SITE)

Grazing property south of Beaudesert with 14 ha of remnant and regrowth 12.3.3 along the creek flat.

Landscape-scale attributes (Guide Section 1.2.1; Manual Section 6)

Subregion type	fragmented
GIS tools used	ArcGIS Pro 3.5; Regional Ecosystem v13.1 remnant mapping; VMA regrowth v6; Biodiversity and vegetation offsets special features v3
Maximum landscape score	20
Ecological corridor	shares boundary

Attribute	Measured	Score	Max
Size of patch	220 ha (remnant plus regrowth)	7	10
Context (1 km radius)	45 % remnant	4	5
Connectivity	65 % of perimeter adjoining remnant	4	5
Combined landscape-scale score		**15**	**20**

Justification of offset site selection

The site adjoins a 180 ha remnant patch that forms part of a subregional riparian corridor. Patch size, context and connectivity all score in the upper half of their ranges, and the site is within the known range of the endangered RE in the same subregion as the impact.

Risks to achieving a conservation outcome

Buffel grass and setaria dominate the ground layer of AU2; cattle access to the creek flat; occasional flooding. Managed through fencing, staged weed control and a five-year revegetation program.

OFFSET SITE: LOT 3 RP765432: RE 12.3.3 OFFSET MATTER AREA

Prescribed environmental matter	Regional ecosystem 12.3.3 (endangered), category B and non-remnant
Method	Chapter 1: Regional ecosystems
Site role	offset
Matter area size	14.00 ha

Advanced offset candidate. AU2 is pre-clearing RE 12.3.3 cleared in the 1990s, now young regrowth with a buffel and setaria ground layer.

Assessment units (Guide 1.4.1)

Unit	Regional ecosystem / benchmark	Broad condition state	Area (ha)	Sampling sites	Suggested	Unit BC	Area-weighted

AU1 remnant (weedy)	12.3.3 Eucalyptus tereticornis woodland. Eucalyptus crebra and E. moluccana are sometimes present...	Remnant	6.00	3	2	0.6917	0.2964
AU1a	discrete polygon		4.10				
AU1b	discrete polygon		1.90				
AU2 non-remnant (young regrowth)	12.3.3 Eucalyptus tereticornis woodland. Eucalyptus crebra and E. moluccana are sometimes present...	Non-remnant	8.00	3	2	0.3313	0.1893

Sampling sites (Guide 1.4.2)

Unit	Site	Date	Latitude	Longitude	Bearing	Notes
AU1 remnant (weedy)	OS AU1 site 1	2026-06-02	-28.0412	152.8823	20	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU1 remnant (weedy)	OS AU1 site 2	2026-06-02	-28.0425	152.8841	25	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU1 remnant (weedy)	OS AU1 site 3	2026-06-03	-28.0437	152.8819	30	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU2 non-remnant (young regrowth)	OS AU2 site 1	2026-06-03	-28.0451	152.8867	90	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU2 non-remnant (young regrowth)	OS AU2 site 2	2026-06-03	-28.0463	152.8882	95	Photos N, S, E, W at 50 m point; quadrat spot photos.
AU2 non-remnant (young regrowth)	OS AU2 site 3	2026-06-04	-28.047	152.8858	85	Photos N, S, E, W at 50 m point; quadrat spot photos.

Site-based attribute scores (Guide 1.4.3; Manual Section 5)

AU1 remnant (weedy) (12.3.3, maximum site score 80)

Attribute	Benchmark	OS AU1 site 1			OS AU1 site 2			OS AU1 site 3		
		Value	% of BM	Score	Value	% of BM	Score	Value	% of BM	Score
Number of large native trees	14	10.0	71.4%	10.0	10.0	71.4%	10.0	8.0	57.1%	10.0
Tree canopy height	canopy 25, subcanopy 9	c:19.9 s:7.2	c:80 s:80	5.00	c:19.2 s:7.2	c:77 s:80	5.00	c:19.0 s:7.4	c:76 s:82	5.00
Recruitment of dominant canopy species	100	66.7	66.7%	3.0	66.7	66.7%	3.0	66.7	66.7%	3.0
Tree canopy cover	canopy 40, subcanopy 8	c:22.5 s:4.4	c:56 s:55	5.00	c:20.5 s:4.8	c:51 s:60	5.00	c:29.8 s:5.0	c:75 s:63	5.00
Native shrub layer cover	4	2.6	65.0%	5.0	2.7	67.5%	5.0	2.4	60.0%	5.0
Coarse woody debris	588	392.0	66.7%	5.0	424.0	72.1%	5.0	458.0	77.9%	5.0
Native species richness: trees	5	3.0	60.0%	2.5	3.0	60.0%	2.5	3.0	60.0%	2.5
Native species richness: shrubs	5	3.0	60.0%	2.5	2.0	40.0%	2.5	3.0	60.0%	2.5

Native species richness: grasses	9	5.0	55.6%	2.5	6.0	66.7%	2.5	6.0	66.7%	2.5
Native species richness: forbs and other	25	16.0	64.0%	2.5	16.0	64.0%	2.5	19.0	76.0%	2.5
Non-native plant cover	0	38.1	abs.	3.0	20.5	abs.	5.0	18.5	abs.	5.0
Native perennial grass cover	52	35.2	67.7%	3.0	29.8	57.3%	3.0	31.8	61.2%	3.0
Organic litter cover	20	10.8	54.0%	5.0	14.0	70.0%	5.0	17.6	88.0%	5.0
Total site score	**80**			**54.00 / 80**			**56.00 / 80**			**56.00 / 80**
BioCondition score (0 to 1)				**0.6750**			**0.7000**			**0.7000**

AU2 non-remnant (young regrowth) (12.3.3, maximum site score 80)

Attribute	Benchmark	OS AU2 site 1			OS AU2 site 2			OS AU2 site 3		
		Value	% of BM	Score	Value	% of BM	Score	Value	% of BM	Score
Number of large native trees	14	4.0	28.6%	5.0	4.0	28.6%	5.0	4.0	28.6%	5.0
Tree canopy height	canopy 25, subcanopy 9	c:10.8 s:3.6	c:43 s:40	3.00	c:9.2 s:3.2	c:37 s:36	3.00	c:10.9 s:4.4	c:44 s:49	3.00
Recruitment of dominant canopy species	100	33.3	33.3%	3.0	33.3	33.3%	3.0	33.3	33.3%	3.0
Tree canopy cover	canopy 40, subcanopy 8	c:13.0 s:2.1	c:33 s:26	2.00	c:9.7 s:2.0	c:24 s:25	2.00	c:13.7 s:2.1	c:34 s:26	2.00
Native shrub layer cover	4	1.3	32.5%	3.0	0.9	22.5%	3.0	1.4	35.0%	3.0
Coarse woody debris	588	205.0	34.9%	2.0	111.0	18.9%	2.0	166.0	28.2%	2.0
Native species richness: trees	5	1.0	20.0%	0.0	1.0	20.0%	0.0	1.0	20.0%	0.0
Native species richness: shrubs	5	1.0	20.0%	0.0	1.0	20.0%	0.0	1.0	20.0%	0.0
Native species richness: grasses	9	2.0	22.2%	0.0	2.0	22.2%	0.0	3.0	33.3%	2.5
Native species richness: forbs and other	25	8.0	32.0%	2.5	7.0	28.0%	2.5	6.0	24.0%	0.0
Non-native plant cover	0	56.5	abs.	0.0	46.6	abs.	3.0	47.1	abs.	3.0

Native perennial grass cover	52	13.8	26.5%	1.0	13.0	25.0%	1.0	16.8	32.3%	1.0
Organic litter cover	20	7.6	38.0%	3.0	7.2	36.0%	3.0	7.2	36.0%	3.0
Total site score	**80**			**24.50 / 80**			**27.50 / 80**			**27.50 / 80**
BioCondition score (0 to 1)				**0.3063**			**0.3438**			**0.3438**

Habitat quality calculation (Guide 1.4.4)

Assessment unit	Mean of sampling sites (BC)	Area (ha)	Share of matter area	Area-weighted BC
AU1 remnant (weedy)	0.6917	6.00	42.9%	0.2964
AU2 non-remnant (young regrowth)	0.3313	8.00	57.1%	0.1893
Matter area BioCondition score		**14.00**		**0.4858**
Habitat quality score (out of 10)				**4.86**

OFFSET SITE: LOT 3 RP765432: KOALA HABITAT MATTER AREA

Prescribed environmental matter	Koala habitat area (Koala Conservation Plan map)
Method	Chapter 3: Koala habitat in South East Queensland
Site role	offset
Matter area size	14.00 ha (from koala assessment units)

Koala habitat trees (Guide Chapter 3)

Non-juvenile koala habitat trees impacted	96
Koala habitat trees required to be established (3:1)	288

Stratified sampling approach (3.4.1)

Assessment unit	Area (ha)	Sampling sites	Mean count per site	Trees per ha	Trees in unit
AU1 remnant	6.00	3	30.67	61.3	368
AU2 young regrowth	8.00	3	4.33	8.7	69
Non-juvenile koala habitat trees in the matter area					**437**

Average stem density approach (3.4.2)

RE polygon	RE	Area (ha)	Stem density /ha	Large non-euc /ha	KHT /ha	Theoretical	Existing trees	Can be established
P1 12.3.3	12.3.3	8.00	270	0	270.0	2160	210	1950
Totals						**2160**		**1950**

Capacity 1950 against 288 required: sufficient.

CONSERVATION OUTCOME (GUIDE 1.3 AND 2.3)

Offset matter area	Offset site: Lot 3 RP765432: RE 12.3.3 offset matter area
Linked impact matter area	Impact site: Lot 12 SP123456: RE 12.3.3 matter area

Impact HQ (before impact)	Offset baseline HQ	Projected HQ at 20 years	Gain	Required projected	Result
8.01	4.86	7.20	2.34	9.01	Criteria not met

A proposed gain of more than 2 points must be detailed and justified (Guide p. 10).

Multiplier	4
Impact matter area	5.80 ha
Offset area at multiplier	23.20 ha

Offset area at multiplier is a planning figure only: impact matter area times the Policy multiplier. A multiplier below 4 requires the administering agency's agreement and evidence (Guide pp. 8 and 21); the government's Land-based Offsets Multiplier Calculator is the tool for that argument and is not replicated here.

SUBMISSION READINESS

Every item the engine can check against the Guide's steps is in place.

SUBMISSION CHECKLIST (GUIDE APPENDICES 1 TO 3)

- Proposed multiplier stated and justified (and agency agreement if below 4)
- Evidence the offset site meets Offsets Policy section 2.3.1.6 characteristics
- Subregion identified as fragmented or intact; GIS tools stated; landscape-scale attribute scores and combined score; ecological corridor statement; justification and risks
- Conservation outcome statements, including justification for gains above 2 points or achieved scores of 9 or 10
- Spatial representation (map) of matter areas, assessment units and sampling sites; areas in hectares
- Zero-point coordinates and transect bearing for each sampling site
- Benchmark used, or reference site details where no benchmark exists; timing of field assessment justified
- Completed BioCondition field assessment sheets and photographs for each sampling site
- Percent of benchmark and score for each attribute at each sampling site (this report)
- Sampling site, assessment unit, area-weighted, matter area and out-of-10 scores (this report)
- Chapter 2 only: literature review, indicators, rating scales, threat factors and scores
- Chapter 3 only: tree counts, stem density sources and capacity calculations
- Evidence that the assessor is suitably qualified