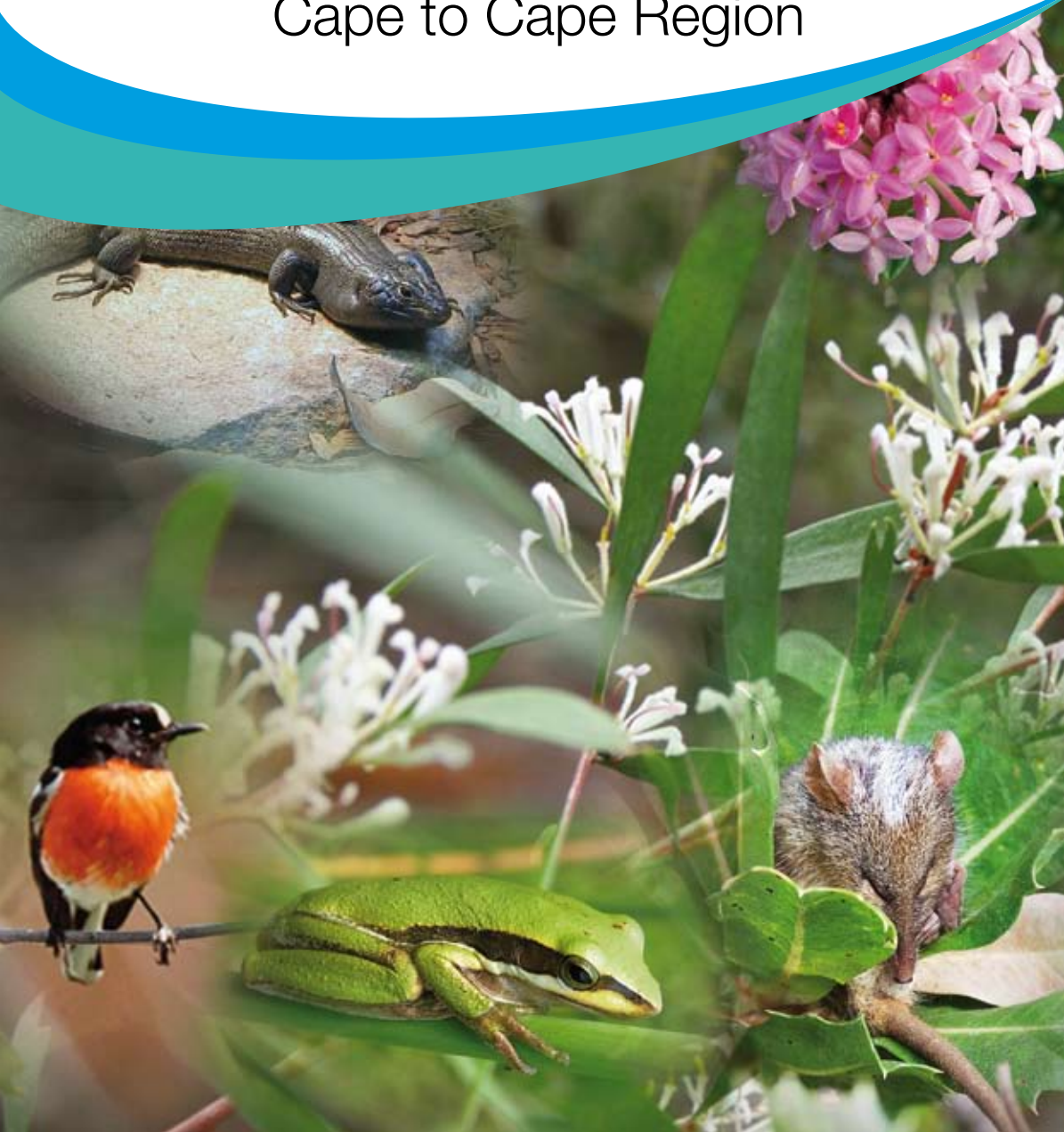








# Monitoring Guide to Flora and Fauna of the Cape to Cape Region



## Monitoring Guide to the Flora and Fauna of the Cape to Cape Region

The Cape to Cape Catchments Group developed this monitoring guide to provide land managers and the general community with local information and resources. It aims to assist people with an interest in identifying what plants and animals live on their property or nearby reserve. It also aims to give land managers a tool to monitor change on their property after undertaking sustainable management actions such as fencing a creekline. The guide is a developing resource that will be added to as resources are completed. Currently there are 6 main colour coded sections:

Photo-point monitoring	
Mammals	
Frogs	
Reptiles	
Birds	
Riparian plants	

Each brochure within the sections contains text, pictures and where to go for further information.

Monitoring is important for a number of reasons:

- o Detecting change over time on your property or local reserve may identify the requirement for changed management practices.
- o To assess the effectiveness of management interventions such as fencing and weed control in enhancing habitat.
- o Increasing knowledge, understanding and appreciation of natural resources of the community, decision makers and scientists.
- o Influencing decision making at the local level to manage natural resources to determine appropriate management actions.

## MEDIUM SHRUBS OF THE CAPE TO CAPE REGION

### Riparian series

Shrubs offer a range of functions which are vital to a healthy riparian zone. These functions include offering habitat and food for local animals and stabilising stream banks. Some of the common shrubs over 2m are listed below.

### Hibbertia species

(*Dilleniaceae*) Yellow Buttercups. Guinea Flowers

**HABIT** Shrubs, prostrate and ground hugging to erect, to 2.5m. **FLOWERS** Distinctive bright yellow flowers with 5 petals. Winter/Spring. **ZONE** Ephemeral, under-storey and mid-storey.



### Anigozanthos flavidus

(*Haemodoraceae*) Tall kangaroo paw

**HABIT** Herb, large clumping rhizome habit, to 3m. Leaves linear, long and flat. **FLOWERS** On tall stem with 6 fingered paw, reddish brown to red, yellowish-green with pink. Spring/Summer. **ZONE** Ephemeral, under-storey.



### Acacia myrtifolia

(*Mimosaceae*) Myrtle Wattle.

**HABIT** Shrub, large bushy habit, to 4m. Branchlets often reddish. **FLOWERS** Flower heads globular and cream to pale yellow. Late Winter/Spring. **ZONE** Ephemeral, mid-storey. Nitrogen fixer.



### Acacia urophylla

(*Mimosaceae*) Net-leaved Wattle

**HABIT** Shrub, open habit, to 3m. Phyllodes (leaves) flat and prominently veined. **FLOWERS** Clusters of white to pale yellow globular heads. Winter/Spring. **ZONE** Ephemeral, mid-storey. Nitrogen fixer.



## MEDIUM SHRUBS (2m+) of the CAPE TO CAPE REGION

### Beaufortia sparsa

(*Myrtaceae*) Swamp bottle brush

**HABIT** Shrub, erect habit, to 3m. Stem hugging small leaves. **FLOWERS** Scarlet red bottle brush flowers, stamens are branched. Late Summer/Autumn/early Winter. **ZONE** Damp, mid-storey. Important nectar source for Honey and Pygmy Possums.



### Kunzea ciliata

(*Myrtaceae*)

**HABIT** Shrub, dense spreading habit, to 3m. **FLOWERS** Dense terminal globular flower heads, numerous stamens, generally pink-purple, but also pale pink and creamy white. Spring/Summer. **ZONE** Ephemeral and damp, mid-storey. Coloniser.

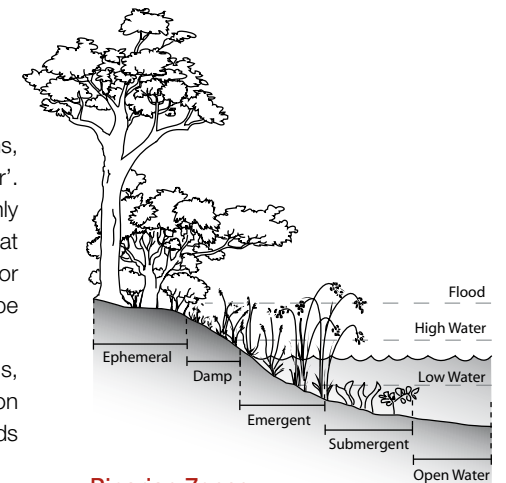


### Further information

#### Riparian Vegetation

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Uses : Provides habitat for birds, mammals, reptile, frogs, insects, gilgies. Provides food, nesting and shelter. Vegetation filters water of pollutants before entering water body. Holds banks together and stabilises soil with roots.



Riparian Zones

#### Resources

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Web: [www.capetocape.org.au](http://www.capetocape.org.au)



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## Taxandria linearifolia

(Myrtaceae) Swamp Peppermint, Tea-tree

**HABIT** Shrub, tall and open habit, often weeping, to 5m. Leaves alternate and linear. **FLOWERS**. In clusters, small and white, 5 petals. Spring/early Summer. **ZONE**. Damp, mid-storey. Coloniser.



## Taxandria parviceps

(Myrtaceae) Fine Tea-tree

**HABIT** Shrub, erect habit, to 3m. Leaves narrow in alternate clusters, curving outwards. **FLOWERS** In clusters, terminal, small white and 5 petals. Spring. **ZONE** Damp, mid-storey. Coloniser.



## Bossiaea linophylla

(Papilionaceae) Golden cascade

**HABIT** Shrub, slender weeping habit, to 2.5m. Leaves alternate and very narrow. **FLOWERS** Two-coloured pea flowers, yellow or orange and red to brown. Winter/Spring/early Summer. **ZONE** Ephemeral, mid-storey. Nitrogen fixer.



## Hovea eliptica

(Papilionaceae) Tree Hovea

**HABIT** Shrub, tall habit, to 3m. Leaves alternate, leathery. **FLOWERS** Inflorescence of axillary clusters, pea-like flowers, deep purple-blue with yellow to white "eye". Late Winter/spring. **ZONE** Ephemeral, mid-storey. Coloniser. Nitrogen fixer.



## Mirbelia dilatata

(Papilionaceae) Holly-leaved Mirbelia

**HABIT** Shrub, erect habit, to 3m. Leaves rigid, spiny lobed, holly like. **FLOWERS** Pea like, dark pink to purple with yellow "eye". Spring/Summer. **ZONE** Ephemeral, mid-storey. Coloniser. Nitrogen fixer.



## Viminaria juncea

(Papilionaceae) Swishbush. Golden Spray

**HABIT** Shrub, tall habit with slender weeping branches, to 5m. Leaves branchlet like phyllodes. **FLOWERS** Elongated terminal inflorescences, flowers pea like, yellow and orange to brown. Spring/Summer. **ZONE** Ephemeral and damp, mid-storey. Coloniser. Nitrogen fixer



## Hakea trifurcata

(Proteaceae) Two-leaf Hakea

**HABIT** Shrub, dense habit, to 3.5m. Grows two kinds of leaves- flat leaves shortly stalked and 3 pronged needle like leaves. Likes granite. **FLOWERS** White and hairy. Winter/Spring. **ZONE** Ephemeral, mid-storey.



## Boronia species

(Rutaceae) Pink Flowering Boronias

**HABIT** Shrubs or herbs, erect habit, 0.6m to 3m. Opposite leaves, many with oil glands. Fragrant leaves and/or flowers. **FLOWERS** Pink and 4-petalled. Spring. **ZONE** Ephemeral, mid-storey.



## Chorilaena quercifolia

(Rutaceae) Oak-leaved Chorilaena. Karri Hazel

**HABIT** Shrub, large open habit, to 3m. Covered in star-like branched hairs. Indented oak-shaped leaves. **FLOWERS** Drooping cream heads enclosed by green bracts. Late Winter/Spring/Summer. **ZONE** Ephemeral, mid-storey.



## Melaleuca lateritia

(Myrtaceae) Robin Redbreast Bush

**HABIT** Shrub with fibrous bark, upright habit, to 2m. Leaves alternate, narrow and linear. **FLOWERS** Cylindric bottlebrush, bright red, stamens are not branched. Early Summer/Autumn. **ZONE** Damp, mid-storey.



# SEDGES, RUSHES AND GRASSES OF THE CAPE TO CAPE REGION

## Riparian series

Rushes and sedges are terms commonly applied to species from the grass-like families Juncaceae, Restionaceae and Cyperaceae. Unlike many tree and shrub species, they have shallow spreading surface roots, which bind the soil and reduce erosion. Rushes and sedges are pivotal to habitat and water quality improvement of waterways. Their soil binding properties and growth habit means they are excellent at slowing the rate of water flow and trapping sediment within waterways. This brochure provides examples of just a few of the many species growing in the Capes region.

### Mesomelaena tetragona (Cyperaceae) Semaphore Sedge

**HABIT** Sedge, grass-like tufted clumps, to 1m.  
**FLOWERS** Distinctive dark brown flower heads with many spikelets, two long bracts extending out as if signalling semaphore, when in flower cream to yellow. Autumn/Winter. **ZONE** Ephemeral.



### Juncus kraussii (Juncaceae) Sea Rush

**HABIT** Rush, tussocky growth habit, to 1m. Leaves stem like, dark green, forming large clumps.  
**FLOWERS** Branched with numerous flower clusters and seed capsules, deep red-brown. Spring/early Summer.  
**ZONE** Emergent and damp.



### Juncus pallidus (Juncaceae) Pale Rush

**HABIT** Rush, robust, tall and tufted, to 2m. Stems circular in cross section, leaves reduced to basal sheaths.  
**FLOWERS** Branched and of numerous straw-coloured flowers. Pale brown capsules contain numerous fine seed. Spring. **ZONE** Damp.  
Other common Juncus sp.: J. pauciflorus, J. planifolius and J. subsecundus- all common to the Capes region.



### Meeboldina scariosa (Restionaceae) Velvet Rush

**HABIT** Rush, tufted, to 1m. Male and female on separate plants. **FLOWERS** Pink to red-brown. Male has pendulous, nodding spikelets. Female has erect tufted flower head. Spring/Summer. **ZONE** Damp.



# SEDGES, RUSHES & GRASSES OF THE CAPE TO CAPE REGION

**GRASSES** There are many native grasses. Only 3 of this diverse group are mentioned below.

### Microlaena stipoides (Poaceae) Weeping Grass

**HABIT** Grass, sprawling, weeping, to 0.6m. Leaf blades linear, flat, often hairy. **FLOWERS** Loose but coarse, with well-spaced and often drooping green spikelets. Spring/Summer. **ZONE** Ephemeral.



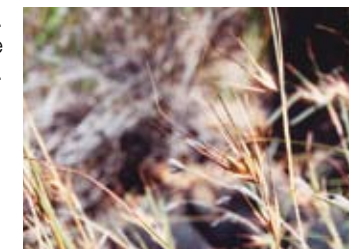
### Tetrarrhena laevis (Poaceae) Forest Ricegrass

**HABIT** Grass, often sprawling, to 0.6m. Leaf blades linear, flat and hairless. **FLOWERS** Slender and loose. Spikelets very compressed, rounded, rice like, green. Spring/Summer. **ZONE** Ephemeral.



### Themeda triandra (Poaceae) Kangaroo Grass

**HABIT** Grass, tufted, to 1m. Leaf blades linear, flat or folded. Flowers. Loose and branched with leafy bracts surrounding clusters of spikelets, like paws of kangaroo, pale brown. **FLOWERS** most of year. **ZONE** Ephemeral.

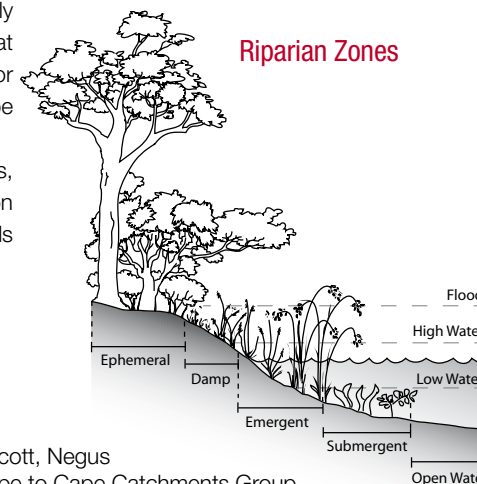


## Further information

### Riparian Vegetation

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Uses : Provides habitat for birds, mammals, reptile, frogs, insects, gilgies. Provides food, nesting and shelter. Vegetation filters water of pollutants before entering water body. Holds banks together and stabilises soil with roots.



## Resources

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# SEDGES, RUSHES & GRASSES OF THE CAPE TO CAPE REGION

## Baumea juncea

(Cyperaceae) Bare Twig Rush

**HABIT** Sedge, rush like, to 1m. Stems, slender, circular in cross section, blue-green, leaves reduced to stem hugging sheath.

**FLOWERS** Spike like with small brown spikelets, if fertilised holds small round black nut. Spring/Summer. **ZONE** Damp and emergent.



## Baumea vaginalis

(Cyperaceae) Sheath Twig Rush

**HABIT** Sedge, tufted, rush like, robust, to 1.5m. Stems circular in cross section, leaves reduced to stem hugging sheaths.

**FLOWERS** Spike like, long with a few stalkless, brown spikelets. Spring/early Summer. **ZONE** Damp.

Other common Baumea sp. : B. articulata- tall species that is common around estuaries and permanent pools. B. preissii and B. rubiginosa- less common species found in swampy areas.



## Carex appressa

(Cyperaceae) Tall Sedge

**HABIT** Sedge, grass-like to 1.8m. Stems sharply 3 angled, leaves flat and rough but sharp on margins. **FLOWERS** Spike-like with numerous dense spikes, pale greenish brown in colour. Spring.

**ZONE** Damp and emergent.

Other common Carex sp. : C. fascicularis.



## Chorizandra cymbaria

(Cyperaceae) Heron Bristle Rush

**HABIT** Sedge, rush-like, stems arising singly, to 1m. Leaves stem like, circular in cross section. **FLOWERS** Ovoid spikelets crowded in a single dense head appearing lateral to the stem. Spikelets purplish brown, one nut per spikelet. Autumn/Winter/Spring.

**ZONE** Damp.



## Cyathochaeta avenacea

(Cyperaceae)

**HABIT** Sedge, grass-like, forming slender tussocks, to 1.3m. Leaves with loose open sheath. **FLOWERS** Grass like flower spike with long, narrow, pale brown spikelets, nuts with persistent awn-like tips. Late Spring/Summer. **ZONE** Ephemeral.



## Ficinia nodosa

(Isolepis nodosa) (Cyperaceae) Knotted Club-rush

**HABIT** Sedge, rush-like tufts along rhizome, to 1m. Stems, rigid and circular. Leaves reduced to brown basal sheaths.

**FLOWERS** Spikelets numerous in a dense globular cluster, brown, summer/autumn. **ZONE** Ephemeral and damp. Salt-tolerant and hardy. Valuable dune stabiliser.



## Gahnia decomposita

(Cyperaceae) Saw Sedge

**HABIT** Sedge, robust, large grass like tussocks, to 3m. Stems circular. Leaves long and drooping, blades flat or curled inwards. **FLOWERS** Long, spreading and loose, often drooping, with many single brown to black spikelets. Spring.

**ZONE** Damp.



## Gahnia trifida

(Cyperaceae) Coast Saw Sedge

**HABIT** Sedge, robust, grass like tussocks, to 1.5m. Stems circular. Leaves long and drooping, blades curled inwards.

**FLOWERS** Short branches of very dense clusters of spikelets, brown [with seeds orange-brown]. Late Winter/Spring.

**ZONE** Damp.



## Lepidosperma effusum

(Cyperaceae) Spreading Sword Sedge

**HABIT** Sedge to 3m, forming large dense tussocks. Stems and leaves broad and flat. **FLOWERS** Brown, long, much branched and weeping. Summer/Autumn.

**ZONE** Damp.



## Lepidosperma tetraquetrum

(Cyperaceae) Square Sedge

**HABIT** Sedge to 3m, forming large tussocks. Stems and leaves square to rectangular in cross-section. **FLOWERS** Loose brown inflorescence. Summer/Autumn.

**ZONE** Damp.

Other common Lepidosperma sp.: L. gladiatum - coastal species. L. squamatum, L. pubisquamum, and L. gracile - found commonly in upland areas. L. longitudinale - found in winter wet areas.



# LARGE SHRUBS AND TREES OF THE CAPE TO CAPE REGION

## Riparian series

Trees and large shrubs are a vital element of the riparian zone along waterways. They provide shade keeping water temperatures low and suppressing weed growth, drop leaves, sticks and logs which form important habitat in the water and on land and their roots help bind soil to reduce erosion. Some of the common species found in this area are listed below.

### Paraserianthes lophantha

(*Mimosaceae*) Cape Leeuwin wattle. Albizia

**HABIT** Tall shrub or tree, open habit, to 10m. Large feathery leaves. **FLOWERS** Large cylindrical spikes of greenish yellow flowers of stamen clusters. Oblong flat brown pods. **ZONE** Ephemeral, mid-storey and over-storey. Coloniser. Nitrogen fixer.



### Agonis flexuosa

(*Myrtaceae*) Peppermint. Willow Myrtle

**HABIT** Tree, erect or weeping habit, to 10m. Branchlets often zig zagging. **FLOWERS** Clusters of white flowers, 5 petals. Spring. **ZONE** Ephemeral, over-storey and mid-storey. Important food for ringtail possums.



### Corymbia calophylla

(*Myrtaceae*) Marri. Redgum

**HABIT** Tree, to 60m. Rough bark, separating into tiny scales. Leaves dull to shiny dark green above, paler below. **FLOWERS** Stamen clusters white to cream. Late Summer/Autumn. Nuts - urn shaped, "honkey nuts". **ZONE** Ephemeral, over-storey.



### Eucalyptus marginata

(*Myrtaceae*) Jarrah

**HABIT** Tree, tall habit, to 40m. Fibrous, grey-brown bark. Leaves with a margin, shiny dark green above, dull below. **FLOWERS** Stamen clusters white. Spring/Summer. Small, round nuts, 3 valves.

**ZONE** Ephemeral, over-storey.



# LARGE SHRUBS & TREES of the CAPE to CAPE REGION

### Eucalyptus patens

(*Myrtaceae*) Blackbutt, Yarri

**HABIT** Tree, tall, spreading habit, to 45m. Rough furrowed, chunky bark. Leaves dull blue-green both sides.

**FLOWERS** Stamen clusters white to cream. Spring/Summer. Nuts have 4 valves. **ZONE** Ephemeral, over-storey.



### Homalospermum firmum

(*Myrtaceae*)

**HABIT** Large shrub or small tree, erect, tall habit, to 5m. Alternate linear leaves. **FLOWERS** Single large white flowers along branchlets, 5 petals. Late Winter/Spring/early Summer. Large single fruiting capsules along branchlets. **ZONE** Damp, mid-storey. Coloniser.

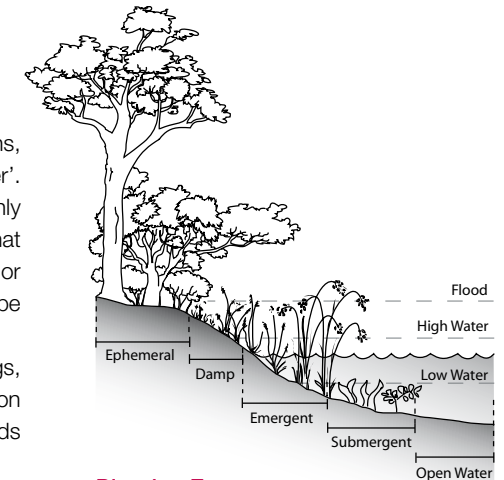


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Riparian Zones

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# LARGE SHRUBS & TREES of the CAPE to CAPE REGION

## Melaleuca incana

(Myrtaceae) Grey Honeymyrtle

**HABIT** Large shrub or small tree, dense habit to 4m. Foliage greyish with fine hairs. **FLOWERS** Short cylindric bottlebrushes, white to cream. Winter/Spring. **ZONE** Damp, mid-storey. Coloniser.



## Melaleuca preissiana

(Myrtaceae) Modong

**HABIT** Tree, stately habit, sinuous trunk, papery bark, to 15m. Provides dense canopy. **FLOWERS** Cylindric bottle brushes interrupted with leaves, white to cream. Early Summer. **ZONE** Damp, over-storey.



## Taxandria juniperina

(Myrtaceae) Wattie

**HABIT** Shrub or tree, tall habit, to 12m. Leaves alternate or in clusters, narrow and linear. **FLOWERS** Clusters of small white flowers, 5 petals. Summer. **ZONE** Ephemeral, over-storey and mid-storey. Coloniser.



## Callistachys lanceolata

(Papilionaceae) Native Willow. Wonnich

**HABIT** Tree or tall shrub, weeping habit, to 8m. Leaves in whorls. **FLOWERS** Slender inflorescence with yellow to orange pea like flowers. Spring /Summer. **ZONE** Ephemeral, mid-storey and over-storey. Nitrogen fixer.



## Gastrolobium bilobum

(Papilionaceae) Heart Leaf Poison

**HABIT** Shrub with dense habit, to 3m, or small tree to 8m. Leaves in whorls of 3 or 4. **FLOWERS** Terminal dense flower clusters of yellow to orange and red to brown pea flowers. Late Winter/Spring. **ZONE** Ephemeral, mid-storey and over-storey. Poisonous to live stock and humans.



## Banksia littoralis

(Proteaceae) Swamp Banksia

**HABIT** Shrub or tree, to 12m. Gnarled irregular trunk with rough crumbly bark. **FLOWERS** Cylindric flower cones, yellow. Autumn. Cylindric fruiting cone, flower remains shed early. **ZONE** Damp, mid-storey and over-storey. Important nectar source for Honey and Pygmy Possums.



## Hakea lasianthoides

(Proteaceae)

**HABIT** Shrub or small tree, erect, open habit, to 5m. Linear leaves. **FLOWERS** Clusters axillary along branch, white to cream with dense white to rusty hairs. Late Winter/Spring. **ZONE** Ephemeral, mid-storey.



## Trymalium floribundum

(Rhamnaceae) Karri Hazel. Soapbush

**HABIT** Tall shrub or tree, open habit, to 9m. Broad, soft, hairy leaves. **FLOWERS** Creamy, small flowers hang in large loose clusters. Winter/Spring. **ZONE** Ephemeral, mid-storey.



## Rhadinthamnus anceps

(Rutaceae) Blister Bush

**HABIT** Large shrub, slender habit, to 3m. Large leaves with small silvery scales and oil glands. Contact with sap may cause blistering. **FLOWERS** Clusters of large white 5-petaled flowers. Autumn/Winter/Spring. **ZONE** Ephemeral, mid-storey.



## Eucalyptus megacarpa

(Myrtaceae) Bullich

**HABIT** Tree, tall and thin habit, to 30m, also mallee form. Smooth grey to white bark. Leaves dull green to blue-green both sides. **FLOWERS** Large, stamen clusters white. Autumn/Winter. Nuts large, broad disc. **ZONE** Ephemeral, over-storey.





## REPTILES OF THE CAPE TO CAPE REGION

Lizards and snakes may be considered the most successful of modern day reptiles. In Australia they are the most species rich group of terrestrial vertebrates with nearly 700 species known to occur here. They are cold blooded (ectothermic) and therefore much of their activity is involved with controlling their body temperature. In the south west with our cool winters local reptiles enter a period of inactivity. Although some cold tolerant species like the Tiger Snake may be seen basking on sunny winter days. Once the weather warms activity increases and these shy creatures emerge from their winter burrows. Look out for these remarkable local reptiles.

### Marbled Gecko

*Phyllodactylus marmoratus subsp. marmoratus*

Found throughout south western WA growing up to 13cm. It forages at night along trees and granite outcrops. Found under leaf litter, bark and logs.



### Earless Skink

*(Hemiergis peronii)* This glossy, slender skink is very common in the south west growing up to 15cm. They will shelter under anything that provides adequate cover and are particularly fond of moist areas. They are most active at night. They are often unearthed in backyards while gardening and at first sight they resemble a small snake as they wriggle away with their small limbs held against their body.



### King Skink

*Egernia kingii* A large, solid skink growing up to 55cm and very fond of rocky areas like granite outcrops, where it is not uncommon to see several individuals basking in the sun close together. It feeds on a wide variety of invertebrates and plant material.



### Bobtail

*Tiliqua rugosa* Common in most habitats, although less common around swamps and wetlands. The bobtail is a large skink with a broad triangular head and short blunt tail. It is omnivorous, feeding on a wide range of invertebrates, flowers and fruits. Adults will reach 30cm in size.



## REPTILES of the CAPE to CAPE REGION

### Where can you get help?

Western Australian Society of Amateur Herpetologists,  
169 Egina Street, Mount Hawthorn, WA 6016, Australia.  
Phone (08) 44446412 / (08) 94452409 / (08) 92953007

Nature Conservation Fauna Officer at Busselton - 9752 5555

Augusta-Margaret River Shire Ranger and services - 9780 5213

### References

Bush, B., Maryan, B., Browne-Cooper, R., and Robinson, D. 1995, A Guide to the Reptiles and Frogs of the Perth Region, University of Western Australia Press, WA  
<http://www.naturebase.net>

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## REPTILES of the CAPE to CAPE REGION

## Southern Heath Monitor

*Varanus rosenbergi* A moderately large monitor with a total adult length of 150cm. It is found in sandy soils supporting woodlands and shrub lands. Spends most of its time on the ground but can climb trees. Digs burrows for shelter or will use burrows of other animals. It feeds on frogs, reptiles, birds and insects.



## Red-legged Ctenotus

*Ctenotus labillardieri* Inhabits heath lands, woodlands and rocky outcrops. Often found beneath rocks and logs. It favours granite outcrops where several individuals can often be seen together under one rock. This skink enjoys the wet karri forests where it can grow to a maximum size of 76mm.



## South West Bearded Dragon

*Pogona minor* Usually grey-brown, covered in tiny scales with a spiky body and has a distinctive "beard" of spines under the chin and over the head. Adults may be up to 150mm in length, excluding their long whip-like tail. They are found in a variety of habitats from coastal dunes to heavily timbered areas.



## Southern carpet python

*Morelia spilota* Inhabits undisturbed patches of bush land and limestone formations in heath. It shelters in hollow tree limbs, rock crevices and burrows of other animals. Adult length up to 250cm although there have been reports up to 4 metres long. The python is nocturnal although sometimes seen basking and moving about during the day. It feeds mainly on mammals, birds and occasional lizards. A harmless snake, they will



## Dugite

*Pseudonaja affinis* Very common in this area, they favour human made grasslands and disturbed sites. Dugites are an alert fast moving snake. They forage at night during the hot weather. They are attracted to bird or rabbit enclosures and sheds where they hunt for mice. They will also feed on lizards, snakes and birds. Mating in spring, babies emerge late summer and early autumn. Adults grow to at least a length of 200cm. Dugites will bite if cornered, stepped on, harassed or handled. They are dangerously venomous.



## Western tiger snake

*Notechis scutatus* The adults reach an approximate length of 150cm. Commonly found in vegetation bordering streams, swamps, lakes, rivers and creek lines. It is also often observed in water. Most active during the day but will be active during winter on fine sunny days. Feed mainly on frogs, lizards, mammals and young birds. A tiger snake will bluff a defensive action but will not often bite unless touched. They are however dangerously venomous.



## Bardick

*Echiopsis curta* A relatively small snake which reaches a maximum length of 70cm. It inhabits coastal dune vegetation, heathlands and banksia woodlands. It is active both day and night and is often found on roads and tracks. It shelters in leaf litter, fallen shrubs, dense vegetation or grass tussocks and feeds on lizards, frogs and small mammals. A bite may cause serious symptoms and large individuals may be dangerously venomous especially to small children.



## Crowned snake

*Elapognathus coronatus* Adult length is 70cm. Found in wetlands, woodlands, wet lowlands with melaleucas and balgas. Mainly active during the day but will forage at night during hot weather. Around wetlands its food consists of frogs and in sandy areas it feeds on skinks. It is venomous but isn't considered harmful.



## Southern Blind Snake

*Ramphotyphlops australis* Looking more like an oversized earthworm than a reptile with a total length of 45cm, it is sometimes unearthed in gardens or during other digging activities. These snakes live mostly underground or conceal themselves under rocks and logs. Armed with glossy, close-fitting scales they feed on termites and ant eggs. All blind snakes are completely harmless, but if handled, they are able to produce a foul-smelling substance from glands.



## MAMMALS OF THE CAPE TO CAPE REGION

A variety of native mammals are found in the Cape to Cape region of the South West. Many of these are threatened or near threatened due to loss of habitat and predation by foxes and cats.

wt = weight hb = head and body t = tail

### Western Grey Kangaroo

*Macropus fuliginosus*

wt. M to 54kg F to 28kg

**ID** Large kangaroo. Greyish-brown to reddish-brown, blackish on muzzle. Males can grow to more than 2m from head to tail, females are smaller. Hops in upright position with head held high and tail curved upward. **HABITAT** Prefers open grasslands near water with nearby forest or woodland. **DIET** Mainly grass and herbs, some browsing on shrubs. **BEHAVIOUR** Feed from late afternoon to early morning. Rest during day. **STATUS** Common across southern Australia.



### Western Brush Wallaby

*Macropus irma*

Black-gloved Wallaby wt. 8kg hb. 1200m t. 720mm

**ID** Pale to mid grey, white facial stripe, black and white ears, black hands and feet. Long tail with crest of black hair towards end. Moves fast with head held low and tail extended horizontal. **HABITAT** Open forest and woodland, seasonally wet flats with low grasses and open scrubby thickets. Some areas of mallee and heathland. **DIET** Grazes on grass, herbs and shrubs including Couch, Pigface and Christmas tree. **BEHAVIOUR** Activity greatest early morning and late afternoon. Rests hotter part of day. **STATUS** Only in SW WA. Uncommon throughout its range. Near threatened.



### Quokka *Setonix brachyurus*

Short-tailed Wallaby. Short-tailed Pademelon. wt.2.5-4.2kg hb.410-540mm t.250-310mm

**ID** Small wallaby, stocky, short-tailed. Short broad head, rounded ears. Thick coarse grizzled grey-brown fur. **HABITAT** Densely vegetated swamps and sometimes tea-tree thickets on sandy soils along creek systems and dense heath on slopes. **DIET** Browses and grazes on grasses, sedges, succulents and foliage of shrubs. Peppermint, Dampiera and Thomasia species dominant in diet **BEHAVIOUR** Mostly nocturnal. Tend to hide in runs among vegetation during day and forage along swamp margins at night. **STATUS** Only in SW WA. (Stable population Rottnest Is.). Mainland Quokkas in scattered small populations, rare and restricted. Threatened.



## MAMMALS of the CAPE to CAPE REGION

### Honey Possum *Tarsipes rostratus*

Noolbenger. wt. 5-10gm hb. 65-85mm t. 70-100mm

**ID** Small, mouse size possum. Long pointed nose, round ears, eyes closer to top of head and a very long tail, not curled. Grey brown with 3 darker stripes. Cream underneath. **HABITAT** Banksia woodlands, coastal heath. Needs high diversity of shrubs to provide year round nectar. **DIET** Nectar and pollen: banksias, dryandras, grevilleas and hakeas, eucalypts, bottlebrushes, melaleucas, calothamnus. **BEHAVIOUR** Mostly nocturnal. Arboreal and terrestrial. Agile and fast moving, darts between blossoms. Shelters in tree hollows, birds nests, balga skirts or other cranny. Becomes torpid in cold weather. **STATUS** Only SW WA. Locally common.



### Bush Rat *Rattus fuscipes var. fuscipes*

Mootit. wt.50-225gm hb.100-205mm t.100-195mm

**ID** Native rodent. Looks similar to introduced black rat. Soft greyish brown fur. Pointed head rounded ears and short scaly tail. **Habitat** Forests and woodlands, heath. Prefer dense undergrowth. **Diet** Omnivorous. Eats fungi, grasses, fruits, seeds and insects. **Behaviour** Nocturnal, terrestrial, shy. Digs shallow burrows in sandy soils for shelter and nesting and lines nests with grass. **STATUS** Southern Australia and QLD. Only subspecies fuscipes in SW WA. Common.



### Water Rat *Hydromys chrysogaster*

Beaver Rat. Rakali. wt.620-1200gm hb.300-390mm t.230-320mm

**ID** Native aquatic rodent. Thick black to dark grey fur, cream to orange underneath. Thick tail covered with dark hair with white tip. Rounded muzzle with many whiskers. Short rounded ears and nostrils set high on head. Back feet are webbed. **HABITAT** In vicinity of permanent water, fresh, brackish or marine. **DIET** Aquatic invertebrates, mussels, fish, frogs, small birds. **BEHAVIOUR** Mostly nocturnal. Brings food to feeding platform to be eaten, leaving a midden. Forages in water or adjacent vegetation. Nests in logs or tunnels dug into banks. **STATUS** Widespread in aquatic environments of Australia. SW WA. Common.



### Microbats

wt.8g -21gm

**ID** Small, insectivorous bats. 9 species found in SW WA, 2 are free-tail bats and 7 have a tail membrane between legs. Chocolate to rusty brown to black fur bodies with large ears. Wing is membrane stretched between 3 fingers. **HABITAT** Wide variety of habitat, dry leafy forest, woodland, heath, shrubland, wet leafy forest. **Diet** Insectivorous. Many catch insects on the wing. **BEHAVIOUR** Nocturnal. Roost under bark of trees and in tree hollows, some in small groups (5) or larger colonies (30). **STATUS** South Western Free-tail bat and Western False Pipistrelle only in SW WA. Wide spread, common to uncommon.



Special thank yous to Cherie Kemp, Caitlin Prowse and the Department of Environment and Conservation for photographs and information.

### References

A Field Guide to the Mammals Of Australia, Menkhorst and Knight. Oxford.

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Web: [www.capetocape.org.au](http://www.capetocape.org.au)



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### Chuditch *Dasyurus geoffroii*

Western Quoll, Western Native Cat. wt.M to 2kg, F to 1kg hb.260-400mm t.210-350mm

**ID** Largest carnivorous marsupial in WA. Soft white spotted brown fur, large rounded ears, pointed muzzle, large dark eyes and non-hopping gait. **HABITAT** Woodland, dry leafy forests, riparian vegetation, beaches. **DIET** Opportunistic feeders. Mostly termites, centipedes, cockroaches and grasshoppers. Will also eat eggs, small lizards, birds and mammals. **BEHAVIOUR** Solitary, mostly nocturnal, terrestrial but can climb trees. Forage for food at night mostly on the ground. Dens in hollow or burrow during the day. **STATUS** Only SW WA. Threatened.



### Brush-tailed Phasogale *Phasogale tapoatafa, tapoatafa*

wt.110-310gm hb.150-260mm t.165-235mm

**ID** Carnivorous marsupial. Small and squirrel like. Pointed snout, black "bottle-brush" tail. Grey upside with cream to white underside. **HABITAT** Dry leafy forest and open woodland. **DIET** Opportunistic feeders. Primarily insectivores. Diet includes invertebrates, nectar, small birds and small mammals. **BEHAVIOUR** Strongly arboreal. Nocturnal. Nest sites include hollow tree limbs, rotten stumps, and birds nests. Mates 3 week period between May and July, males then die off. **STATUS** SW WA and SE Australia. Near threatened.



### Mardo *Antechinus flavipes*

Yellow-footed Antechinus. wt.20-75gm hb.90-160mm t.65-140mm

**ID** Carnivorous marsupial. Size of a large mouse. Grey with reddish brown towards rump and feet. Belly is quite pale. Lighter rings of fur around eye. Pointed heads with dark eyes and large ears. Usual gait of short jerky bounds. **HABITAT** Dry leafy forest with dense undergrowth, heathy woodland and coastal vegetation. **DIET** Invertebrates, small mammals, birds and reptiles. Sometimes flowers and nectar. **BEHAVIOUR** Active day or night. Builds nest of dry leaves in tree cavity. Mates 2 week period in August, then males die off. **STATUS** Southern Australia and QLD. Only subspecies leucogaster in SW WA. Locally common.



### Grey-bellied Dunnart *Sminthopsis griseiventor*

wt.15-25g hb.65-95 t.65-95

**ID** Carnivorous marsupial. Small, about the size of a mouse. Grey, under parts greyish. Pointed face, large bare ears and long sparsely haired tail. **HABITAT** Heathy forest and woodland, banksia woodland, melaleuca swampland, dense mature heath. **DIET** Insectivore/carnivore, large invertebrates and lizards. **BEHAVIOUR** Nocturnal. Shelters in nest just below ground. **STATUS** Only SW WA. Locally common.



### Echidna *Tachyglyssus aculeatus, acanthion.*

wt.2-7kg hb.300-450mm

**ID** Monotreme. Back surface of body covered with spines, with fur present between them. Belly only covered with fur. Tubular snout. Teeth are absent and the tongue is long and protruding well beyond the end of the snout. Powerful digger with short legs and long claws. **HABITAT** In almost all terrestrial habitats except intensively managed farmland. **DIET** Insectivore. Ants, termites, beetle larvae and other soil invertebrates. **BEHAVIOUR** Solitary with large home range. Moves slow with slow determined rolling gait. Active day or night. Shelters in logs, crevices, burrows or piles of litter. **STATUS** Throughout Australia. Common to sparse.



### Quenda *Isoodon obesulus, fusciventer* Southern

Brown Bandicoot. wt.M500-1500gm F400-1000gm hb.280-355mm t.80-130mm

**ID** Bandicoot, similar size to rabbit. Coarse dark greyish fur with creamy white underside. Tapered shortish dark brown tail. Ears are short and rounded. **HABITAT** Shrubby forest, swampy heath and coastal scrub, usually with cover to 1m high. Shelters in nest of vegetation beneath dense cover. **DIET** Omnivorous. Includes invertebrates, fungi, tubers. **BEHAVIOUR** Digs for food leaving conical pits in soil. Generally nocturnal, can be active during day. Solitary. **STATUS** Only SW WA. Near threatened.



### Brushtail Possum

*Trichosurus vulpecular, hypoleucus*

wt.1.5-4kg hb.350-500mm t.250-400mm

**ID** Cat-sized arboreal and terrestrial possum. Silver grey above with cream underparts. Tail black, slightly bushy. Long oval ears 50-60mm. **HABITAT** Found in most treed environments. **DIET** Eats mostly leaves of a wide variety of trees, shrubs and herbaceous plants, also flowers and fruits. **BEHAVIOUR** Nocturnal. Dens in tree hollows or other sheltered cranny, sometimes at ground level, sometimes in building rooves. **Status** Common in SW WA and SE Australia.



### Western Ringtail Possum

*Pseudocheirus occidentalis*

wt.0.82-1.13kg hb.300-400mm t.300-400mm

**ID** Dark grey-brown above with cream or grey underparts. Tail slender, strongly prehensile with terminal white quarter to half length. Short rounded ears. **HABITAT** Mostly coastal peppermint. **DIET** Herbaceous, 80% peppermint leaves. **BEHAVIOUR** Nocturnal. Shelters in dreys (nest like) in tree canopies or tree hollows. **STATUS** Only in SW WA, most populations restricted to coastal peppermint. Threatened.



### Western Pygmy Possum

*Cercartetus concinnus*

wt .8-18gm hb. 70-100mm t. 70-95mm

**ID** Small, mouse size possum. Cinnamon grey, with clear white underparts. Large eyes, large soft ears, a short snout and curled [prehensile] tail. **HABITAT** Banksia woodland, Coastal heath. Understorey of forests and woodlands. Needs continuous supply of nectar and pollen. **DIET** Insectivorous and nectivorous; eating insects, spiders nectar and pollen. **BEHAVIOUR** Nocturnal, arboreal, terrestrial. Shelters in spherical nest of bark and leaves in tree hollow, balga skirt or other cranny. Becomes torpid in cold weather. **STATUS** SW WA. Mallee areas of SA and Vic. Locally common.



## FROGS OF THE CAPE TO CAPE REGION

The Capes region is home to a high diversity of frog species including endemic (found nowhere else) and threatened species. Two of WA's most endangered frogs, the white and orange-bellied frogs are found at the southern edge of the region.

Most of our frogs are small, ground dwelling species reliant on seasonally inundated wetlands or winter streams. Some species (eg. Roseate Frog, Orange-bellied and White-bellied frogs) can complete their breeding cycle on land without free-standing water.

Colour variation within species and similarities between species can complicate identification and an understanding of the distribution and soil preferences of the species is valuable. Call recognition is often an easier means of identification - the 'Frogwatch' website (<http://frogwatch.museum.wa.gov.au/>) has recordings of all our local species' calls.

Threats to our local frog species are many and varied including drainage of wetlands, degradation to riparian and wetland vegetation, stormwater pollution and reduced water quality, reduced rainfall and increased demand for water and the introduction of the 'chytrid fungus' disease which has been linked with the extinction of frog species in the eastern states. The Cane Toad would also have a significant impact on local frog species if it is allowed to reach the area.

### SPRING BREEDERS/CALLERS

#### Slender Treefrog *Litoria adelaidensis*

Elongated brown/green with brown and white stripes running down side of body. Red/orange spots under thighs. **HABITAT** Dense vegetation (particularly sedges and rushes) around permanent and seasonal waters. **CALL** A 'harsh grating screech'. **TADPOLES/EGGS** Egg clusters attached to vegetation, tadpoles brown with 2 pale stripes (up to 5.5cm).



#### Motorbike Frog *Litoria moorei*

Brown, green or green/brown splotched frog to 7.5cm. Prominent toe and finger pads. **HABITAT** Common frog preferring permanent water and commonly found in gardens. **CALL** resembling a motorbike moving through gears. **TADPOLES/EGGS** Egg clumps attached to aquatic vegetation. Brown tadpoles to 8cm.



## FROGS of the CAPE to CAPE REGION

#### Clicking Froglet *Crinia glauerti*

Small (to 2.4cm) Colouration highly variable grey/brown/black, patches and patterning possible. Often red thigh patches. **HABITAT** Surrounding permanent or seasonal water where subsurface moisture provides a summer retreat. **CALL** Long hollow rattle likened to a 'pea in a can'. **TADPOLES/EGGS** Eggs sink in shallow water, mottled brown tadpoles to 2.5cm.



#### Bleating Froglet *Crinia pseudinsignifera*

A small highly variable coloured frog from grey to brown to black with many combinations and patterning possible (<2.5cm). **HABITAT** Found in seasonal wetlands and waterways on clay soils and granite. **CALL** A high pitched sheep like bleat 'baa..baa..baa'. **TADPOLES/EGGS** Clumps or single eggs on waters edge.



#### Banjo Frog/Pobblebonk *Limnodynastes dorsalis*

Large cream to reddish brown mottled frog (up to 7.5cm). Dark bar from snout, through eye and above forelimb. Groin bright red. **HABITAT** Calls from vegetation in permanent water and dams. **CALL** Single 'Bonk' akin to a plucked banjo. **TADPOLES/EGGS** Eggs a white foamy mass, brown/black tadpole to 8cm.



We would like to thank the following people and organisations for the images they supplied:

- Brad Maryan: Western Australian Museum
- Johnny Prefumo
- Department of Environment and Conservation
- John McKinney

#### Further Resources

The information in this booklet has largely been sourced from the following frog references:

Frogs of Western Australia by M. Tyler, L.A. Smith and R.E. Johnstone  
Frogs and Tadpoles of Australia by Marion Anstis  
Frog Calls of Southwestern Australia by J. D. Roberts  
Building Frog Friendly Gardens: A practical guide to encouraging frogs to visit and breed in gardens of southwest Western Australia by Ken Aplin, Anthea Paino and Lyndal Sleep.  
Reptiles and Frogs In the Bush: Southwestern Australia. by Bush, B., Maryan, B., Browne-Cooper, R. and Robinson, D. 2007 University of Western Australia Press.  
Alcoa Frog Watch Website: <http://frogwatch.museum.wa.gov.au/>  
Amphibian Diseases Website: [www.jcu.edu.au/school/phtm/PHTM/frogs/ampdis.htm](http://www.jcu.edu.au/school/phtm/PHTM/frogs/ampdis.htm)

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## FROGS of the CAPE to CAPE REGION

## SUMMER BREEDERS/CALLERS

### White Bellied Frog *Geocrinia alba*

A very small (up to 2.4cm), light brown or grey frog often with dark spots. White-pale yellow underside. **HABITAT** Dense wetland and riparian vegetation. **Critically endangered** species with highly restricted, distribution around Karridale-Witchcliffe area. **CALL** Very rapid series of 11-18 'ticks'. **TADPOLES/EGGS** Eggs and tadpoles confined to damp depressions or 'nests'.



### Roseate Frog *Geocrinia rosea*

Small (<2.5cm) short legged frog with smooth pink/red underside. Upper surface grey, brown with darker brown mid-dorsal stripe. Male throats darkened. **HABITAT** Damp areas beneath vegetation and timber. **CALL** tk....tk....tk....tk. **TADPOLES/EGGS** Eggs, tadpoles in damp depressions near streams.



### Orange/yellow Bellied Frog *Geocrinia vitellina*

A small (up to 2.5cm) short-bodied frog with short muscular legs. Grey to light brown upper surface with dark spots and an orange-yellow underside. **HABITAT** Very dense riparian vegetation. **An endangered** species restricted to Spearwood Creek tributary of the Blackwood. **CALL** Rapid series of 9-15 'ticks'. **TADPOLES/EGGS** Eggs and tadpoles confined to damp depressions or 'nests'.



### Nicholl's Toadlet *Metacrinia nicholli*

A small (up to 2.5cm) short-bodied frog. Often with a dark purplish back with bright orange patches in the groin, thigh and upper arm. Undersurface is dark purple and often starkly contrasting with yellow or orange patches. **HABITAT** Generally Karri forest amongst leaf litter, branches, logs and rocks. **CALL** Described as a short and grating croak with a "twang". **TADPOLES/EGGS** Eggs laid under leaf litter in Summer – no tadpole stage – fully developed frogs hatch from the eggs after several months.



## AUTUMN BREEDERS/CALLERS

### Moaning Frog *Helioporus eyrie*

A round, short legged frog to 6.5cm. Dark grey to brown with yellow/white splotches and spots. **HABITAT** Banksia woodlands and eucalypt forests. Seasonal wetlands during breeding season. **CALL** Series of long, rising moans. **TADPOLES/EGGS** White, foamy egg mass, dark brown tadpole to 5cm with pale stripes.



### Whooping Frog *Helioporus inornatus*

Another round short legged frog to 6.5cm. Uniform chocolate brown often with white/yellow mottling. **HABITAT** Banksia woodlands and eucalypt forests. Seasonal wetlands during breeding season. **CALL** A repeated 'whoop-whoop'. **TADPOLES/EGGS** White, foamy egg mass, black tadpoles to 6cm.



### Crawling Frog/Guenther's Toadlet *Pseudophryne guentheri*

Robust, warty, flattened frog to 3.5cm. Mottled brown/black often with bar between eyes and 'X' above the shoulders. **HABITAT** Damp soil under or amongst rocks, leaf litter and branches. **CALL** Short, sharp 'squelch'. **TADPOLES/EGGS** Eggs laid in damp depressions, pear shaped mottled tadpoles.



### Lea's Froglet *Geocrinia leai*

Brown - yellowish climbing frog to 2.5cm, with central patch of grey/black colour on back. Large banded hind limbs. **HABITAT** Streamside vegetation. **CALL** Repeated tk....tk....tk. **TADPOLES/EGGS** Eggs attached to riparian vegetation, small tadpoles with deep fins and large mouth.



## WINTER BREEDERS/CALLERS

### Quacking Frog *Crinia georgiana*

Slightly flattened small (up to 3.6cm) frog varied cream to brown colouration and patterning. Bright red patch in the groin and thighs. Yellow - red upper eyelids. **HABITAT** Close to seasonal wetlands and pools, along streams and gullies. **CALL** Loud sharp 'quack....quack....quack' **TADPOLES/EGGS** Large eggs on edges of pools, small (~1.5cm) black tadpoles.



### Squelching Froglet *Crinia insignifera*

Small (<2.5cm) brown/grey patterned or mottled frog. Skin smooth or with bumps and ridges. Identify from Bleating Froglet. **HABITAT** Found in seasonal wetlands and waterways on sandy soils. **CALL** Loud 'squelch' **TADPOLES/EGGS** Eggs singly on bottom of shallow pools, tadpoles mottled grey/brown.



## MEDIUM BIRDS OF THE CAPE TO CAPE REGION

Medium to large birds in the following pages are generally birds 25cm or more in length. There are species from many different habitats and food types.



### Common Bronzewing

*Phaps chalcoptera* 28-35cm

**VOICE** Resonant deep repeated 'oom'. **HABITAT** Forest, woodlands, mallee, heath, coastal scrub.

**BEHAVIOUR** Feeds on ground, often in small groups.

### Red-tailed Black-Cockatoo

*Calyptorhynchus banksii* 50-61cm

**VOICE** Noisy, harsh 'kreek'. **HABITAT** Marri, jarrah and karri forest. Coastal or inland near water.

**BEHAVIOUR** Feeds on ground, often in small groups.



### Long-billed (Baudin's) Black-Cockatoo

*Calyptorhynchus baudinii* 50-60cm

**VOICE** Wailing cries when in flight. **HABITAT** Karri and marri open forest. **BEHAVIOUR** Nests in hollows Karri and Marri trees. Lazy floating flight.

Similar Species

### Short Billed (Carnaby's) Black Cockatoo

*Calyptorhynchus latirostris*

50-60cm except has a short tipped bill.



### Purple-crowned Lorikeet

*Glossopsitta porphyrocephala* 16cm

**VOICE** Constant high "tsi-i-it" in flight and shrill twittering while feeding. **HABITAT** Dry open eucalypt forest and woodland.

**BEHAVIOUR** Has a crimson patch under each pointed wing that can be seen as they fly overhead. Noisy flocks often seen feeding when eucalypts are in flower.



### Western Rosella

*Platycercus icterotis* 26cm

**VOICE** Soft and musical sound made up of repeated two-note whistles. **HABITAT** Forest, woodland, paddocks. **BEHAVIOUR** Timid, feeds quietly in foliage or on the ground.



## MEDIUM to LARGE BIRDS of the CAPE to CAPE REGION

Birds are an integral component of our ecosystem and we are all lucky enough to see them on a daily basis unlike many of our native animals. The diversity and structure of bird populations is influenced by the level of disturbance to our environment with some conditions favouring certain species. It is important we provide habitat for a range of bird species as they offer many essential services to our environment and daily life. These services include pollinating, spreading seed and insect control.

### THREATS TO BIRDS

Birds are often considered to be good indicators of the health of the overall environment. There are a number of threats which impact on our local birds. These include climate change, habitat clearance & fragmentation, environmental flows in our waterways, fires and burning regimes, invasive species (eg. animals such as cats and non-native birds like the kookaburras) and loss of tree hollows.

### BIRDWATCHING TIPS

The early morning and late afternoon are the best times for bird watching.

Familiarize yourself with the field guides and how to use them to look up birds quickly before you head out into the field.

Use binoculars for easier and more satisfying bird watching. Become familiar with how to focus them effectively.

Noting behaviour, posture when perching, calls, flight mannerisms, feeding habits will help you identify birds.

A very special thanks to Cathy Kumnick for compiling the information in this brochure. We would also like to thank Christine Wilder and Cherie Kemp for reviewing the brochure and providing information.

We would like to thank Michael Morcombe for allowing us to use images from his book 'Field Guide to Australian Birds'.

[www.michaelmorcombe.com.au](http://www.michaelmorcombe.com.au)

### Further Resources

Birds Australia Website, [www.birdswa.com.au](http://www.birdswa.com.au)

Michael Morcombe's 'Field Guide to Australian Birds'.

CCG pamphlet, 'Tips on Monitoring and Attracting Birds'.

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### Australian Ringneck (28)

*Barnardius zonarius* 35-37cm

**VOICE** Ringing to strident 'twenty-eight'. **HABITAT** Eucalypt forest and woodland, paddocks. **BEHAVIOUR** Tail spread in flight. Often seen feeding along roadsides.

### Red-capped Parrot

*Purpureicephalus spurius* 36cm

**VOICE** "Kurr-ak" repeatedly during flight and shriek when alarmed. **HABITAT** Eucalypt forest and woodland. **BEHAVIOUR** Eats marri and grass seeds. Swift, undulating flight. Soars in flight, often to great heights.



### Grey Butcherbird

*Cracticus torquatus* 24-30cm

**VOICE** Rich melodious piping. **HABITAT** Eucalypt woodland, dense forests and suburban parks. **BEHAVIOUR** Singly or in pairs. Direct, flat, gliding flight.

### Black-faced Cuckoo-shrike

*Coracina novaehollandiae* 33cm

**VOICE** Creaky 'kreeark'. **HABITAT** Open woodlands, forests, farms, gardens. **BEHAVIOUR** Undulating flight, shuffles wings on landing.



### Elegant Parrot

*Neophema elegans* 22cm

**VOICE** Sharp 'zwit-zwit-zwit' in flight, softer when feeding. **HABITAT** Usually lives where there is grassland, eucalypt forest and open woodland. **BEHAVIOUR** Feeds silently on the ground. Calls when in flight.



### Australian Magpie

*Gymnorhina tibicen* 36-44cm

**VOICE** Flute-like carolling or warbling, flocks often join each other in song. **HABITAT** Open forest, farms, urban land. **BEHAVIOUR** Direct flight. May aggressively defend nests by swooping.

### Red Wattlebird

*Anthochaera carunculata* 31-39cm

**VOICE** Raucous 'tobacco box', 'chokk'. **HABITAT** Forest, woodland, suburban gardens. **BEHAVIOUR** Large, noisy, aggressive bird. In flight, white tips of wings and tail conspicuous.



### Grey Currawong

*Strepera versicolor* 45-53cm

**VOICE** Ringing, clinking call, or bell-like repeated 'chimes'. **HABITAT** Open and low forest, woodland, mallee, heath, scrub and agricultural lands. **BEHAVIOUR** 'Rowing' flight. May resemble Laughing Kookaburra when flying away from observer.



### Magpie-lark

*Grallina cyanoleuca* 27cm

**VOICE** 'pee-wee'; also 'pee-o-wit' **HABITAT** Open areas, suburban gardens, often near water. **BEHAVIOUR** Mud nests. Feed mainly on insects. Has distinctive, slow, buoyant flight with deep, uneven, lapping beats of broad, rounded wings.



### Australian Raven

*Corvus coronoides* 52cm

**VOICE** Series of slow notes with strangled, dying finish, 'ark' 'aark'. **HABITAT** Most types except closed forests. **BEHAVIOUR** When calling, throat hackles fanned to form long 'beard'.



## SMALL TO MEDIUM BIRDS OF THE CAPE TO CAPE REGION

Small to medium birds in these pages are generally birds from 15cm to 25cm in length. This group contains a wide range of species.



### Stubble Quail

*Coturnix pectoralis* 18cm

**VOICE** High whistle 'titch-u-wip'. **HABITAT** Grassland, crops, likes cut wheat stubble. **BEHAVIOUR** In flight, a large brown quail with white streaks.

### Fan-tailed Cuckoo

*Cacomantis flabelliformis* 24-28cm

**VOICE** Mournful descending trill, repeated. Female, ascending 'pree ow ee'. **HABITAT** Wet forest, woodland. **BEHAVIOUR** Feeds on insects, hunts patiently from perch, before dropping to ground to catch the insect.



### Shining Bronze-Cuckoo

*Chrysococcyx lucidus* 16-18cm

**VOICE** Repeated 'few-ee' **HABITAT** Wet eucalypt forest. **BEHAVIOUR** Migrant, often seen Sept to Dec.

### Rainbow Bee-eater

*Merops ornatus* Size 23-28cm, including all tail.

**VOICE** High-pitched chitter, often during flight. **HABITAT** Open country, including sand dunes, banks. **BEHAVIOUR** Hunts fast-flying insects in open spaces, extremely agile in air, glides back to branch with insect and often beats it against the branch.



### Rufous Treecreeper

*Climacteris rufa* 15-17cm

**VOICE** Staccato notes, harsh rattle, chuckling songs. **HABITAT** Eucalypt forest, woodland. **BEHAVIOUR** Hops up tree trunks hunting insects in bark. Can only hop up, then flies down. Often seen on ground, fallen timber. Bobs tail when resting.

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## SMALL TO MEDIUM BIRDS OF THE CAPE TO CAPE REGION



### White-naped Honeyeater

*Melithreptus lunatus* 13-15cm

**VOICE** Husky mellow 'tsew-tsew-tsew' and a harsh grating 'sherp-sherp', which is often repeated. A soft but tense 'pew-pew-pew' is sounded as an alarm call.

**HABITAT** Eucalypt forest, woodland, usually in canopy.

**BEHAVIOUR** Forages through foliage and blossoms, darts skyward to take insects on the wing. Lives in pairs and small communal groups.



### Rufous Whistler

*Pachycephala rufiventris* 17cm

**VOICE** Succession of musical chattering, explosive song is a loud tuneful 'pee-pee-pee, joey-joey-joey', ending with 'eeee-chong'. **HABITAT** Open forest, woodland, scrubby areas, in gardens. **BEHAVIOUR** Forages in pairs or alone, moves methodically through tree and shrub canopy, occasionally hovering in search of insects.

### Brown Honeyeater

*Lichmera indistincta* 12-16cm

**VOICE** Loud, penetrating call. **HABITAT** Forest, suburbs, heath with emergent trees. **BEHAVIOUR** Eats nectar and insects, sometimes hovers while taking nectar out of a flower.



### Grey Shrike-thrush

*Colluricincla harmonica* 24cm

**VOICE** Liquid melodious 'pip-pip-pip-ho-ee!', harsh 'yorrick'. Call sometimes confused with that of Rufous Whistler. **HABITAT** Forest, woodland, scrub, mallee, gardens. **BEHAVIOUR** Forages in bark on tree trunks, branches, in foliage, undergrowth, fallen logs or on ground. Flight swift, direct, undulating.



### New Holland Honeyeater

*Phylidonyris novaehollandiae* 16-19cm

**VOICE** Many calls, strong high pitched and sharp, long whistles. **HABITAT** Coastal heath to woodland and forest. **BEHAVIOUR** In large numbers where there is adequate numbers of flowering plants. Aggressively competes for nectar and insects, often taken in flight.



### Grey Fantail

*Rhipidura fuliginosa* 15-17cm

**VOICE** High upwards climbing song with 8-10 notes, call to each other with a single or double 'chip'. **HABITAT** Forest and woodland. **BEHAVIOUR** Very active, erratic flight, catch insects on the wing, fans tail constantly, perches sideways.

### WESTERN SPINEBILL

*ACANTHORHYNCHUS SUPERCILIOSUS* 13-16cm

**VOICE** 'Chwip-chwip-chwip' or 'chri-chri-chri-chri' often in flight. **HABITAT** Heath, eucalypt woodland, sand plains. **BEHAVIOUR** Probes deep flowers, takes insects in acrobatic flight.



### Willie Wagtail

*Rhipidura leucophrys* 19-21cm

**VOICE** Scolding 'chick-a-chick-a-chick', a chattering musical song. **HABITAT** Lives in pairs on the fringes of eucalypt woodland, open country. **BEHAVIOUR** Feeds on insects in the air. Restless, runs on ground, wags tail around in a fan, swings body from side to side. Often perches on livestock.



### Golden Whistler

*Pachycephala pectoralis* 17cm

**VOICE** While breeding a loud whistling 'chee-chee-chee-chee-tu-whit'. **HABITAT** Prefer tall wetter coastal forests but also found in eucalypt woodland, heath and mallee. **BEHAVIOUR** Solitary except when breeding. Conspicuous in spring when male is brightly coloured and calling loudly. Glean most of their prey from trees, but sometimes swoop out to take insects on the wing or to rifle through litter on the forest floor.



### Black-faced Woodswallow

*Artamus cinereus* 18cm

**VOICE** 'Chep, chep', chattering **HABITAT** Open drier forest, grass plains, farmland. **BEHAVIOUR** Fast and acrobatic in flight while catching insects. Similar species: **Dusky Woodswallow** *Artamus cyanopterus* 18cm except dark brown back, face and stomach, white stripe on outer edge of wing. **VOICE** 'Vut vut', chatters. **HABITAT** Open forest, woodlands. **BEHAVIOUR** Often above canopy.

## SMALL BIRDS OF THE CAPE TO CAPE REGION

Small birds in these pages are birds 15cm or less in length. These birds are often seen where there is dense vegetation close to the ground offering them good protection from predators.



### Splendid Fairy-wren

*Malurus splendens* 14cm, including tail.

**VOICE** Loud rich warbling. **HABITAT** Jarrah forest, woodland, mulga and mallee. **BEHAVIOUR** Live in family groups, often on ground.

### Red-winged Fairy-wren

*Malurus elegans* 15cm, including tail.

**VOICE** Soft 'treee'. The song is a high pitched warbling with some introductory chirps. **HABITAT** Forest, likes wetter, densely vegetated areas. **BEHAVIOUR** Lives in small family groups.



### Southern Emu-wren

*Stipiturus malachurus* 17-20cm, including tail.

**VOICE** High pitched trill, short harsh alarm calls. **HABITAT** Coastal heath, tea-tree swamp, sedges, dense vegetation. **BEHAVIOUR** Feeble flight.



### Spotted Pardalote

*Pardalotus punctatus* 8-10cm

**VOICE** Often draws attention by persistent soft call. Contact call is repeated regularly for long periods 'wheep-weeip'. Song is a sequence of clear whistled notes 'whee, whee-bee' or 'sleep, may-bee'. **VOICE** Eucalypt forest, open woodland. **VOICE** Feeds on insects on leaves. Live in pairs or small family groups. It excavates nesting burrows in low banks on the ground. Thought to migrate locally. Similar species **Striated Pardalote** *Pardalotus striatus* 9-11cm, except with, no spots, no red rump and light grey body. **VOICE** Loud, repetitive, double, triple notes. **VOICE** Open eucalypt woodland and forest, in tree crowns. **VOICE** Flocks in winter, otherwise pairs or alone.



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## SMALL BIRDS of the CAPE to CAPE REGION

## White-browed Scrubwren

*Sericornis frontalis* 11-14cm

**VOICE** Repeated 'ts-cheer'; harsh scolding notes. **HABITAT** Dense undergrowth, including urban areas, salt-marsh, heath. **BEHAVIOUR** Quick, active little bird.



## Western Gerygone

*Gerygone fusca* 11-11.5cm

**VOICE** Clear rising, falling. The male song has a sweet, soft and slow group of notes which rise fast then fall away to finish prematurely. **HABITAT** Open woodland, mallee, also jarrah and karri forest. Forages in tree canopies. **BEHAVIOUR** Often hovers about outer foliage. Solitary or in pairs, rarely small parties.

## Yellow-rumped Thornbill

*Acanthiza chrysorrhoa* 10-12cm

**VOICE** Song is a descending bright and merry tinkerling, repeated two or three times in cycles; sharp repeated 'check' in flight. **HABITAT** Woodland, scrubland, grassland, farm paddocks, forest clearings, garden shrubbery. **BEHAVIOUR** Often on ground in small flocks, at times with other species. Similar species, **Inland Thornbill** *Acanthiza apicalis* 10-12cm except with red eyes, chestnut rump and grey back. **VOICE** Short, pleasant warble. Harsh alarm call. **HABITAT** Dry scrub to coastal heath, acacia scrub. **BEHAVIOUR** Often holds tail angled upwards. Endlessly active, gleaning insects from branches and leaves amongst the lower shrubs and balga 'spikes'. Alone or in pairs.



## White-fronted Chat

*Epthianura albifrons* 11-12.5cm

**VOICE** Repeated, soft, finch-like 'tang'. **HABITAT** Low vegetation in salty, coastal and inland areas. **BEHAVIOUR** High, jerky flight, perches prominently, runs on ground. Local flocks in winter.



## Scarlet Robin

*Petroica multicolour* 13cm

**VOICE** Cheerful rippling warble, often repeated. **HABITAT** Breeds in tall dense forest, autumn-winter dispersal to more open forest. **BEHAVIOUR** Single or pairs. Waits, perched on branch, then drops to ground to take prey.

## Western Yellow Robin

*Eopsaltria griseogularis* 15cm

**VOICE** Monotone piping; harsh 'chit', trilled whistles at dawn. **HABITAT** Ranges right through the vegetation zones of the south-west. **BEHAVIOUR** Lives within shrubs and dense vegetation. Similar species, **White-breasted Robin** *Eopsaltria georgiana* 14cm, except all white underneath. **VOICE** Piping whistles 'whee-oh'; harsh chattering 'chit-chit'. **HABITAT** Dense or open forest, often near streams. **BEHAVIOUR** Clings to tree trunks, branches then drops to ground to take prey.



## Varied Sittella

*Daphoenositta chrysoptera* 10-11cm

**VOICE** Usual call is a thin, high pitched 'seewit-seewee' in flight. Flocks also give a continual 'chip-chip'. The alarm call is 'didididit' and the song 'tzir, zit-zit, tzir, zit-zit'. **HABITAT** Forest, woodland. **BEHAVIOUR** Groups of ten to twenty may be seen rapidly moving up and down branches and tree trunks in search of insects and spiders. Often hang upside down or climb head first down tree trunks. Non-territorial.

## Red-eared Firetail

*Stagonopleura oculata* 11-12cm

**VOICE** Piercing 'floating', single note 'ooooe'. **HABITAT** Dense forest, thickets near creeks, scrub. **BEHAVIOUR** Eats mainly grass seeds.



## Welcome Swallow

*Hirundo neoxena* 14-15cm

**VOICE** Twittering chatter. **HABITAT** All kinds, especially near water. **BEHAVIOUR** Has adapted to use buildings for nesting. Often in large flocks

## Tree Martin

*Hirundo nigricans* 13 cm

**VOICE** Pleasant twitter. **HABITAT** Open woodland, farmland, near water. **BEHAVIOUR** Hunts insects acrobatically around tree canopies. Nests in tree hollows, sometimes in colonies.



## Silvereye

*Zosterops lateralis* 12cm

**VOICE** Clear cheeps, or 'tseep'. **HABITAT** Diverse habitats, forest, woodland, grassland, gardens, vineyards. **BEHAVIOUR** Bright, active little birds, always busy, chattering as they forage through trees and shrubs in large groups.

## WATERBIRDS OF THE CAPE TO CAPE REGION

Waterbirds are swimming or wading birds that prefer highly productive waters where food is plentiful. Waterbirds are often seen at the waters edge or on the water in dams, lakes, freshwater rivers or estuaries, both saline and fresh.



### Black Swan

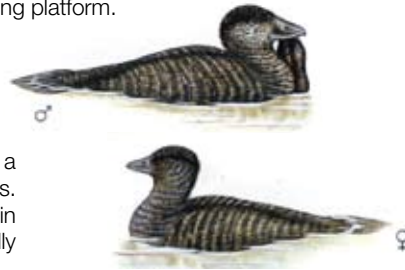
*Cygnus atratus* 106-142cm

**VOICE** Loud musical trumpeting, hisses to defend nest. **HABITAT** Diverse habitats, lakes, estuaries, rivers and seasonal wetlands with abundant aquatic vegetation, inundated pasture, crops and mud-flats. **BEHAVIOUR** Nests where it can uproot vegetation to form a nesting platform.

### Musk Duck

*Biziura lobata* M 60-73, F 47-60cm

**VOICE** Males whistle and splash in courting or a deep 'plonk'. **HABITAT** Dams, lakes and swamps. **BEHAVIOUR** When disturbed thrashes across water in a cloud of spray. Rarely seen to fly and swims partially submerged. An expert diver.



### Australian Shelduck

*Tadorna tadornoides* M 59-72, F 56-68cm

**VOICE** Nasal buzzing honk or grunt. **HABITAT** Large open fresh or brackish lakes and dams; pastures or open woodlands and coastal areas. **BEHAVIOUR** Nests in trees. Pairs maintain a breeding territory. Feeds on aquatic invertebrates, plants and pasture. Unlike other Australian ducks often flies in long lines or 'V' formation.



### Australian Wood Duck

*Chenonetta jubata* 44-50cm

**VOICE** Distinctive drawn-out 'waa' or 'weh' with a rising inflection. **HABITAT** Pastures near freshwater. **BEHAVIOUR** Perches in trees. Gathers in small flocks after breeding. Flies low and swift.



### Pacific Black Duck

*Anas superciliosa* 47-60cm

**VOICE** Harsh quack, 'laughing' call or loud 'seep'. **HABITAT** Any available water. Deep fresh water preferred. **BEHAVIOUR** Feeds in shallow water, filtering seeds and plants. Similar species **Grey Teal** *Anas gracilis* 42-48cm except no black stripes on head and less obvious green on wing. **VOICE** Rising and falling 'laughing' call. **HABITAT** Any available water. **BEHAVIOUR** Swims buoyantly, head often high, emphasizing slender-necked appearance. Feeds amongst aquatic vegetation.



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## WATERBIRDS of the CAPE TO CAPE REGION



## Australasian Grebe

*Tachybaptus novaehollandiae* 25-27cm

**VOICE** Shrill and chittering. **HABITAT** Generally in fresh water with abundant aquatic vegetation. **BEHAVIOUR** Usually spotted in pairs. May join Hoary-headed Grebes in mixed flocks during winter but less gregarious. More likely to dive when fleeing danger (or a birdwatcher) than to fly.

## Darter

*Anhinga melanogaster* 90cm

**VOICE** Clicking. **HABITAT** Lakes, rivers, swamps, rarely coastal. **BEHAVIOUR** Often immerses in water up to neck. Holds wings out 'to dry' when perched. In flight cream upper wing streaks form a wing bar. Soars in flight, often to great heights.



## Pied Cormorant

*Phalacrocorax varius* 70-80cm

**VOICE** Grunts. **HABITAT** Prefers large areas of water, coastal or inland lakes and rivers. **BEHAVIOUR** Flies in 'V' formation. Often perches in large groups in trees with wings extended.

Similar species **Little Pied Cormorant** *Phalacrocorax melanoleucos* 50-55cm except Little Pied has white face and yellow bill. **VOICE** Grunts and croaks. **HABITAT** Most aquatic habitats. Common far inland up small streams. **BEHAVIOUR** Flies separately.

## Great Cormorant

*Phalacrocorax carbo* 80-85cm

**VOICE** Croaks, grunts, hisses in breeding season. **HABITAT** All large aquatic habitats, marine and fresh. **BEHAVIOUR** Flies in long lines or in 'V' formation.

Similar species **Little Black Cormorant** *Phalacrocorax sulcirostris* 60-65cm, except Little Black has black face. **VOICE** Males make ticking sounds. **HABITAT** Most estuarine and inland aquatic habitats. **BEHAVIOUR** Flies in 'V' formation. Congregates in larger flocks than other cormorants. Hunts co-operatively with Australian Pelicans.



## Australian Pelican

*Pelicanus conspicillatus* 160-180cm

**VOICE** Grunting **HABITAT** Open fresh and salt water. **BEHAVIOUR** Flies in 'V' formation, head tucks back in flight. Often seen in large flocks.



## White-faced Heron

*Egretta novaehollandiae* 60-70cm

**VOICE** Croaks and grunts. **HABITAT** Pastures, farm dams, parkland, most wetlands, estuarine or fresh. **BEHAVIOUR** Often seen perching on trees and posts or stalking in shallow water. Heavy slow flight, neck retracted unless alarmed

## Great Egret

*Ardea alba* 90-103cm

**VOICE** Harsh hollow croaks. **HABITAT** Floodwaters, rivers, shallows of wetlands. **BEHAVIOUR** Legs extend well beyond body in flight. Solitary or in small groups.



## Australian White Ibis

*Threskiornis molucca* 65-75cm

**VOICE** Drawn out croaks. **HABITAT** All saline wetlands and pasture, tidal flats, rubbish tips and parks. **BEHAVIOUR** In flight note black head, white body and wings. Soars often with other ibis. Roosts in trees, mangroves.

## Straw-necked Ibis

*Threskiornis spinicollis* 60-70cm

**VOICE** Low croaks. **HABITAT** Shallow freshwater wetlands and pasture, rarely tidal flats. **BEHAVIOUR** In flight note the white body and black wings. Soars in thermals; flies in 'V' formation.



## Purple Swamphen

*Porphyrio porphyrio* 44-48cm

**VOICE** Great variety of sounds, calls night and day, harsh screaming 'hee-ow', grating squawks. **HABITAT** Swamps, marshy paddocks, well vegetated dams and lakes. **BEHAVIOUR** Aggressive, bullies other water birds.

## RAPTORS, NIGHTBIRDS AND KINGFISHERS OF THE CAPE TO CAPE REGION

Raptors, nightbirds and kingfishers are all predator species, that hunt live prey or carrion. These species are found in a variety of different habitats and feed on large insects, reptiles, frogs, small mammals and small birds.



### Osprey

*Pandion haliaetus* F 60-66, M 50-55cm

**VOICE** Plaintive whistles. **HABITAT** Mangroves, rivers and estuaries, inshore seas, coastal islands. **BEHAVIOUR** Soars on long, angled, bowed wings. Patrols over water; hovers, plunges feet-first.

### Square-tailed Kite

*Lophoictinia isura* F 55-56, M 50-51cm

**VOICE** Hoarse yelp, weak twitter. **HABITAT** Open forest, riverine woodland, scrub, heath. **BEHAVIOUR** Solitary, soars low over or through tree canopy on raised wings.



### Whistling Kite

*Haliastur sphenurus*

50- 60cm, wingspan to 120cm.

**VOICE** Long descending 'seeo' followed by an upward 'staccato 'si-si-si-si'. **HABITAT** Open woodlands, plains, wetlands, seashore. **BEHAVIOUR** Often seen feeding on road kill. Soars in large lazy circles.



### Swamp Harrier

*Circus approximans* F 55-61, M 50-57cm

**VOICE** High pitched 'seee-ur' during aerial food transfer between birds; loud 'kee-a' during courtship flights. **HABITAT** Hunts low over tall grass, reeds, rushes, crops. **BEHAVIOUR** Soars with elevated wings, performs courtship dives high above swamps.



### Brown Goshawk

*Accipiter fasciatus* F 45-55, M 38-45cm

**VOICE** Rapid shrill chatter. **HABITAT** Most timbered habitats. **BEHAVIOUR** Fast, agile hunter, often perches and waits to dive on prey. Often eats rabbits.



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## RAPTORS, NIGHTBIRDS AND KINGFISHERS



### Collared Sparrowhawk

*Accipiter cirrhocephalus*

**F 35-38, M 29-33cm**

**VOICE** Very rapid shrill chatter. **HABITAT** Most terrestrial types, prefers forests of low height. **BEHAVIOUR** Feeds on small birds in flight plus nestlings.

### Wedge-tailed Eagle

*Aquila audax*

**F 89-110cm, M 87-91cm, wingspan to 210cm.**

**VOICE** Feeble yelps and squeals. **HABITAT** Most types of habitats except closed forests. **BEHAVIOUR** Often seen eating carrion on roadsides. Takes off heavily. Soars on long, fingered, upswept wings.



### Little Eagle

*Hieraaetus morphnoides*

**F 50-55, M 45-48cm**

**VOICE** Loud, excited, high pitched whistle, usually of two or three notes uttered rapidly, also series of mellow or plaintive piping notes. **HABITAT** Most open forest, woodland and scrub types, open agricultural country. **BEHAVIOUR** Compact in flight; wings slightly drooped when gliding, held level to slightly raised when soaring. Likes to hunt on the wing.



### Brown Falcon

*Falco berigora* **F 48-51, M 41-45cm**

**VOICE** Raucous screeches and cackles.

**HABITAT** Most land surface types except closed forest. **BEHAVIOUR** Glides on raised wings, flight heavy and slow. Hovers 'unsteadily'.



### Peregrine Falcon

*Falco peregrinus* **F 45-50. M 35-42cm**

**VOICE** Hoarse chatter and whining sounds. **HABITAT** Most land types, especially cliffs and rocky outcrops, rocky coastal islands. **BEHAVIOUR** Flight powerful. Wings held stiffly outstretched when soaring; trailing edge usually straight.



### Nankeen Kestrel

*Falco cenchroides* **F 33-35, M 30-33cm**

**VOICE** Shrill excited chatter. **HABITAT** Most open habitats, including sand dunes. **BEHAVIOUR** Slender, hovers with body horizontal, showing black band near tail-tip.

### Southern Boobook

*Ninox novaeseelandiae* **30cm**

**VOICE** Falsetto double-hoot or continuous hooting.

**HABITAT** Open woodlands, forests, scrubs.

**BEHAVIOUR** Delicate in flight, rarely glides. Hunts nocturnally in clearings.



### Tawny Frogmouth

*Podargus strigoides* **34-46cm**

**VOICE** Low constant 'oo-oom...' **HABITAT** Woodlands. **BEHAVIOUR** Nocturnal, well camouflaged during day sitting stiffly as a tree branch.

### Laughing Kookaburra

*Dacelo novaeguineae* **45cm**

**VOICE** Raucous laughter, often joined in by others nearby **HABITAT** Open forests, woodlands.

**BEHAVIOUR** Flight heavy, direct, raises tail on alighting. Introduced from the eastern states in 1897.



### Sacred Kingfisher

*Todiramphus sanctus* **19-23cm**

**VOICE** Loud four-note voice. Harsh alarm call near nest. **HABITAT** Eucalypt and paperbark forest, open woodland near water. **BEHAVIOUR** Migrates, often seen from Sept to early Feb.



## SMALL SHRUBS OF THE CAPE TO CAPE REGION

### Riparian Series

Small shrubs, climbers and ground covers offer many essential functions to the riparian zone including providing important habitat and food to native animals and protecting the soil from erosion. Some of the common species found in our region are listed below.

#### **Centella asiatica** (*Apiaceae*) Pennywort. Gotu Kola

**HABIT** Herb, creeping habit with runners, ground cover, to 0.16m. **FLOWERS** Tiny white to pink flowers much of the year. Large, almost circular, undivided leaves. **ZONE** Emergent and damp, under-storey.



#### **Dampiera species** (*Goodeniaceae*) Karri ivy-leaved Dampiera. Wedge-leaved Common Dampiera

**HABIT** Herb, sprawling or erect habit, ground cover, to 0.5m. **FLOWERS** Bright blue flowers. Spring/Summer. **ZONE** Ephemeral and damp, under-storey.



#### **Scaveola species** (*Goodeniaceae*) Fan flowers

**HABIT** Herbs, ground hugging or sprawling habit, ground covers to 0.3m-0.5m. **FLOWERS** Blue to mauve, petals in fan shape. Spring/Summer. **ZONE** Ephemeral under-storey.



#### **Patersonia occidentalis** (*Iridaceae*) Purple Flags

**HABIT** Herb, robust and tufted habit to 0.8m. Broad flat linear leaves. **FLOWERS** On long stems, brown bracts, 3 large purple petals. Late Winter to Summer. Patersonia umbrosa (Yellow flags) is similar with narrower leaves, longer green bracts and yellow petals. **ZONE** Ephemeral under-storey.



## SMALL SHRUBS OF THE CAPE TO CAPE REGION

#### **Thomasia paniculata** (*Sterculiaceae*)

**HABIT** Shrub, open, spreading habit to 2m. Stems and leaves covered with rusty brown hairs. **FLOWERS** Pink-purple flowers. Spring/Summer. **ZONE** Ephemeral and damp, mid storey.



#### **Pimelea species** (*Thymelaeaceae*) Banjines

**HABIT** Shrubs, open habit to 1m-2m. Leaves usually opposite. **FLOWERS** Flower heads terminal dense and compact, pom pom like, white, pale pink, pink. Spring flowering. **ZONE** Emergent and damp, mid-storey.

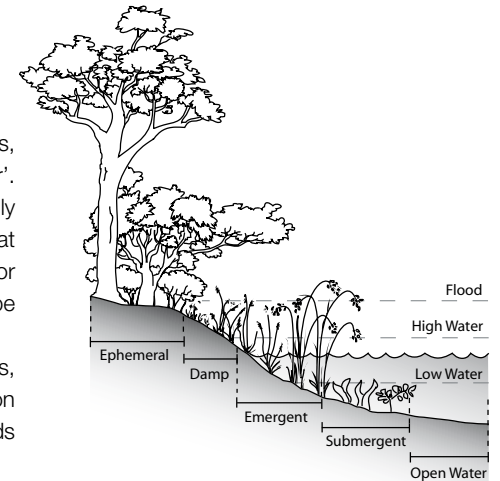


### Further information

#### Riparian Vegetation

Riparian land is defined here as 'any land which adjoins, directly influences, or is influenced by a body of water'. The body of water could be a creek (even if it flows only occasionally), a river, or a wetland. There is no rule that defines the 'width' of riparian land: the width of interest or concern is largely determined by the particular landscape and by management objectives.

Uses : Provides habitat for birds, mammals, reptile, frogs, insects, gilgies. Provides food, nesting and shelter. Vegetation filters water of pollutants before entering water body. Holds banks together and stabilises soil with roots.



Riparian Zones

#### References

Flora of the South West. Wheeler, Marchant, Lewington  
Field Guide to the Wildflowers of Australia's South West. Scott, Negus  
Cape to Cape Landcare Companion and Action Plans. Cape to Cape Catchments Group

Photos provided by  
Debra Rooks, Cass Jury, Hayley Rolfe, Geographe Landcare Nursery

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## SMALL SHRUBS OF THE CAPE TO CAPE REGION

### Triglochin aff. lineare

(*Juncaginaceae*) Water Ribbons

**HABIT** Herb, aquatic habit, to 0.9m. Thick rhizome and swollen roots. Leaves long, wide, flat to thick and fleshy. Look like green ribbons in water. **FLOWERS** Emergent stalk of small yellowish-green flowers. Winter/Spring. **ZONE** Submergent and floating, under-storey.



### Lobelia anceps (alata)

(*Lobeliaceae*) Angled Lobelia

**HABIT** Herb, sprawling habit, ground cover, to 0.5m. **FLOWERS** Small 'fleur de lys' shaped pale blue/mauve flowers. Spring/Summer/ Autumn. **ZONE** Damp, under-storey.



### Villarsia species

(*Menyanthaceae*) Marshworts/flowers

**HABIT** Herbs, tufted habit, growing in or near water, 0.4m-1m. Broad long stalked leaves. **FLOWERS** 5 petals, white or yellow. Spring/Summer. **ZONE** Emergent and damp, under-storey.



### Acacia divergens (Mimosaceae)

**HABIT** Shrub, open, weeping habit, to 2m. Sharp phyllodes (leaves). **FLOWERS** Yellow globular flowers. Spring. **ZONE** Ephemeral and damp, mid-storey. Coloniser. Nitrogen fixer.



### Acacia pulchella (Mimosaceae) Prickly Moses

**HABIT** Shrub, branching habit, to 1.5m. Spines, small feathery leaves. **FLOWERS** Bright yellow globular flowers. Winter/Spring. **ZONE** Ephemeral, mid-storey, nitrogen fixer.



### Astartea scoparia (Myrtaceae)

**HABIT** Shrub, upright, open, weeping habit, to 2m. **FLOWERS** Small white flowers. Late Summer/Autumn. **ZONE** Ephemeral and damp, mid-storey. Coloniser.



### Hypocalymma angustifolium (Myrtaceae) White Myrtle

**HABIT** Shrub, erect, compact, many-stemmed habit, to 1m. Leaves narrow and widely spaced. **FLOWERS** White to pale pink flowers. Winter/Spring. **ZONE** Emergent and damp, mid-storey and under-storey.



### Hardenbergia comptoniana (Papilionaceae) Native Wisteria

**HABIT** Climber, vigorous habit. **FLOWERS** Purple pea flowers in drooping axillary clusters. Winter/Spring. **ZONE** Ephemeral, mid-storey. Nitrogen fixer.



### Billardiera fusiformis (Sollya heterophylla) (Pittosporaceae) Australian Bluebell

**HABIT** Twining shrub or climber, vigorous habit, to 2m. **FLOWERS** Blue, bell shaped flowers. All year, mainly Summer. **ZONE** Ephemeral, mid-storey.



### Clematis pubescens (Ranunculaceae) Common Clematis. Old Mans Beard

**HABIT** Climber, twining habit. **FLOWERS** Large white to cream flowers. Winter/Spring. Silvery-grey feathery seed heads. **ZONE** Ephemeral, mid-storey.



## PHOTO-POINT MONITORING

In any monitoring program, photos that can track changes over time are essential. Photographs that demonstrate change can take the guess-work out of management. You may remember what your site looked like before you started work, but can you remember the exact extent of the weeds on the site? Or how tall those young trees were before a fire?

Accurate photo-point monitoring can be an essential record of your management. Before and after photos are useful, but a photographic record over a long period of time can be an essential tool in decision making and sharing your experiences. Photo records can be passed on to family members or to the new owners of your property.

In order to accurately record the progress of a project or monitor changes in the landscape over time, setting up photo points requires some planning.

### You will need:

- *A camera with a standard 50-55mm lens*
- *A recognisable feature to include in every photo of the same site*
- *2 markers (e.g. stakes) that can be marked with a date, or two markers and a clipboard that can include details*
- *A notebook or file where you can store your pictures together and make notes.*

When you come to photograph your site, set your markers 10m apart. Stand at one and photograph the other using the 50-55mm lens. This way you make sure that the photos will always have the same basic perspective.

If you are taking photos of understorey vegetation it may help to stand on something in order to get some elevation into the photo (make sure you note these details in your notebook).

Set regular dates for your photos to avoid seasonal confusion. You may decide to take photos during every season every year but if you are only taking a photo annually, make sure you take the picture at the same time every year – your site may look very different in late summer than it does in early spring.

## Using Photos For Evaluating The Success Of Projects

To use photo points for evaluation, it is necessary to compare the elements shown in the photographs with performance against the objectives of the project. To do this properly, the photos need to be combined with quantitative (measured) information taken at the time of photography and recorded in the field notebook. For example:

- *the number of surviving seedlings.*
- *the number and diversity of bird species.*

### Tips for photopoints

More is not necessarily better – stick to a few good locations and take good photographs.

Take photographs on a cloudy but bright day – try to avoid shadows.

If possible, take a copy of the previous photographs with you to ensure the new photograph will be taken the same way.

Do not use a wide angle or telephoto lens as this alters the perspective of the photograph and makes it difficult to repeat.

Sometimes an elevated position, such as standing on the back of a vehicle, can give a better result, especially if you wish to show understorey density.

### References:

Hussey, B.M.J. 2001. Photographic Monitoring of Vegetation, Wildlife Notes. Department of Conservation and Land Management, Perth

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In your notebook you should record the following details with your first photograph:

- *Date/time/weather conditions*
- *Location (number if appropriate)*
- *What you are photographing*
- *Management actions on the site e.g. weed control, fire, fencing etc.*
- *What special equipment (if any) you used for this photo*

In subsequent photos you need to record:

- *Date/time/weather conditions*
- *Location (number if appropriate)*
- *Why you are photographing the site (e.g. monitoring revegetation project)*
- *Anything that may have happened to the site between photos (e.g. stock damage, fire, fencing etc.)*
- *Observations of changes (e.g. regenerating vegetation, how many seedlings have survived etc.)*

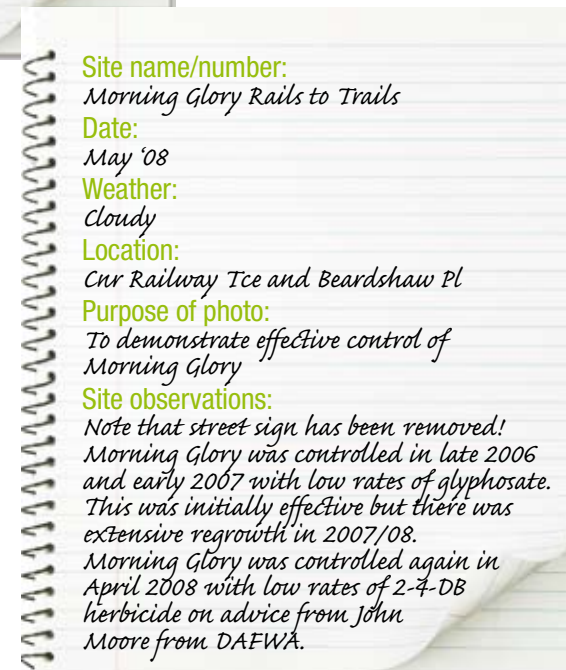
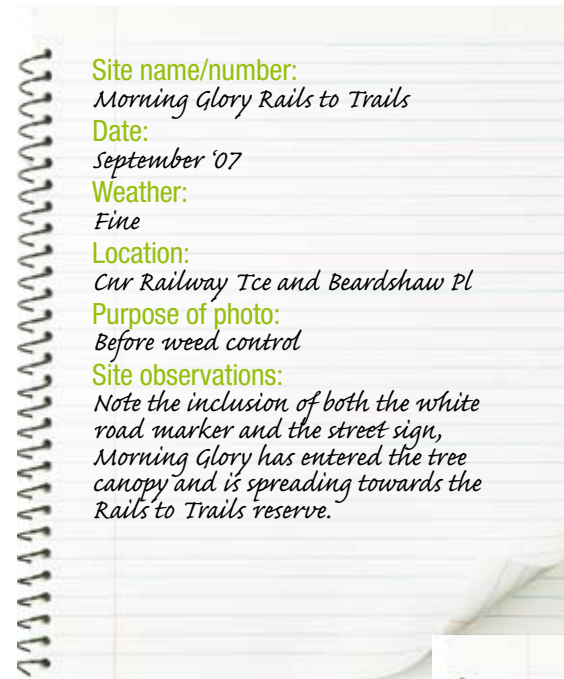
Once you have a collection of photos you will be able to fully appreciate the benefits of your work and think clearly about what has worked and what has not. You'll also be able to show this information to others. Funding bodies are especially fond of photographic evidence of how their funds are being spent; this evidence can also be used as a tool to convince others of the value of on-ground works.

You can use photo point monitoring after implementing a range on activities including:

- *Weed control*
- *Revegetation*
- *Erosion control/dune stabilisation*
- *Fencing/access control*
- *Dieback treatment or other tree decline*
- *Rabbit control*

The photos will detect changes in many factors including the density of weeds, level of natural plant regeneration, health of vegetation and stability of an eroding area.

## AN EXAMPLE NOTEBOOK PAGE:



## TIPS ON MONITORING AND ATTRACTING BIRDS

Monitoring bird diversity is a fun and easy way to assess the health of your bush.

### BEGINNING TO BIRD WATCH

The early morning and late afternoon are the best times for bird watching.

Birdsongs can be taped for later comparison with identification tapes/CDs.

Spotlight surveys may reveal some nocturnal birds, however they are more often heard than seen. An effective spotlighting technique is to look down the beam of a torch attached to your forehead or held close to your eyes.

Familiarise yourself with common birds in your area and you will find it easier to compare an unknown bird with one you are familiar with. For example, looks like a Willie Wagtail but has a white throat (Restless Flycatcher), or looks like a Raven with white on its wings (Currawong).

Familiarise yourself with the field guides and how to use them to look up birds quickly before you head out into the field. Refer to the Australian maps to get an indication of if their in the area or not. This will help you to look up and identify birds that don't sit still!

Use binoculars for easier and more satisfying bird watching. Become familiar with how to focus them effectively.

Keep the sun behind you when you are observing. Avoid accidentally looking straight at the sun when following a flying bird with binoculars.

Noting behaviour, posture when perching, calls, flight mannerisms, feeding habits will help you identify birds.

Try mimicking the calls of bush birds to entice them out of cover.

Occasionally try sitting still out in the bush, beside water if possible, and watch the birds come and go.

## TIPS ON MONITORING BIRDS

*We would like to thank Cherie Kemp for her contribution to this flyer.*

### FURTHER RESOURCES

Birds Australia Website, [www.birdswa.com.au](http://www.birdswa.com.au)  
Michael Morcombe's 'Field Guide to Australian Birds'

Cape to Cape Landcare Companion, page 29, Retaining Bird Diversity.

DEC Land for Wildlife Office, Cherie Kemp 97525533 or 0427 196 848

Margaret River local bird group representative, Christine Wilder 0427 312 848

## TIPS ON MONITORING BIRDS

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## BEGINNING TO MONITOR BIRDS ON YOUR LAND

### Choose a monitoring path

Choose a path through your area or on your land that traverses all of the different vegetation types that occur in it.

### Monitor in different seasons

Walk the monitoring path at the same time of day for a set period of time, 4 times a year, in each different season.

### Start a log book

Record all bird species seen and heard when walking your monitoring path and in which part of the path they were found. If you like you can also record how many there was and what they were doing when you saw them, for example feeding, flying, etc.

## USING THIS INFORMATION

Once you have a species list of birds found on your land you can use this information to determine if you have a healthy diverse ecosystem with a wide range of habitat.

Look at the species you have found and see if they cover a wide cross section of sizes, preferred habitats or food types. It may help to group them according to size or the food they like to eat. For more information on this see 'Food Types'.

If only one size or food group is present, consider planting plants that provide food or shelter that is attractive for the groups that are absent from your land.

Continue monitoring after you have planted to see if birds groups previously absent begin to return to your land signaling that your providing more varied habitat and restoring a more entire ecosystem.

## ENCOURAGING GREATER DIVERSITY OF BIRDLIFE ON YOUR LAND

Plant a wide variety of 'food' plants on your land including nectar, seed and fruit producing plants and insect attracting plants too. Insect attracting plants are often plants that have rough bark.

For a suggested 'food' plant species list that will suit your land see the Cape to Cape group.

Build up smaller plants too, try to slowly recreate the entire habitat, from ground covers to small shrubs and small trees.

Reduce the size of open spaces in your garden as smaller birds enjoy having constant cover from predators. Clumps of closely planted dense, prickly shrubs provide excellent cover.

Think about adding a birdbath or a water source where birds can drink, providing water especially in summer is a big help to small birds. Providing water not food is better for the birds overall health, as they can become reliant on unnatural food sources.

Providing nesting boxes or leaving dead trees and logs will help increase the habitat for bird life on your land.

## FOOD TYPES

Birds need to access different food sources all year round in their area or have alternative foraging areas available.

Most birds are generalists meaning they will expand their diet in poor seasons of the year.

### Nectar

Nectar peaks in winter and spring, it is rich in energy but poor in protein. Nectar-feeders include Honeyeaters, Silvereyes, Blue wrens, Grey Fantails and Western Spinebills.

### Seeds

Seeds peak in summer and autumn. Seed-eaters include White-tail & Red-tail black Cockatoos, Parrots, Bronzewing Pigeons and Finches.

### Fruits

Fruit also peaks in summer and autumn. Fruit eaters include Emus, Silvereyes, Black Cockatoos and Parrots.

### Insects

Insects peak in spring and summer. Insect eaters include Willy Wagtails, Welcome Swallows, Rainbow Bee-eaters, Kingfishers, Tree Martins, Black-faced Cuckoo-shrikes, Rufous Whistlers, Wattlebirds, Magpie-larks and Magpies.

### Live Prey

Predation feeders include Hawks, Eagles, Owls, Falcons, Kingfishers, Cormorants, Herons, Terns, and Ravens.

## FORAGING METHODS

### Gleaning

Picking insects or food off branches or foliage.

### Probing

The beak probes into branches or under bark.

### Snatching

Birds in flight snatch their prey off branches, shrubbery or the ground.

### Hawking

Birds in flight catching other birds or insects in flight.

Most birds will group together to forage. The benefits of this are more eyes looking for predators, possibility of finding food by watching others and knowing then avoiding areas that have already been foraged.

The Cape to Cape Catchments Group (CCG) is a community group that supports the management of our natural resources for a healthy, productive and sustainable future. We have an open membership and welcome new members and volunteers. As a not-for-profit group donations are welcome and are fully tax deductible.

The CCG works in the area between Cape Naturaliste and Cape Leeuwin extending inland to include the catchments of waterways flowing to the coast. Our region contains many natural assets including the Margaret River and fourteen stream systems, the Leeuwin-Naturaliste Ridge, high species diversity and a spectacular coastline.

How to get involved in the group

- Become a member
- Volunteer with Capes Volunteers or other events or projects of the group
- Join our streamlines email list to find out about our regular activities, projects and local issues
- Come along to our quarterly general meetings
- Attend our monthly night presentation series
- Help monitor local fauna such as lamprey numbers in the Margaret River

We also have a range of resources available for loan from our office including:

- Water quality testing equipment
- Dieback treatment kit
- Weed control and tree planting equipment
- Books, reports, brochures and other technical information

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