

Natural Area Initial Desktop Assessment

Date of assessment _____ Native Vegetation Unique ID No. _____

Name of area _____ Database Site No. _____

Other names used _____

Location (address/street name incl. suburb, nearest street corner, Local Government) _____

Street Directory: Year, Page and Grid Ref. (Street Smart/ Gregorlys/ UBD) _____

Prepare the following maps and label with the name of the area.

Map 1: Location of _____

Photocopy of street directory showing location of site

Map 2: Reference Sites/Plots and Linkage for _____

A GIS print-out of general area showing vegetation complexes, potential reference sites and plots, mapped wetlands and their management category, areas of any previously recorded Declared Rare Flora, Specially Protected Fauna, Priority Flora or Fauna or Threatened Ecological Communities plus location of Draft Regional and, if available, Local Ecological Linkages. If no Local Ecological Linkages have been determined for the Local Government area, use this map to mark potential local ecological linkages to other natural areas.

Map 3: Aerial photograph of _____

Date of photography _____ Scale _____

GIS print-out of aerial photography (with topography, if available) at a scale that ensures site covers most of an A4 page. Easy-to-use scales are 1:2000 (1 cm = 20 m), 1:3000 (1 cm = 30 m), 1:4000 (1 cm = 40 m) or 1:5000 (1 cm = 50 m). For large sites, spread over several A4 pages at one of these scales if necessary.

Area (ha) _____ Perimeter (m) _____

Perimeter (m) to area (m²) ratio _____ Priority for Further Investigation _____

Lot/Location/Reserve Number/s _____

Ownership (Local Government Reserve / Other Govt (Agency?) / Private) _____

Land Manager _____

Vesting Purpose _____

MRS Reservation or Zoning _____

TPS Reservation or Zoning _____

Protection Status (circle) none / conservation covenant / conservation zone / conservation vesting purpose / Bush Forever & Parks and Recreation in the MRS / protected CALM land

Current Status/Use of land _____

Long term plans? _____

Initial Desktop Assessment

Name of area _____

Recognised International/ National/ State/ Regional Conservation Value yes/no

Specify _____

Part of a Draft Regional Ecological Linkage yes/no

Specify (links which areas?): _____

Mapped Vegetation Complex/es _____

Mapped Soil Type/s (if mapping available) _____

Mapped wetland/s: yes/no Environmental Protection Policy (EPP) Lake: yes/no

Wetland Management Category: CC/RE/MU

Is it a mapped floodplain area? yes/no

Potential Reference Sites and Plots (e.g. Bush Forever Sites; CALM Reserves, see Map 2). For Bush Forever Sites note floristic community type/s (FCTs) and whether FCTs actual or inferred.

Existing biological information for area or for potential Reference Sites (reports/ surveys/ species lists)

Conservation Management Plan yes/no Current or Review needed? _____

Title/Author/Year _____

Part of a Local Ecological Linkage yes/no
(if these have not already been determined by Local Government mark potential linkages on Map 2)

Time since isolation from other natural areas <5 years/ 5 - 20 years/ >20 years
(consult local community, historical aerial photography)

Initial Desktop Assessment

Name of area _____

Does it contain any mapped Threatened Ecological Communities (see Map 2)? yes/no

Specify: _____

Does it contain any mapped Declared Rare Flora (see Map 2) or is it a known location for any Specially Protected Fauna or significant habitat for these fauna? yes/no

Specify: _____

Does it contain any mapped Priority (see Map 2) or other significant **flora** (e.g. see Table 13, Bush Forever, Vol. 2, p. 51) or is it a known location for any Priority or other significant **fauna** (e.g. see Tables 14 and 15, Bush Forever, Vol. 2, pp. 59-63) or significant habitat for these fauna?

yes/no

Specify _____

Riparian streamline vegetation expected yes/no

Estuarine fringing vegetation expected yes/no

Coastal vegetation expected (foredunes or secondary dunes) yes/no

Fire History (consult with FESA/Volunteer Fire Brigades, local community, historical aerial photography)

Known to be of particular value to the local community for conservation yes/no

Active Friends/Environmental Group yes/no

Name of group and contact details _____

Surrounding land uses with potential for community interest and possibly assistance with management

▪ educational facility yes/no

▪ residential development yes/no

▪ other (specify) yes/no

Indigenous or European Cultural or Historical Heritage Value yes/no

Notes _____

Natural Area Initial Field Assessment A

Date of assessment _____ Native Vegetation Unique ID No. _____

Name of area _____ Database Site No. _____

Location (address/street name) _____

Assessor _____ *Skill Level _____

Recorder _____ Skill Level _____

Recorder _____ Skill Level _____

Recorder _____ Skill Level _____

**Important Note: Skill level 4 or above is required by the assessor to complete this template (see Appendix 1).*

Photographs

Indicate film roll no. and photograph no., location and direction of each photo on Map 4 during the field assessment. e.g. R1/P4 ↗ (Roll 1/Photo 4 looking ↗)

Photographer's Name _____

Latitude And Longitude (for various locations noted during assessment, optional)

GPS used: yes/no GPS datum: _____

Descriptor and Location No. (eg. BMX jump GPS 1)	Reading/calculation (mark location number on Map 4) Latitude (S) or Northing	Longitude (E) or Easting
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Prepare the following map during the field assessment and label with the name of the area.

Map 4 (transparent overlay on aerial photograph, Map 3): Uplands/Wetlands, Structural Plant Communities, Vegetation Condition, Spot Weed Occurrences, Areas of Disturbance and Management Infrastructure of _____

Uplands, Wetlands And Structural Plant Communities – Description And Mapping

On Map 4 divide the site into upland versus wetland areas and then into broad sections based on structural plant communities. Allocate a number to each community and describe each community using a representative sample point. Note the vegetation condition of each sample point as well as drawing a vegetation condition map for the whole site.

Describe each community using page 5 of these templates OR if preferred the templates of Keighery(1994) (see Appendix 3). If using the Keighery templates, describe each community on Recording Sheets 1 & 2 and list common native species present on Recording Sheet 3. Note that Appendix 3 contains minor modifications to the Keighery (1994) templates to include the additional information required on page 5.

Each structural plant community is described by noting the dominant species in each growth form layer of the community (see Appendix 2). Collect specimens for identification if necessary provided you have a licence from CALM and land owner permission. Carefully label all specimens. DO NOT collect species suspected of being DECLARED RARE FLORA instead take a good photo and accurately note location. Do not collect whole plants unless they are very small species and do not collect at all if only a few are present, take a good photo as an alternative

Photocopy page 5 or Appendix 3 and complete for **each** structural plant community identified.

Initial Field Assessment A

Name of area _____

Structural Plant Community No. _____ Indicate location of sample point described on Map 4.

Latitude and Longitude
 GPS used: yes/no GPS datum: _____ Lat.: _____ Long.: _____

Landform and Soils
 SLOPE: flat/ gentle/ steep ASPECT: N/ NE/ E/ SE/ S/ SW/ W/ NW OR n/a
 SURFACE SOIL: Colour: _____ Texture: sand/ loamy sand/ sandy loam/ loam/ clay/ gravel
 EXPOSED ROCK (type and % of surface): _____
 SUB-SURFACE SOIL: Colour: _____ Texture: sand/ loamy sand/ sandy loam/ loam/ clay/ gravel
 UNDERLYING ROCK (type and depth if known): _____
 DRAINAGE: well/ moderate/ poor WET: all year/ winter and spring only OR n/a
 CURRENT WATER DEPTH: _____ cm
 LITTER (% cover & depth): _____ BARE GROUND (% cover) _____

Topographic Position Circle position of point described on a transect diagram of site below.

Upland or Wetland? (circle one)

Growth Form Layer	Dominant species for each growth form layer list all dominant species, in their order of dominance, up to a maximum of 3*. (* if more than 3 species are obviously dominant record as many as appropriate to describe the layer)	Crown Cover (Keighery 1994) 2-10% / 10-30% / 30-70% / over 70%	Height & Crown Cover (NVIS) Record max. height of layer & % crown cover to nearest 5%
Trees over 30 m			
Trees 10-30 m			
Trees under 10 m			
Mallees over 8 m			
Mallees under 8 m			
Shrubs over 2 m			
Shrubs 1-2 m			
Shrubs under 1 m			
Herbs			
Sedges/ Rushes			
Grasses			
Other (e.g. climbers)			

Common Native Species Note species observed.

Icon Flora Species (Note if present)

Vegetation Condition (Give reasoning and note scale used) (see Appendix 4) _____

Description Of Structural Plant Community No. ____ (see Appendix 2) _____

Icon Community (tick if an icon community) _____

Weed Species Note species observed, especially the occurrence of species in better condition areas, even if they only occur in small numbers or in small patches at present. Note the distribution of each species across the site, e.g. throughout the site, spot occurrences or disturbed areas only (edges/tracks/cleared areas). Mark spot occurrences and easily mapped distributions on Map 4. If a species is widespread, note whether it is restricted to specific plant communities or wetland areas.

Weed Species	Distribution e.g. throughout the site, spot occurrences or disturbed areas only (edges/tracks/cleared areas)

Feral Fauna Note species observed or evidence for presence of species (scats, tracks or traces).

	✓	Comments
Evidence of Foxes (burrows, wildlife kills)		
Evidence of Rabbits (burrows, dung piles, grazing)		
Evidence of Dogs (droppings, scratchings)		
Evidence of Cats (wildlife kills)		
European Honey Bees (hives in tree hollows)		
Evidence of Horses/ Cattle/ Sheep (foot prints, droppings)		
Evidence of Pigs (soil disturbance)		
Rainbow Lorikeets		
Other		

Initial Field Assessment A

Name of area _____

Native Fauna and Fungi. Note species observed or evidence of presence for fauna species. Indicate icon species.

Species	Comments: Observed directly, evidence of presence (scats, tracks and traces) or likely habitat?

Native Fauna and Fungi Habitat

Habitat	✓	Comments
Areas of trees (with or without understorey)		
Areas of dense understorey vegetation		
Tree hollows in old mature trees		
Dead branches as perches for hunting/ look outs		
Dead vegetation for fungi/invertebrate habitat (leaf litter, branches/logs)		
Large fallen logs on the ground		
Granite or other natural rocky outcrops		
Moss beds for fungi habitat		
Wetlands or waterways		

Vegetation Health

Note dead or dying trees, shrubs, herbs and so on. Note the species concerned and the pattern of deaths/changes in the vegetation. *Phytophthora* Root Rot moves in fronts and along drainage lines therefore noting patterns helps to determine whether *Phytophthora* spp. are present. Appendix 5 defines and provides the website address for a list of common indicator species that are affected by *Phytophthora* spp. Do not automatically assume dead or dying plants means that *Phytophthora* is present.

	✓	Comments
Numerous tree stumps (not from logging)		
Dead or dying species		
Obvious reduction of tree canopies (e.g. staghorns)		
Heavy leaf/stem damage by insects (e.g. lerps, stem borers)		
Diseases/pests suspected		
Drought/lowering of groundwater table suspected		
Flooding/rise in groundwater table suspected		

Initial Field Assessment A

Name of area _____

Miscellaneous Disturbance Factors and Threatening Processes

Determine the range and extent of disturbance factors and threatening processes occurring at the site. If appropriate, mark on Map 4 and photograph as required. If site is large it may be beneficial to divide into sections and evaluate each separately.

Factor/Process	✓	Comments
Evidence of salinisation (e.g. scalding, seeps)		
Erosion (e.g. gullies, bank collapse)		
Wetland eutrophication (e.g. algal blooms)		
Stormwater drains/sumps		
Service corridors (e.g. Water Corp, Telstra, Western Power, Alinta Gas)		
Mining/extraction		
Evidence of past logging (e.g. selective removal of large trees)		
Previous clearing (may be partially cleared areas or evidence of previous clearing and regrowth over much of site)		
Overgrazing (e.g. rabbits, stock, goats; over-population by kangaroos)		
Firewood collection (e.g. recent chainsaw/axe cuts, sawdust piles)		
Dope plants/ production equipment		
Soil movement (dumping or removal)		
Rubbish dumping (note type, e.g. construction, garden waste, weed source?)		
Proliferation of tracks (fire breaks, walk trails)		
Off road vehicle use (4WD / trail bikes/ BMX/ mountain bikes)		
Cubby construction		
Vandalism (damage to plants)		
"Enrichment Planting" (revegetation with species not found in that local plant community, are these becoming weeds?)		
Impacts of High Fire Frequency and/or Intensity		
<ul style="list-style-type: none"> • Reduced range of tree ages 		
<ul style="list-style-type: none"> • Fire scars high up (due to a hot burn) 		
<ul style="list-style-type: none"> • Major trunk damage 		
<ul style="list-style-type: none"> • Trees suckering from trunk and branches 		
<ul style="list-style-type: none"> • Amount of leaf litter reduced 		
<ul style="list-style-type: none"> • Large fallen logs nearly burnt away 		
<ul style="list-style-type: none"> • Evidence of arson (burnt grass tree skirts, matches, cigarette lighters, exploded spray cans) 		
Time since last fire (estimate)		<2 yrs/ < 5 yrs/ <10 yrs/ <20 yrs / >20 yrs (circle one)
Other disturbance factors or threatening processes		

Initial Field Assessment A

Name of area _____

Vegetation Condition Map

For initial assessment, the overall vegetation condition of the site can be determined after familiarising yourself with the site. On Map 4, divide the site into broad sections based on condition, draw the boundaries of each section and record their condition. Using the map, estimate the % area each section occupies of the total site and note in the relevant boxes below using the Keighery (1994) condition scale(see Appendix 4). For example, 'Very Good: Section 1, 75% of site.' 'Degraded: Section 2, 25% of site.' For most sites there will be very degraded areas along tracks, for example, where rubbish has been dumped. If not extensive, these can be referred to by adding a statement such as 'areas of severe localised disturbance' in the comments.

Vegetation Condition Scales Indicate % area each section occupies of the total site (ensure adds up to 100%).						
Keighery (1994)	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded
% area						

Comments

Existing Management Infrastructure

Describe type in box below and mark location on Map 4, photograph if required.

	✓	Comments
Fencing		
Fence condition		
Gates		
Paths		Soil; concrete; limestone; mulch
Path condition		
Path fencing		
Path fence condition		
Fire access tracks		Slashed; sprayed; ploughed
Signs		Name of area; other (purpose?)
Previous works		

Social Significance Values

	✓	Comments
Evidence of Community/ Passive recreation/ Education interest		
Landscape amenity (e.g. area screens/ buffers conflicting land uses)		
Scenic features (e.g. high point in landscape)		
Indigenous/ European Heritage (Cultural or Historical)		
Other		

Initial Field Assessment A

Name of area _____

Surrounding Land Uses (mark on Map 4)

	Comments
Surrounding Land Uses (note type/s and indicate likely impacts/benefits e.g. source of rubbish; weed seeds blowing into site; potential for community interest and perhaps volunteers to assist management)	

Recommendations for Management
List potential management actions (for example, assessment for the presence of <i>Phytophthora</i> species by an accredited assessor; fencing; signage to identify as a conservation area; rubbish removal; detailed weed survey and mapping; fire response and management planning; detailed flora/fauna/fungi surveys).

Initial Field Assessment A

Name of area _____

Confirmation of GIS Mapped Boundaries

Prepare the following map if recommending changes to native vegetation (A) or wetland (B) mapping and label with the name of the area.

Map 5: (overlay on aerial photo): Recommended GIS Boundary Changes for

When recommending changes, forward a completed copy of all 4 Initial Natural Area Assessment templates to the Perth Biodiversity Project, WALGA, 15 Altona St, West Perth 6005 for distribution to relevant custodian of database.

GIS dataset		Changes recommended (yes/no)
A Mapped Native Vegetation (DPI/Dept of Agriculture 2001)	Yes / No	Outline the rationale for each change against the relevant category (A, B or C). Prepare Map 5 if recommending changes to A or B only. Draw boundaries that correspond to your field assessment and assign accordingly to 'A' and/or 'B'.
Rationale: _____ _____ _____ _____ _____ _____		
B Mapped Wetland/s and Management Category CC, RE or MU (DoE current update)	Yes / No / NA	For changes to the mapping of wetlands on the Swan Coastal Plain complete and attach the current Department of the Environment guidelines for evaluating wetlands in this bioregion.
Rationale: _____ _____ _____ _____ _____		
C Mapped Vegetation Complex/es (Hedde, Loneragan and Havel 1980 or Mattiske & Havel 1998)	Yes / No More likely to be _____	
Rationale: (do not map) _____ _____ _____ _____ _____		

Natural Area Initial Field Assessment B – Significant Species and Communities

General Information

Date of assessment _____ Native Vegetation Unique ID No. _____
 Name of area _____ Database Site No. _____
 Location (address/street name) _____

Assessor _____ *Skill Level _____
 Recorder _____ Skill Level _____
 Recorder _____ Skill Level _____
 Recorder _____ Skill Level _____

**Important Note: Skill level 5 or above is required by the assessor to survey natural areas for significant species. Skill Level 6 is required to survey for threatened ecological communities (see Appendix 1).*

<p>NO significant species or communities recorded through Field Assessment B</p> <p>If searches for significant flora, significant fauna and Threatened Ecological Communities by an appropriately skilled assessor have NOT recorded any significant species or communities on this site during this assessment, tick the box and continue no further.</p>	<input checked="" type="checkbox"/>
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<p>Partial Assessment ONLY</p> <p>In situations where significant species or communities have been recorded during Field Assessment A but a comprehensive Field Assessment B has NOT yet taken place, transfer the relevant information to these forms for databasing purposes and tick this box.</p>	<input checked="" type="checkbox"/>
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Initial Field Assessment B

Name of area _____

Photographs

Indicate film roll no. and photograph no., location and direction of each photo on Map 4 during the field assessment. e.g. R1/P4 ↻ (Roll 1/Photo 4 looking ↻)

Photographer's Name _____

Latitude And Longitude (for various locations noted during assessment, compulsory)

GPS used:	yes/no	GPS datum:	Reading/calculation (mark location number on Map 6)	
Descriptor and Location No.		Latitude (S) or Northing	Longitude (E) or Easting	
(eg. Species A GPS 1)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Prepare the following map during the field assessment and label with the name of the area. Consult Map 4 prepared for Natural Area Initial Field Assessment A for the structural plant communities and vegetation condition mapping, update on Map 6 if necessary.

Map 6 (overlay on aerial photograph): Location of Threatened Ecological Communities, significant native flora or fauna or suitable habitat for these fauna of _____

Threatened Ecological Communities (TECs) (see Appendix 6)
List the Threatened Ecological Communities present or believed to be present on the site and the reasons why. For those TECs based on floristic community types, map the boundary of each TEC by cross referencing with the structural plant communities mapped during the Natural Area Initial Field Assessment A (Map 4). During spring , describe a standard 10 x 10 m quadrat and compile a species list for each structural plant community representing a TEC (see page 15 , Threatened Ecological Communities – Description and Mapping).

Initial Field Assessment B

Name of area _____

Significant Native Flora (see Appendix 6)
Note presence of Declared Rare, Priority or other significant flora. Note location of species on Map 6. Indicate which structural plant communities they occur in (refer to Map 4 of the Natural Area Initial Field Assessment A).

Species and Significance	Comments eg. Structural Plant Community, Population Size

Significant Native Fauna (see Appendix 6)
Note presence or evidence for presence of Specially Protected, Priority or other significant fauna. Note location of species/evidence on Map 6. Indicate which structural plant communities they occur in or utilise.

Species and Significance	Comments: Observed Directly, Evidence of Presence or Likely Habitat?

Initial Field Assessment B

Name of area _____

Photocopy this page and complete for **each** Structural Plant Community identified as a TEC OR if preferred use Recording Sheets 1 & 2 of Keighery (1994) (see Appendix 3) to describe each community. Note that Appendix 3 contains minor modifications to the Keighery (1994) templates to include the additional information required below.

Threatened Ecological Communities – Description and Mapping			
<p>For TECs based on floristic community types, description and mapping needs to be undertaken during spring to provide the definitive floristic information needed to confirm the presence of a TEC. On Map 6, draw the boundary of each Threatened Ecological Community present and label with the TEC to which it belongs. These boundaries should be based on the structural plant communities identified on Map 4 of the Natural Area Initial Field Assessment A template. Allocate a number to each structural plant community representing a TEC and describe each below using a permanently located and representative 10 x 10 m quadrat. Note the vegetation condition of each quadrat. Compile a list of the plant species present within each quadrat.</p>			
<p>Structural Plant Community No. _____ Indicate location of sample point described on Map 6.</p>			
<p>Latitude and Longitude GPS used: yes/no GPS datum: _____ Lat.: _____ Long.: _____</p>			
<p>Landform and Soils SLOPE: flat/ gentle/ steep ASPECT: N/ NE/ E/ SE/ S/ SW/ W/ NW OR n/a SURFACE SOIL: Colour: _____ Texture: sand/ loamy sand/ sandy loam/ loam/ clay/ gravel EXPOSED ROCK (type and % of surface): _____ SUB-SURFACE SOIL: Colour: _____ Texture: sand/ loamy sand/ sandy loam/ loam/ clay/ gravel UNDERLYING ROCK (type and depth if known): _____ DRAINAGE: well/ moderate/ poor WET: all year/ winter and spring only OR n/a CURRENT WATER DEPTH: _____ cm LITTER (% cover & depth): _____ BARE GROUND (% cover) _____</p>			
<p>Topographic Position Circle position of point described on a transect diagram of site below.</p> 			
<p>Upland or Wetland? (circle one)</p>			
Growth Form Layer	Dominant species for each growth form layer list all dominant species, in their order of dominance, up to a maximum of 3*. (* if more than 3 species are obviously dominant record as many as appropriate to describe the layer)	Crown Cover (Keighery 1994) 2-10% / 10-30% / 30-70% / over 70%	Height & Crown Cover (NVIS) Record max. height of layer & % crown cover to nearest 5%
Trees over 30 m			
Trees 10–30 m			
Trees under 10 m			
Mallees over 8 m			
Mallees under 8 m			
Shrubs over 2 m			
Shrubs 1-2 m			
Shrubs under 1 m			
Herbs			
Sedges/ Rushes			
Grasses			
Other (e.g. climbers)			

Natural Area Initial Assessment Summary

Database Site Number _____

Name of area _____

ECOLOGICAL CRITERIA	
1. Representation	
1a. Regional Representation	
i) recognised International, National, State or Regional conservation value but not already protected Specify:	yes/no
ii) of an ecological community with only 1500 ha or 30% or less (whichever is the greater) remaining in IBRA subregion Specify:	yes/no
iii) large (greater than 20 ha), viable natural areas in good or better condition of an ecological community with more than 30% remaining within the IBRA subregion	yes/no
iv) of an ecological community with only 1500 ha or 15% or less (whichever is the greater) protected for conservation in the Jarrah Forest IBRA subregion Specify:	yes/no
v) of an ecological community with only 400 ha or 10% or less (whichever is the greater) protected for conservation in the Bush Forever Study Area Specify:	yes/no
1b. Local Representation	
i) of an ecological community with 10% or less remaining of its pre-European extent within the Local Government Area Specify:	yes/no
ii) of an ecological community with 30% or less remaining of its pre-European extent within the Local Government Area Specify:	yes/no
iii) large (greater than 10 ha), viable natural areas in good or better condition of an ecological community with more than 30% remaining within the Local Government Area	yes/no
2. Diversity	
i) natural area in good or better condition that contains both upland and wetland structural plant communities	yes/no
3. Rarity	
i) of an ecological community with only 1500 ha or 10% or less (whichever is the greater) remaining in the IBRA subregion Specify:	yes/no
ii) of an ecological community with only 400 ha or 10% or less (whichever is the greater) remaining in the Bush Forever Study Area Specify:	yes/no
iii) contains a Threatened Ecological Community Specify:	yes/no
iv) contains Declared Rare Flora, Specially Protected Fauna or significant habitat for these fauna Specify:	yes/no
v) contains Priority or other significant flora or fauna or significant habitat for these fauna Specify:	yes/no
4. Maintaining Ecological Processes or Natural Systems - Connectivity	
i) natural areas acting as stepping stones in a Regionally Significant Ecological Linkage	yes/no
ii) natural areas acting as stepping stones in a locally significant ecological linkage	yes/no
5. Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation	
i) Conservation or Resource Enhancement category wetland plus buffer	yes/no
ii) EPP Wetland plus buffer	yes/no
iii) riparian vegetation plus buffer	yes/no
iv) floodplain area plus buffer	yes/no
v) estuarine fringing vegetation plus buffer	yes/no
vi) coastal vegetation on foredunes and secondary dunes	yes/no

Initial Assessment Summary

Name of area _____

VIABILITY ESTIMATE		
Viability Factor	Category	Score
Size	Greater than 20 ha	5
	Greater than 10 ha less than 20 ha	4
	Greater than 4 ha less than 10 ha	3
	Greater than 1 ha less than 4 ha	2
	Less than 1 ha	1
Shape	Circle, square or squat rectangle	3.5
	Oval, rectangle or symmetrical triangle	3
	Irregular shape with few indentations	2.5
	Irregular shape with many indentations	2
	Long thin shape with large proportion of area greater than 50 m wide	1.5
	Long thin shape with large proportion of area less than 50 m wide	1
Perimeter to area ratio	Less than 0.01	4
	Greater than 0.01 less than 0.02	3
	Greater than 0.02 less than 0.04	2
	Greater than 0.04	1
Vegetation condition NB: based on Keighery (1994) condition scale	Pristine	10 x % =
	Excellent	8 x % =
	Very Good	6 x % =
	Good	4 x % =
	Degraded	2 x % =
	Completely Degraded	0 x % =
	Total calculated score =	
Connectivity	A. Forms part of a Regional Ecological Linkage and is contiguous with a protected natural area greater than 4ha	5
	B. Not part of a Regional Ecological Linkage but contiguous with a protected natural area greater than 4ha	4.5
	C. Forms part of a Regional Ecological Linkage and is within 500 m of more than 4 protected natural areas having an area greater than 4 ha	4
	D. Not part of a Regional Ecological Linkage but within 500 m of more than 4 protected natural areas having an area greater than 4 ha	3.5
	E. Forms part of a Regional Ecological Linkage and is within 500 m of 3 or 4 protected natural areas having an area greater than 4 ha	3
	F. Not part of a Regional Ecological Linkage but within 500 m of 3 or 4 protected natural areas having an area greater than 4 ha	2.5
	G. Forms part of a Regional Ecological Linkage and is within 500 m of 2 protected natural areas having an area greater than 4 ha	2
	H. Not part of a Regional Ecological Linkage but within 500 m of 2 protected natural areas having an area greater than 4 ha	1.5
	I. Forms part of a Regional Ecological Linkage and is within 500 m of 1 protected natural area having an area greater than 4 ha	1
	J. Not part of a Regional Ecological Linkage but within 500 m of 1 protected natural area having an area greater than 4 ha	0.5
	K. Forms part of a Regional Ecological Linkage but is not within 500 m of any protected natural areas having an area greater than 4 ha	0.25
TOTAL SCORE (Viability Estimate)		

Appendix 1: Skill level matrix for Natural Area Assessment.

Skill Level	Description
1	No relevant environmental qualification, no training specific to bushland management and no previous experience in undertaking biological surveys
2	Basic introductory training in bushland management ¹ but no previous experience in undertaking biological surveys
3a	Training specific to bushland management ² but no previous experience in undertaking biological surveys
3b	Relevant environmental qualification ³ but no training specific to bushland management and no previous experience in undertaking biological surveys
3c	Relevant environmental qualification ³ , and training specific to bushland management ² but no previous experience in undertaking biological surveys
4a	Training specific to bushland management ² and some experience in undertaking biological surveys
4b	Relevant environmental qualification ³ , no training specific to bushland management but some experience in undertaking biological surveys
4c	Relevant environmental qualification ³ and training specific to bushland management and some experience in undertaking biological surveys
4d	Some experience in undertaking biological surveys
5a	Training specific to bushland management ² and extensive experience in undertaking biological surveys
5b	Relevant environmental qualification ³ , no training specific to bushland management but extensive experience in undertaking biological surveys
5c	Relevant environmental qualification ³ and training specific to bushland management and extensive experience in undertaking biological surveys
5d	Extensive experience in undertaking biological surveys
6a	Training specific to bushland management ² and extensive experience in undertaking biological surveys in the Perth Metropolitan Region
6b	Relevant environmental qualification ³ , no training specific to bushland management but extensive experience in undertaking biological surveys in the Perth Metropolitan Region
6c	Relevant environmental qualification ³ and training specific to bushland management and extensive experience in undertaking biological surveys in the Perth Metropolitan Region
6d	Extensive experience in undertaking biological surveys in the Perth Metropolitan Region

It is expected that people in each of the above skill levels would have the following capabilities:

- ▶ good observation skills
- ▶ familiarity with common plant and animal species of the local area
- ▶ map/aerial photo reading skills
- ▶ mathematical skills (for example, can read scales, draw to scale)
- ▶ basic map drawing skills, contours, latitude/longitude calculation
- ▶ ability to use a GPS for determining coordinates for mapping where required.

for Skill Level 4 and above:

- ▶ ability to distinguish between wetland and upland areas; ability to distinguish between weed/feral species and species that are native to a given area; knowledge of steps required to identify plant and animal species, for example, ability to use identification keys.

for Skill Level 5 and above:

- ▶ ability to survey for Declared Rare Flora, Specially Protected Fauna, Priority and other significant species of flora and fauna

for Skill Level 6:

- ▶ ability to survey for threatened ecological communities in the Perth Metropolitan Region

¹for example, APACE Introduction to Bush Regeneration course (minimum of four days study)

² for example, a Certificate in Bush Regeneration (such as Certificate II or III in Conservation and Land Management) (minimum of six months study)

³ for example, a Degree or Diploma in Environmental Science or Biology (minimum of three years study)

Appendix 2: Growth form layers and vegetation structure classification scheme for Natural Area Assessment.

Growth Form Layers (Adapted from Keighery 1994, McDonald et al. 1990 and Executive Steering Committee for Australian Vegetation Information 2003)

- Tree: woody plant with a single trunk and canopy, the canopy is less than or equal to $\frac{2}{3}$ of the height of the trunk, no lignotuber apparent
- Mallee: woody plant with many woody stems, canopy well above the base, lignotuber usually apparent, commonly of the genus *Eucalyptus*
- Shrub: woody plant with one or many woody stems, foliage all or part of the total height of the plant, includes grass trees (*Xanthorrhoea spp.*) and cycads (*Macrozamia spp.*)
- Herb: non-woody plant with stems, generally under 0.5 m tall and not a grass, sedge or rush
- Grass: non-woody plant that comes from the plant family Poaceae; all have inconspicuous individual flowers that are pollinated by wind; leaf sheath always split, ligule present, leaf usually flat, stem cross-section circular, evenly spaced internodes
- Sedge: non-woody, tufted or spreading plant that comes from the plant family Cyperaceae; most have inconspicuous flowers that are pollinated by wind; leaf sheath never split, usually no ligule, leaf not always flat, extended internode below inflorescence
- Rush: same as sedge but comes from the plant families Juncaceae, Restionaceae, Typhaceae or Xyridaceae; leaf sheath may be split in Restionaceae
- Climbers: plants that climb or scramble over other plants for support

Classification System Used to Describe Vegetation Structure (Keighery 1994), as adapted from Muir (1977) and Aplin (1979)

Growth Form/ Height Class	Canopy Cover			
	100% to 70 %	70% to 30 %	30% to 10 %	10% to 2 %
Trees over 30 m	Tall Closed Forest	Tall Open Forest	Tall Woodland	Tall Open Woodland
Trees 10-30 m	Closed Forest	Open Forest	Woodland	Open Woodland
Trees under 10 m	Low Closed Forest	Low Open Forest	Low Woodland	Low Open Woodland
Mallee over 8 m (Tree Mallee)	Closed Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree Mallee
Mallee under 8 m (Shrub Mallee)	Closed Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub
Shrubs over 2 m	Closed Tall Scrub	Tall Open Scrub	Tall Shrubland	Tall Open Shrubland
Shrubs 1-2 m	Closed Heath	Open Heath	Shrubland	Open Shrubland
Shrubs under 1 m	Closed Low Heath	Open Low Heath	Low Shrubland	Very Open Shrubland
Grasses	Closed Grassland	Grassland	Open Grassland	Very Open Grassland
Herbs	Closed Herbland	Herbland	Open Herbland	Very Open Herbland
Sedges	Closed Sedgeland	Sedgeland	Open Sedgeland	Very Open Sedgeland

Appendix 3: Bushland Plant Survey templates (Keighery 1994, with minor modifications).

BUSHLAND PLANT SURVEY RECORDING SHEET 1 – use pencil only

BUSHLAND AREA _____
 DATABASE SITE NUMBER _____ STRUCTURAL PLANT COMMUNITY NO. _____
 DATE TRIP _____ BOTANIST _____ RECORDERS _____
 DATE TRIP _____ BOTANIST _____ RECORDERS _____
 DATE TRIP _____ BOTANIST _____ RECORDERS _____

1. LOCATION of the QUADRAT/SAMPLE POINT

Mud Map Draw a sketch of the location of the site below.
 Indicate location on Map 4 for PBP NAIA Templates.

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

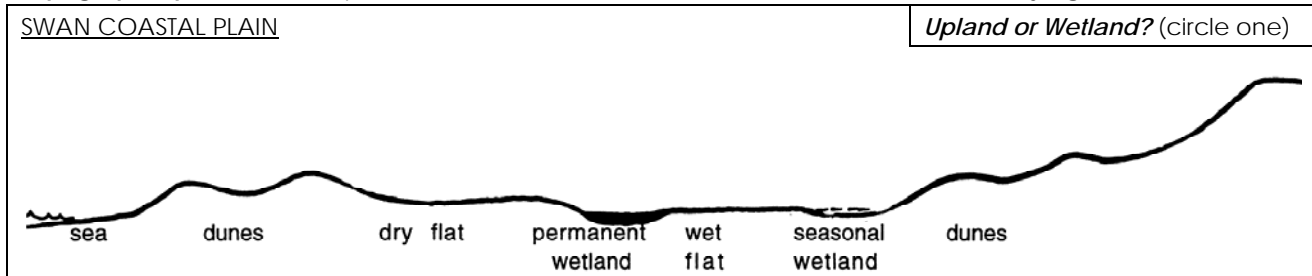
↑ N

Road Location

Geographic Location Latitude S Longitude E
GPS Used: yes/no *GPS Datum OR Reference Map Used:*

Photograph Photographer's Name Photo No.

Topographic position Circle position of site on the transect (alter the transect if necessary eg. for Jarrah Forest)



2. SITE DATA Circle the correct response.

Slope: flat gentle steep *Aspect:* N NE E SE S SW W NW na

Surface Soil: sand, loamy sand, sandy loam, loam, clay, gravel/laterite *Colour*

Exposed rock: *type* % surface

Sub-surface Soil: sand, loamy sand, sandy loam, loam, clay, gravel/laterite *Colour*

Rock: *type* depth to rock

Drainage: well mod poor depth water cm *Wet:* all year winter/spring na

<i>Litter:</i> % cover	<i>Bare Ground</i> % cover
Depth cm	











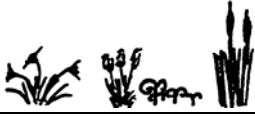

Appendix 3: Bushland Plant Survey templates (Keighery 1994, with minor modifications).

BUSHLAND PLANT SURVEY RECORDING SHEET 2 – use pencil only

3. VEGETATION STRUCTURE AND COVER

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

For each layer record – appropriate growth form, cover class (see below) and dominant species in their order of dominance, up to a maximum of 3 species. If more than 3 species are obviously dominant record as many as appropriate to describe each layer. For NVIS record max. height of layer & % crown cover to nearest 5%.

		2 – 10%		10 – 30%		30 – 70%		over 70%		
		TREES			MALLEES					
		over 30m		10 – 30m		under 10m		over 8m		under 8m
GROWTH FORM										
	COVER CLASS (%)		#		#		#		#	
HEIGHT & CROWN COVER (NVIS)										
DOMINANT SPECIES										
		SHRUBS			SHRUBS					
		over 2m		2m – 1m		under 1m				
GROWTH FORM										
	COVER CLASS (%)		#		#		#		#	
HEIGHT & CROWN COVER (NVIS)										
DOMINANT SPECIES										
		GRASSES		HERBS		SEDGES		OTHER (eg. ferns)		
GROWTH FORM										
	COVER CLASS (%)		#		#		#		#	
HEIGHT & CROWN COVER (NVIS)										
DOMINANT SPECIES										

4. VEGETATION CONDITION (see Keighery 1994 in Appendix 4 of PBP NAIA Templates)

1 'PRISTINE'		COMMENTS (give reasoning for choice)
2 EXCELLENT		
3 VERY GOOD		
4 GOOD		
5 DEGRADED		

Appendix 4: Vegetation condition scales for Natural Area Assessment.

The Keighery (1994) vegetation condition scales for natural area assessment.

Keighery Condition Scale (Keighery 1994)
<p>Pristine Pristine or nearly so, no obvious signs of disturbance</p>
<p>Excellent Vegetation structure intact; disturbance affecting individual species; weeds are non-aggressive species</p>
<p>Very good Vegetation structure altered; obvious signs of disturbance <i>For example, disturbance to vegetation structure caused by repeated fires; the presence of some more aggressive weeds; dieback; logging; grazing</i></p>
<p>Good Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. <i>For example, disturbance to vegetation structure caused by very frequent fires; the presence of some very aggressive weeds at high density; partial clearing; dieback; grazing.</i></p>
<p>Degraded Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. <i>For example, disturbance to vegetation structure caused by very frequent fires; the presence of very aggressive weeds; partial clearing; dieback; grazing</i></p>
<p>Completely Degraded The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. <i>These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.</i></p>

Appendix 5: Common indicator species for the presence of disease caused by *Phytophthora cinnamomi*.

Indicator Species

"An indicator species is a plant species, which is reliably susceptible to *Phytophthora cinnamomi* (i.e. that the disease usually kills that species). Common indicator species in the northern jarrah forest include *Banksia grandis* (bull banksia), *Patersonia* spp (purple flag and yellow flag), *Persoonia longifolia* (snottygobble), and *Xanthorrhoea preissii* (balga or grass tree). Indicator species distribution and composition will vary from place to place according to vegetation type" (Department of Conservation and Land Management 2003b). If plants of these species are selectively dead or dying amongst otherwise healthy bushland plants then it is safe to assume that this indicates the *Phytophthora cinnamomi* Root Rot disease process is operating until confirmed otherwise by experts.

Refer to the current table of dieback indicator species posted on CALM's Nature Base website (available at http://www.calm.wa.gov.au/projects/pdf_files/dieback_indicators.pdf) (Department of Conservation and Land Management 2003b)

Appendix 6: Significant species and communities known to occur or that may occur within Local Government Area.

Declared Rare Flora, Specially Protected Fauna, Priority or Other Significant Flora or Fauna that may Occur in the Area (To be filled out by the assessor for each Local Government Area based on information collected from reference sites/plots; Bush Forever Vol 2 for the coastal plain; reports/surveys; WA Herbarium & WA Museum databases and in consultation with CALM and WA Museum).

Species & significance	Distinguishing features	Expected habitat

Threatened Ecological Communities (based on information from CALM's TEC database, reference sites/plots, Bush Forever Vol 2 for SCP, reports/surveys)

Communities & significance	Description/key features