

Field data sheets for *BioMetric* (Version 3.1)

Reference sites package

This set of data sheets includes:

- a reference site site value plot data sheet (up to 10 plots per reference site)
- a step point transect plot data sheet
- a Crown Separation Ratio transect tables plot data sheet
- · a disturbance attributes and history record plot data sheet
- a thinning (stem density) plot data sheet
- BioMetric plot work sheets
- BioMetric and Threatened Species Tool scattered tree plot work sheets.

Refer to the BioMetric Operational Manual for detailed data collection methodologies.

Published by:

Office of Environment and Heritage 59 Goulburn Street, Sydney NSW 2000 PO Box A290, Sydney South NSW 1232 Phone: (02) 9995 5000 (switchboard)

Phone: 131 555 (environment information and publications requests)

Phone: 1300 361 967 (national parks, climate change and energy efficiency information, and publications requests)

Fax: (02) 9995 5999

TTY users: phone 133 677, then ask for 131 555

Speak and listen users: phone 1300 555 727, then ask for 131 555

Email: <u>info@environment.nsw.gov.au</u> Website: www.environment.nsw.gov.au

Report pollution and environmental incidents

Environment Line: 131 555 (NSW only) or info@environment.nsw.gov.au

See also www.environment.nsw.gov.au

OEH 2013/0237

This version: June 2013

Reference site - site value plot data sheet



Start a new sheet for each reference site Refer to Appendix 5 of the BioMetric Operational Manual for reference site methods and tips Ref site ID (assigned by assessor): _____ CMA: ___ Recorder(s): Date: Vegetation formation (see Keith 2004*) Vegetation class (see Keith 2004*) Vegetation type (see BioMetric Operational Manual) Keith 2004, Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT, NSW Department of Environment and Conservation, Sydney. Dominant species per stratum Over-storey **Mid-storey Ground stratum** Plot 1 Lat. Long. Plot 2 Lat. Long. Plot 3 Lat. Long. Plot 4 Lat. Long. Plot 5 Lat. Long. Orientation Photo nos. Plot 6 Lat. Long. Plot 7 Lat. Long. Plot 8 Lat. Long. Plot 9 Lat. Long. Plot 10 Lat. Long. Orientation Photo nos. Disturbance attributes and history Record Severity, Frequency, Evidence and Age codes for each plot, e.g. L| Occ | Ob | R. Codes are: Severity codes: N = Nil (no evidence); L = Light; M = Moderate; S = Severe. Frequency codes: A = Absent (i.e. n/a); Ra = Rare; Occ = Occasional; F = Frequent. Evidence codes: O = Observation; W = Word of mouth (e.g. landholder). Age codes: On = Ongoing; R = Recent (< 3 years); NR = Not recent; O = Old. Plot no. 10 Canopy dieback I = I = IGrazing and trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection & tidying up Dense regrowth post-I I I $| \cdot |$ I + I $| \cdot |$ | | | $| \cdot |$ $| \cdot |$ I + II I Idisturbance Fertiliser addition I - I - IFire damage Feral herbivores I - I - IWeeds Other – indicate type: I + II = I1 11 I I I20 m x 20 m plot Refer to methods in Appendix 4 of BioMetric Operational Manual. Step Point Transect or Crown Separation Ratio (CSR) methods can also be used to assess % Foliage Cover (see tables on next page). CSR method is preferred for over-storey and mid-storey strata. Number of native plant species Native mid-storey cover (%) Native ground stratum cover (%) - grasses Native ground stratum cover (%) - shrubs Native ground stratum cover (%) Larger sampling area (20 m x 50 m plot) Refer to methods in Appendix 4 of BioMetric Operational Manual. Alternative methods on next page. No. of trees with hollows - use alternative method if appropriate Total length of fallen logs (m)

Calculator, ad	cessible via the NVAT	Mapper,	for ca	alcula	tions.)										
	Average crown														
	diameter (m):														
Native over- storey cover	Average foliage														
(%)	cover (%):														
` ,	No. of trees:														
	Sample area (ha):														
No. of trees	Sample area (ha):														
with hollows	No. of trees with														
	hollows:														
	s of plot modification typ					La ara ara	a ada a ada sa								
	arvesting - indicate whe and trampling - indicate								lor over	ahundai	at nativo	horbiyo	roo		
	rbance - indicate wheth							JIES aliu	or over	-abuiluai	it mative	HEIDIVO	165		
	age – indicate if high fre							ted							
	nals – indicate species								abundar	nce and i	nvasiver	ess of e	each spe	ecies.	
Notes:	·														
Modi	ication type	Plot no.							D	etails					
			_												
			_												
01															
Step poir	t transect tally t	abies	For	metho	dology,	refer to	Append	ix 4 of <i>Bi</i>	oMetric	Operation	nal Man	ual			
Plot no	Transect no(s)			_				No	. hits (ta	ally)				I	Percent
	-storey cover (%)														
	storey cover (%)														
	ind stratum cover (%) -														
	ind stratum cover (%) -														
	ind stratum cover (%) -	- otner													
Exotic plan	(%) – optional														
	(%) – optional														
	d cover (%) – optional														
	cover (%) optional														
Plot no.	Transect no(s).							No	. hits (ta	allv)					Percent
	-storey cover (%)									- J,					
	storey cover (%)														
Native grou	ind stratum cover (%) -	- grasses													
	ınd stratum cover (%) -														
Native grou	ind stratum cover (%) -	- other													
Exotic plan															
Litter cover	(%) – optional														
Rock cover	(%) – optional														
	d cover (%) – optional														
	cover (%) optional														
Crown Se	eparation Ratio	transe	ct ta	able	S For r	nethod	ology, ref	er to App	endix 4	of BioM	letric Ope	erationa	l Manua	I. Recor	d stratum
(o/s, m/s, g/s(g), g/s(s) or g/s(o). Use	consiste	nt un	its wit	hin eacl	h plot, i	.e. m or 0	m. Use	cm for g	round st	ratum. C	ircle uni	ts used.		
Plot no.:	Stratum:	1		2	3	4	5	6	7	8	9	10	11	12	Mean
	Crown width (m or o	cm)													
	separation/Gap (m or o														
	e/Degree of openness ((%)													
Calculations:		ماغام الساء				_									
	nean Gap/mean Crown fover (CC) = 80.6/(1+C				m or cr	n									
	Cover = CC (%) x mear				ı0 –		% Enter	thic valu	ıe into F	RioMetric	for corre	oct etrati	ım withir	n annror	riate nlot
		1	ype (1				1	1	1	
Plot no.: _	Stratum:	1		2	3	4	5	6	7	8	9	10	11	12	Mean
	Crown width (m or o								-						
	separation/Gap (m or o		+					+							
Crown typ Calculations:	e/Degree of openness	(/0 /	l		<u> </u>	1									
	nean Gap/mean Crown	width =			m or cr	n									
	cover(CC) = 80.6/(1+C)				31										
	Cover = CC (%) x mear				0 =		%. Enter	this valu	ie into E	BioMetric	for corre	ct stratu	ım withir	n appror	riate plot.

Alternative (whole-of-zone) methods for zones containing scattered trees, such as sparsely wooded reference sites. Use Paddock Tree

Please fax or email completed sheets to: VIS Administrator, Office of Environment and Heritage. Fax (02) 9585 6466. Email: bionet@environment.nsw.gov.au. Thank you.

Step point transect plot data sheet



Start a new sheet for each zone (clearing or offset) or reference site

Plot type (circle one): Clearing / Offset / Ref	_		
CMA:	Recorder(s):	Date:	
Site location and description:			·
PVP request no. from PADACS:		Veg. zone no. from <i>NVAT Mapper</i> :	
Vegetation type (<i>BioMetric</i>):			
regetation type (2.e.e.e.re).			
Step point transect tally tables			
Refer to Appendix 4 of BioMetric Operat	tional Manual for methods.		
Only needs to be completed for the variatione.	ables that have not been m	neasured using an alternate method, e.g. pl	lots or whole of
Plot no Transect no(s)		No. hits (tally)	Percent
Native over-storey cover (%)	_	ivo. into (tany)	T Crociii
Native mid-storey cover (%)			
Native ground stratum cover (%) – grasses			
Native ground stratum cover (%) – shrubs			
Native ground stratum cover (%) – other			
Exotic plant cover (%)			
Litter cover (%) – optional			
Rock cover (%) – optional			
Bare ground cover (%) – optional			
Cryptogam cover (%) optional			
Plot no Transect no(s)	_	No. hits (tally)	Percent
Native over-storey cover (%)			
Native mid-storey cover (%)			
Native ground stratum cover (%) – grasses			
Native ground stratum cover (%) – shrubs			
Native ground stratum cover (%) – other			
Exotic plant cover (%)			
Litter cover (%) – optional			
Rock cover (%) – optional			
Bare ground cover (%) – optional			
Cryptogam cover (%) optional			
Plot no Transect no(s)		No. hits (tally)	Percent
Native over-storey cover (%)	_		
Native mid-storey cover (%)			
Native ground stratum cover (%) – grasses			
Native ground stratum cover (%) – shrubs			
Native ground stratum cover (%) – other			
Exotic plant cover (%)			
Litter cover (%) – optional			
Rock cover (%) – optional			
Bare ground cover (%) – optional			
Cryptogam cover (%) — optional			
		No hito (tally)	Doroont
Plot no Transect no(s)	_	No. hits (tally)	Percent
Native over-storey cover (%) Native mid-storey cover (%)			
Native ground stratum cover (%) – grasses			
Native ground stratum cover (%) – grasses			
` '			
Native ground stratum cover (%) – other			
Exotic plant cover (%)			
Litter cover (%) – optional			
Rock cover (%) – optional			
Bare ground cover (%) – optional			
Cryptogam cover (%) optional			

Plot no Transect no(s)	No. hits (tally)	Percent
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground stratum cover (%) – grasses		
Native ground stratum cover (%) – shrubs		
Native ground stratum cover (%) – other		
Exotic plant cover (%)		
Litter cover (%) – optional		
Rock cover (%) – optional		
Bare ground cover (%) – optional		
Cryptogam cover (%) optional		
Plot no Transect no(s)	No. hits (tally)	Percent
Native over-storey cover (%)	` "	
Native mid-storey cover (%)		
Native ground stratum cover (%) – grasses		
Native ground stratum cover (%) – shrubs		
Native ground stratum cover (%) – other		
Exotic plant cover (%)		
Litter cover (%) – optional		
Rock cover (%) – optional Bare ground cover (%) – optional		
Cryptogam cover (%) — optional		
	NI - 1.94 - 16 - 11.3	D
Plot no Transect no(s)	No. hits (tally)	Percent
Native over-storey cover (%) Native mid-storey cover (%)		
Native mid-storey cover (%) Native ground stratum cover (%) – grasses		
Native ground stratum cover (%) – shrubs		
Native ground stratum cover (%) – other		
Exotic plant cover (%)		
Litter cover (%) – optional		
Rock cover (%) – optional		
Bare ground cover (%) – optional		
Cryptogam cover (%) optional		
Plot no Transect no(s)	No. hits (tally)	Percent
Native over-storey cover (%)		
Native mid-storey cover (%)		
Native ground stratum cover (%) – grasses		
Native ground stratum cover (%) – shrubs		
Native ground stratum cover (%) – other		
· ,		
Exotic plant cover (%)		
Exotic plant cover (%)		
Exotic plant cover (%) Litter cover (%) – optional		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s)	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) — optional Plot no Transect no(s). Native over-storey cover (%)	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no. Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%)	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no. Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional	No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s) Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s)	No. hits (tally) No. hits (tally)	Percent
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%)		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) –- optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) –- optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) –- optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native mid-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) –- optional Cryptogam cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground cover (%) –- optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%)		
Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – grasses Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional Rock cover (%) – optional Bare ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – shrubs Native ground cover (%) – optional Cryptogam cover (%) – optional Plot no Transect no(s). Native over-storey cover (%) Native ground stratum cover (%) – shrubs Native ground stratum cover (%) – other Exotic plant cover (%) Litter cover (%) – optional		

Crown Separation Ratio transect tables plot data sheet



Start a new sheet for each zone (cl	earing o	or offset	t) or refe	erence s	site								
Plot type (circle one): Clearing / Of	ffset / R	eferenc	e Link	ked zon	es (list	type(s)	and no	s.):					
CMA:			Record	der(s): _					_ Date	9 :			
Site location and description:													
PVP request no. from PADACS:						Veg. zo	one no.	from A	IVAT M	lapper.			
Vegetation type (BioMetric):													
Crown Separation Ratio For methodology, refer to Appendix consistent units within each plot, i.e.	4 of <i>B</i>	ioMetric	: Operat						/s, g/s(g), g/s(s	s) or g/s	(o). Us	e
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													1
Crown type/Degree of openness (%)													1
 Calculations: CSR = mean Gap/mean Crown wi Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C)2 =	%	-		. Enter	this valu	e into <i>Bi</i>	oMetric f	or corre	ct stratur	n within	appropri	iate plot
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													1
Crown type/Degree of openness (%)													+
 CSR = mean Gap/mean Crown wi Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C) ² =	%			. Enter	this valu	e into <i>Bi</i>	o <i>Metric</i> f	or corre	ct stratur	n within	appropr	iate plot
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown wi Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C) ² =	%			. Enter	this valu	e into <i>Bi</i>	o <i>Metric</i> f	or corre	ct stratur	n within :	appropri	iate plot
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown wi Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C)2 =	%			. Enter	this valu	e into <i>Bi</i>	o <i>Metric</i> f	or corre	ct stratur	n within :	appropri	iate plot
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)	- '-			-		—	'	"	-	10	- ' '	14	ivicali
,			1										+
Crown type/Degree of enemges (%)	-				-								+
Crown type/Degree of openness (%)	<u></u>	<u> </u>			<u> </u>	<u> </u>	<u> </u>		<u> </u>				
Calculations: CSR = mean Gap/mean Crown wi Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C) ² =	%			. Enter	this valu	e into <i>Bi</i>	o <i>Metric</i> f	or corre	ct stratur	n within :	appropri	iate plot

Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown w Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C	$(R)^2 = $	%			. Enter	:his valu	e into <i>Bi</i> o	oMetric f	or corre	ct stratun	n within	appropri	ate plot.
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)		_											
Crown separation/Gap (m or cm)													1
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown w Crown Cover (CC) = 80.6/(1+CSR Foliage Cover = CC (%) x mean C	$(R)^2 = \underline{\hspace{1cm}}$	%			. Enter	his valu	e into <i>Bi</i> o	oMetric f	or corre	ct stratun	n within	appropri	ate plot.
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)													
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)			1										
Crown separation/Gap (m or cm)													-
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown w Crown Cover (CC) = 80.6/(1+CSF Foliage Cover = CC (%) x mean C	R) ² =	%			. Enter	his valu	e into <i>Bio</i>	oMetric f	or corre	ct stratun	n within	appropri	ate plot.
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)			1										1
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Calculations CSR = mean Gap/mean Crown w Crown Cover (CC) = 80.6/(1+CSF Foliage Cover = CC (%) x mean C	$(R)^2 = $	%			. Enter	his valu	e into <i>Bi</i> o	oMetric f	or correc	ct stratun	n within	appropri	ate plot.
Plot no.: Stratum:	1	2	3	4	5	6	7	8	9	10	11	12	Mean
Crown width (m or cm)	-						<u> </u>					†	
Crown separation/Gap (m or cm)													
Crown type/Degree of openness (%)													
Calculations: CSR = mean Gap/mean Crown w Crown Cover (CC) = 80.6/(1+CSF	idth =		m or cm	า								1	1

Disturbance attributes and history record plot data sheet



Start a new sheet for each new offset proposal

PVP request no.	from PAD	ACS:				Date:				
CMA:						Recorder	(s):			
Disturbance attri Codes are: Sever Ra = Rare; Occ = Age codes: On =	rity codes: Occasiona	N = Nil (no e l; F = Freque	vidence); L nt. Evidenc	= Light; M = codes: C	Moderate;O = Observat	e and Age of S = Severe	codes for e	cy codes:	A = Absent	
				Ple	ot no.					
Zone no	. 1	2	3	4	5	6	7	8	9	10
Canopy dieback	1 1 1		1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1
Grazing and trampling	1 1 1	1 1 1	1 1 1		1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Soil disturbance	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1
Timber harvesting	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1
Flood damage	1 1 1			1 1 1						1 1 1
Storm damage				1 1 1	1 1 1	1 1 1				
Firewood collection and tidying up	1 1 1	1 1 1	111		1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Dense regrowth post-disturbance	1 1 1	1 1 1	1 1 1	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Fertiliser addition	1 1 1	1 1 1	111	1 1 1		1 1 1	1 1 1	1 1 1	1 1 1	1 1 1
Fire damage	1 1 1	1 1 1	111	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1		1 1 1
Feral herbivores										
Weeds			111							
Other – indicate type:	1 1 1	1 1 1	111	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Notes: Record det	ails of plot m	odification type	es – see 'Note	es table' on t	he next page	for examples	5			
Modification	type	Plot no.				Deta	ils			
				Ple	ot no.					
Zone no	. 1	2	3	4	5	6	7	8	9	10
Canopy dieback										
Grazing and trampling	1 1 1	1 1 1	111	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Soil disturbance				1 1 1			1 1 1		1 1 1	
Timber harvesting						1 1 1				
Flood damage	1 1 1		+ + + + +	1 1 1		1 1 1		1 1 1	+ + + + + + + + + + + + + + + + + + + +	
Storm damage										
Firewood collection and tidying up		1 1 1					1 11		1 11	1 11
Dense regrowth post-disturbance	1 1 1	1 1 1	111	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Fertiliser addition	1 1 1			1 1 1		1 1 1		1 1 1		
Fire damage										
Feral herbivores Weeds						1 1 1				
Other – indicate						1 1 1				
type:		1 1 1			1 1 1					1 11
Notes: Record det			es – see 'Note	es table' on t	he next page					
Modification	type	Plot no.				Deta	ils			

				Plo	t no.					
Zone no	1	2	3	4	5	6	7	8	9	10
Canopy dieback				1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	
Grazing and trampling	1 1 1	1 1 1	111	1 11		1 1 1	1 11		1 11	1 11
Soil disturbance										
Timber harvesting	1 1 1				1 1 1	1 1 1	1 1 1			
Flood damage						1 1 1	1 1 1			
Storm damage	1 1 1						1 1 1			
Firewood collection and tidying up	1 1 1	1 1 1	111	1 11		1 1 1	1 11		1 11	1 11
Dense regrowth post- disturbance	1 1 1	1 1 1	111	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Fertiliser addition		1 1 1						1 1 1		
Fire damage		1 1 1						1 1 1	1 1 1	1 1 1
Feral herbivores						1 1 1	1 1 1			
Weeds						1 1 1	1 1 1			
Other – indicate type:	1 1 1	1 1 1	111	1 11	1 1 1	1 1 1	1 11	1 1 1	1 11	1 11
Notes: Record details	s of plot mod	lification types	– see 'Notes	table' below	for examples.					
Modification t	ype	Plot no.				Deta	ils			
		1	T	PIC	t no.			Γ	1	
Zone no	1	2	3	4	5	6	7	8	9	10
Canopy dieback		1 1 1								
Grazing and			+						1 1 1	
trampling	1 1 1	1 1 1	111			1 1 1	1 1 1	1 1 1		
trampling Soil disturbance		1 1 1						1 1 1		
trampling Soil disturbance Timber harvesting										
trampling Soil disturbance Timber harvesting Flood damage										
trampling Soil disturbance Timber harvesting Flood damage Storm damage										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post-										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage						1 1 1				
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate type:										
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate type: Notes: Record details		I I I I I I I I I I I I I I I I I I I								
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate type: Notes: Record details		I I I I I I I I I I I I I I I I I I I								
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate type: Notes: Record details		I I I I I I I I I I I I I I I I I I I								
trampling Soil disturbance Timber harvesting Flood damage Storm damage Firewood collection and tidying up Dense regrowth post- disturbance Fertiliser addition Fire damage Feral herbivores Weeds Other – indicate type: Notes: Record details		I I I I I I I I I I I I I I I I I I I								

Notes table

Record details of plot modification types, for example:

- timber harvesting indicate whether stumps, coppicing, cut logs, ringbarking
- grazing and trampling indicate grazing and trampling by introduced herbivores and/or over-abundant native herbivores
- soil disturbance indicate whether ripping, cultivation, compaction, erosion
- fire damage indicate if high frequency, or if certain strata particularly affected
- feral animals indicate species (if known) and observed impacts; weeds indicate abundance and invasiveness of each species.

Thinning (stem density) plot data sheet

Plot type (circle one): Thinning zone/Stem density reference site



_____ Recorder(s): _____ Date: ____

 Start a new page for each zone (thinning proposals) or stem density reference site

			P۷۱ reques		_	. zone 10.	Area (ł	ha)								
PVP request PADACS), zo NVAT Mappel area	ne no. (from								OR Ref site (assign	e ID ed by asse:	ssor)					
Vegetation fo	rmation (see	Keith	2004*))												
Vegetation cl	ass (see Keit	h 200	4*)													
Vegetation ty	pe (BioMetric	.)														
* Keith 2004, Ocea	an shores to dese	ert dune	s: the nat	ive veg	getation	of New	South Wal	es and	I the ACT, N	SW Departme	nt of Environ	ment ar	nd Conse	rvation,	Sydne	y.
Species pr	esent in sten	n clas	ses	>	0 to	10 cm	DBHOB	3	> 10	to 20 cm D	внов	:	> 20 to	30 cm	ı DB	НОВ
DBHOB = diamete Plot 1 Lat.	r at breast height Long.		above gro		vel), m .ong.		over bark. ot 3 Lat.		Long.	Plot 4 Lat	. Lor	na	Plot 5	5 Lat		_ong.
1 lot 1 Eut.	Long.	1 100	z Luu		ong.		ot o Lut.		Long.	1 101 4 24		·y·	11000	, Lut.		
Orientation	Photo nos.	Orie	ntation	Pho	to no	s. Or	ientation	Pł	noto nos.	Orientatio	n Photo	nos.	Orient	tation	Ph	oto nos.
Plot 6 Lat.	Long.	Plot	7 Lat.	L	ong.	P	ot 8 Lat.		Long.	Plot 9 Lat	. Lor	ıg.	Plot 1	0 Lat.	l	₋ong.
0	Distance	0		DI		- 0				0	Di (.		0-1		DI.	
Orientation	Photo nos.	Oriei	ntation	Pno	to no	s. Or	ientation	Pr	noto nos.	Orientatio	n Photo	nos.	Orient	tation	Ph	oto nos.
			[1								
Plot no.	1	2		3			4		5	6	7		8	9		10
	plot Appendix 4 assessmen			•						ots must b	e used o	n refe	erence	sites.	1	
>0 to 10 cm DI	BHOB class:															
>10 to 20 cm [DBHOB class:															
>20 to 30 cm [DBHOB class:															
>30 cm DBHO optional:	B class –															

Please fax or email completed reference site sheets to: VIS Administrator, Office of Environment and Heritage. Fax (02) 9585 6466. Email: bionet@environment.nsw.gov.au. Thank you.

Thinning (stem density) plot data sheet

Plot type (circle one): Thinning zone/Stem density reference site



 Start a new page for each zone (thinning proposals) or stem density reference site

CMA:					_ Recor	der(s	s):			_ Da	ate:	
		PVF reques		/eg. zone no.	Area (ha)						
PVP request PADACS), zo NVAT Mappe area	ne no. (from						OR Ref site (assigne	ID ed by assesso	or)			
Vegetation fo	ormation (see	Keith 2004*)										
Vegetation c	lass (see Keit	h 2004*)										
Vegetation ty	/pe (BioMetric	:)										
* Keith 2004, Oce	an shores to dese	ert dunes: the nat	ive vegeta	ation of New	South Wales	s and th	he ACT, NS	SW Department of	of Environm	ent an	d Conservation,	Sydney.
Species p	resent in sten	n classes	> 0	to 10 cm	DBHOB		> 10 t	o 20 cm DBł	НОВ	>	20 to 30 cm	n DBHOB
DBHOB = diamete	er at breast height	(1.3 m above gro	und level	l), measured	over bark.			1			T	
Plot 1 Lat.	Long.	Plot 2 Lat.	Lon	ng. Pl	ot 3 Lat.	L	ong.	Plot 4 Lat.	Long	J.	Plot 5 Lat.	Long.
Orientation	Photo nos.	Orientation	Photo	nos. Or	ientation	Pho	to nos.	Orientation	Photo r	ios.	Orientation	Photo nos.
Plot 6 Lat.	Long.	Plot 7 Lat.	Lon	ng. Pl	ot 8 Lat.	L	ong.	Plot 9 Lat.	Long	J.	Plot 10 Lat.	Long.
Orientation	Photo nos.	Orientation	Photo	nos. Or	ientation	Pho	to nos.	Orientation	Photo r	ios.	Orientation	Photo nos.
20 m v 50 m	nlot											

20 m x 50 m plot

- Refer to Appendix 4 of *Biometric* Operational Manual for methods.
- Thinning assessments for PVPs do not have to be plot-based, but plots must be used on reference sites.

Plot no.	1	2	3	4	5	6	7	8	9	10
>0 to 10 cm DBHOB class:										
>10 to 20 cm DBHOB class:										
>20 to 30 cm DBHOB class:										
>30 cm DBHOB class – optional:										

Please fax or email completed reference site sheets to: VIS Administrator, Office of Environment and Heritage. Fax (02) 9585 6466. Email: bionet@environment.nsw.gov.au. Thank you.

BioMetric plot work sheets

Veg type:		AMG (Zone/Easti	ng Northing) OR Lat/Long (dec.	degrees):	Phot	o nos.:	
Native OVER-STOREY species list (per 20 m x 20 m plot)	REGEN (√) (per zone)	Native MID-STOREY species list (≥ 1 m to < over-storey) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (GRASSES) species list (ground stratum <~1 m) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (SHRUBS) species list (ground stratum <~1 m) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (OTHER) species list (ground stratum <~1m) (per 20 m x 20 m plot)	EXOTIC plants species list (per 20 m x 20 m plot)	FALLEN LOGS (min. 10 cm diameter x 50 cm long (per 20 m x 50 m plot)
Total no. species:							
Foliage cover (%):							
O/S FC benchmarks (%):							
Average crown diameter:							
Average foliage cover (%):							
Number of trees:							
Sample area:							
	(per zone)						
No. of trees with HOLLOWS:		Total no. species:	Total no. species:	Total no. species:	Total no. species:	Total no aposico:	Total (m):
Sample area (ha):		Foliage cover (%):	Foliage cover (%):	Foliage cover (%):	Foliage cover (%):	Total no. species:	Total (m):
Hollows benchmark:		M/S FC benchmarks (%):	G/S(G) FC benchmarks (%):	G/S(S) FC benchmarks (%)	G/S(O) FC benchmarks	Foliage cover (%):	Logs benchmark (m):
(per 20x50m plot or w	hole zone)				(%):		

Site and other notes:

BioMetric plot work sheets

Veg type:		AMG (Zone/Easti	ng Northing) OR Lat/Long (dec.	degrees):	Phot	o nos.:	
Native OVER-STOREY species list (per 20 m x 20 m plot)	REGEN (√) (per zone)	Native MID-STOREY species list (≥ 1 m to < over-storey) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (GRASSES) species list (ground stratum <-1 m) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (SHRUBS) species list (ground stratum <~1 m) (per 20 m x 20 m plot)	Native GROUND STRATUM COVER (OTHER) species list (ground stratum <~1m) (per 20 m x 20 m plot)	EXOTIC plants species list (per 20 m x 20 m plot)	FALLEN LOGS (min. 10 cm diameter x 50 cm long (per 20 m x 50 m plot)
Total no. species:							
Foliage cover (%):							
O/S FC benchmarks (%):							
Average crown diameter:							
Average foliage cover (%):							
Number of trees:							
Sample area:	(per zone)						
No. of trees with HOLLOWS:	. ,						
Sample area (ha):		Total no. species:	Total no. species:	Total no. species:	Total no. species:	Total no. species:	Total (m):
Hollows benchmark:		Foliage cover (%): M/S FC benchmarks (%):	Foliage cover (%): G/S(G) FC benchmarks (%):	Foliage cover (%): G/S(S) FC benchmarks (%)	Foliage cover (%): G/S(O) FC benchmarks	Foliage cover (%):	Logs benchmark (m):
(per 20x50m plot or w	hole zone)	in a constitution (78).			(%):		

Site and other notes:

BioMetric and Threatened Species Tool scattered tree plot work sheets Full species IDs are not required for *BioMetric*, but may be useful for identification of correct vegetation type and for monitoring purposes. PVP request no. and zone no. or Ref. site ID:_ Site type: Clearing zone / Offset zone / Reference site AMG (Zone/Easting Northing) 0r Lat/Long (dec. degrees): _ _ Date: _ Recorder/s: Veg type: Photo nos.: _ Species DBHOB Tree no. **Crown diameter** Hollows: size in Mistletoe Foliage cover (cm) (m) (%) 5-cm increments

No. of frees Average foliage cover (%) No. of frees with holid	ows Sample area ib
Average no. of hollow-bearing trees per 50 m x 20 m plot:	Sample area (ha):
Average no. of nonow-bearing trees per 30 m x 20 m plot.	Jampie area (na).
Notes:	

BioMetric and Threatened Species Tool scattered tree plot work sheets Full species IDs are not required for *BioMetric*, but may be useful for identification of correct vegetation type and for monitoring purposes. Site type: Clearing zone / Offset zone / Reference site PVP request no. and zone no. or Ref. site ID:_ AMG (Zone/Easting Northing) 0r Lat/Long (dec. degrees): _ _ Date: __ Recorder/s: Veg type: Photo nos.: _ DBHOB Tree no. **Species** Crown diameter Mistletoe Foliage cover Hollows: size in (cm) (m) (%) 5-cm increments

No. of trees: Average foliage cover (%): No. of trees with no	ווסws: Sample area ווט:
Average no. of hollow-bearing trees per 50 m x 20 m plot:	Sample area (ha):
Notes:	