

LAKE COOLOONGUP, LAKE WALYUNGUP AND ADJACENT BUSHLAND, HILLMAN TO PORT KENNEDY

Boundary Definition: protected area/bushland (part taken to cadastre) boundary (Areas of bushland within the boundaries of the Site are not accurately mapped.)

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 356 **Area (ha):** bushland 1617.5 (Site also includes open water.)

Map no. 69, 70, 74, 75 **Map sheet series ref. no.** 2033–II NW, 2033–II SW

Other Names: White Lake, Salt Lake, Lark Hill, Tamworth Hill, part of Rockingham Lakes Regional Park

Local Authorities (Suburb): Shire of Rockingham (Hillman, Cooloongup, Waikiki, Warnbro, Port Kennedy, Baldivis)

System 6 (1983): M103 area of bushland goes beyond System area boundaries, all bushland described

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Bassendean Dunes

Bassendean Sands (Qpb: S8)

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

Tamala Limestone (Qtl: LS1)

Quindalup Dunes (Holocene dunes)

Safety Bay Sands (Qhs: S13, LS4)

Wetlands (within the Quindalup/Spearwood Dunes)

Holocene Swamp Deposits (Qhw: Cps, Cs1)

Lagoonal and Estuarine Deposits (at or near interface of Quindalup/Spearwood Dunes)

Lagoonal and Estuarine Deposits (Vasse) (Qhg: M5)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Cottesloe Complex — Central and South

Quindalup Dunes

Quindalup Complex

Floristic Community Types: *not sampled, types inferred

Supergroup 2: Seasonal Wetlands

17 *Melaleuca raphiophylla* — *Gahnia trifida* seasonal wetlands

*19a Sedgelands in Holocene dune swales (DEP 1996, equivalent to 19 in Gibson *et al.* 1994, English and Blyth 1997)

19b Woodlands over sedgelands in Holocene dune swales (DEP 1996, equivalent to 19 in Gibson *et al.* 1994, English and Blyth 1997)

Supergroup 3: Uplands centred on Bassendean Dunes and Dandaragan Plateau

21a Central *Banksia attenuata* — *Eucalyptus marginata* woodlands

Supergroup 4: Uplands centred on Spearwood and Quindalup Dunes

24 Northern Spearwood shrublands and woodlands (most southern occurrence)

*29b *Acacia* shrublands on taller dunes

WETLANDS

Wetland Types: lake, sumpland, dampland, artificial lake

Natural Wetland Groups

Spearwood Dunes

Stakehill (S.4)

Quindalup

Cooloongup (Qu.1)

Becher (Qu.2)

Wetland Management Objectives: Conservation (1462.3ha)

Swan Coastal Plain Lakes EPP: 312.8ha + 24.2ha + 438.6ha + 48.8ha = 824.4ha (total)

THREATENED ECOLOGICAL COMMUNITIES

Not assessed, Critically Endangered (floristic community type 19 as defined by Gibson *et al.* 1994)

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: open water, vegetated wetlands, vegetated uplands

Vegetation and Flora: detailed survey (part Site — Keighery, BJ, *et al.* 1997c, Tingay and Tingay 1977); limited survey (DEP 1999, EPA and WAWA 1990, Gibson *et al.* 1994 (Tam 01, Cool 01–04, 08–09, 11, Kero 01–02), Keighery, GJ, 1996 D (Cool 14–15))

Structural Units: mapping (part Site — EPA and WAWA 1990, Keighery, BJ, *et al.* 1997c, Tingay and Tingay 1977)

Spearwood Dunes

Uplands — Sands derived from Tamala Limestone: *Banksia attenuata* and *B. menziesii* Low Woodland; *Eucalyptus gomphocephala*, *E. marginata* and *Banksia attenuata* Open Forest; *Grevillea vestita* Closed Heath; *Hibbertia hypericoides* Open Low Heath

Quindalup Dunes

Uplands — Beach ridge plain: *Eucalyptus gomphocephala* Woodland to Forest; *Acacia rostellifera* Tall Open Scrub; *Jacksonia furcellata* and *Acacia rostellifera* Shrubland; *Acacia saligna* Low Open Woodland to Low Woodland; *Xanthorrhoea preissii* Open Heath

Wetlands (at or near the interface of the Quindalup and Spearwood Dunes): Open to Closed Sedgeland dominated by *Baumea juncea*, *Gahnia trifida*, *Lepidosperma longitudinale*, *Juncus kraussii* or *Baumea vaginalis* or combinations of these; *Banksia littoralis* Low Woodland; *Melaleuca raphiophylla* Low Woodland to Forest; *Eucalyptus gomphocephala* Woodland to Forest

Wetlands — Beach ridge plain: *Isolepis nodosa* and *Baumea juncea* Closed to Open Sedgeland, generally with an overstorey of *Xanthorrhoea preissii*

Scattered Native Plants: *Eucalyptus gomphocephala* Woodland; *Acacia saligna* Low Woodland; *Xanthorrhoea preissii* Open Heath

Vegetation Condition: >60% Very Good to Pristine, <40% Good to Degraded, with areas of severe localised disturbance

Total Flora: 174 native taxa, 82 weed taxa (part Site — Keighery, BJ, *et al.* 1997c) (>85% of expected flora)

Significant Flora: Keighery, BJ, *et al.* 1997c — *Trachymene coerulea*, *T. pilosa* (distinct form found also at Rottne Island), *Sonchus hydrophilus* (at risk), *Atriplex suberecta* (not previously recorded on the Swan Coastal Plain), *Linum marginale* (rarely recorded on Quindalup dunes), *Acacia pulchella* var. *goadbyi* (only known occurrence on the Swan Coastal Plain), *Eremophila glabra* subsp. *albicans*, *Jacksonia furcellata* (floriferous shrub form), *Kennedia coccinea* (becoming increasingly uncommon on the western margins of the Plain)

Fauna: multiple surveys for birds (73 species) (Tingay and Tingay 1977; RAOU 1996 D, 3 visits), limited survey for native mammals (2 species), reptiles (1 species), amphibians (3 species) and fish (1 species) (Tingay and Tingay 1977). Significant bird species: category 2 (6), category 3 (10), category 4 (5). Significant population of Black Swan. Significant mammal species: Western Brush Wallaby and Quenda (Friend 1996 D)

Linkage: adjacent bushland to the north (Site 349, across road), south, east and west (Site 377, across road); part of Greenways 83, 85, 86, 89, 122 (Tingay, Alan & Associates 1998a); part of a regionally significant contiguous bushland/wetland linkage (Part A, Map 7)

Other Special Attributes

Meets five of the six specific criteria for coastal reserves—

- (i) Quindalup Dune types: beach ridge plain and older dunes
- (ii) Continuing natural processes: 1079.4ha (837.4 bushland) of Quindalup Dunes extending to 8.8km inland (through Site 377 to coast)
- (iv) Linkage: Quindalup/Spearwood Dunes (Tamala Limestone) interface
- (v) Vegetation: five regional floristic groups, one of which is a threatened community
- (vi) Habitats: see Fauna section above;

Part Site (Lake Cooalongup and Lake Walyungup) — wetland of ‘national significance’; part Site (Tamworth Lakes) — wetland of ‘regional significance’ (Semeniuk, V&C Research Group 1991b); contains examples of microbialites, organo-sedimentary structures formed by microorganisms, the oldest life-form on earth (Tingay, Alan & Associates 1997); majority of Site included in Port Kennedy and Rockingham Parks proposal (Tingay, Alan & Associates 1997)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Entered in the Register of the National Estate; location for JAMBA/CAMBA species; subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Diversity, Rarity, Maintaining ecological processes or natural systems, Scientific or evolutionary importance, General criteria for the protection of wetland, streamline and estuarine fringing vegetation and coastal vegetation

Recommendation: Part A: Site with Some Existing Protection; the care, control and management of this Site for conservation purposes within Rockingham Lakes Regional Park is endorsed. Part B: Other Government Land Mechanism. Part C: Proposed Parks and Recreation Reservation (see Table 3, Volume 1).