

# An expansion of the range of the Brown Gerygone in Victoria, 1977–2009

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**Summary.** The Victorian distribution of the Brown Gerygone *Gerygone mouki* was previously thought to include only East Gippsland. Since the late 1970s, this species has been recorded at an increasing number of sites to the west, between East Gippsland and Melbourne. Throughout this period and region, nesting has also been noted but with breeding success uncertain. Brown Gerygones have been recorded in increasing numbers and in most months of the year, suggesting that they are probably now resident well to the west of their historical range in Victoria (i.e. East Gippsland). The habitats used by the Gerygones in the newly occupied range are similar to those used in East Gippsland but may differ in floristic composition, structure and naturalness. Reasons for and mechanisms of this species' range extension are unclear and would be worthy of further research.

## Introduction

The Brown Gerygone *Gerygone mouki* is endemic to eastern Australia. Movements of this species are not well understood or documented, especially in south-eastern Australia. Long-distance movements have been noted, in reference to several records in Canberra, ACT (e.g. Frith 1984; H.L. Bell pers. comm. in Blakers *et al.* 1984; various records in Canberra Ornithological Group newsletters 1979–2011) and one near Lake George, NSW, in 1978 (Frith 1984), presumably of birds wandering from the adjacent coastal region of New South Wales. Local movements including altitudinally and from gully and rainforest habitat usually during the non-breeding season have also been noted (McGill 1970; Slater 1974; Norris *et al.* 1983; Frith 1984; R. Loyn pers. comm. in Blakers *et al.* 1984; Woinarski 1989; Loyn 1993; Keast & Recher 1997). No regular long-distance movements have been recorded in Victoria (Emison *et al.* 1987). Banding recoveries for this species fall within 10 km of banding sites (Higgins & Peter 2002).

In Victoria, the species was originally thought to be confined to rainforests in East Gippsland (Wheeler 1967; Emison *et al.* 1987) and was considered a vagrant farther west in the state. Higgins & Peter (2002) noted several records of vagrants from western areas up to the late 1990s. Barrett *et al.* (2003) showed the range to be roughly the same as in Emison *et al.* (1987) and Blakers *et al.* (1984), i.e. not farther west or south than the Central Gippsland Plains and the adjacent foothills.

There is increasing evidence that the species is in fact expanding its range farther west in Victoria and is using a greater variety of habitats than previously

documented. We present and analyse the records of Brown Gerygones considered outside their historically accepted range in Victoria.

## Methods

We collated records of Brown Gerygones up to the end of 2009 from the Atlas of Victorian Wildlife (DSE 2013), Birds Australia Atlas (BA 2013), internet birding forums, local and state-based bird groups, state bird reports, other publications, and unpublished records from the authors and local Gippsland birdwatchers. Where practical, the accuracy of the location and vegetation type for each record was checked with observers and through Ecological Vegetation Class (EVC) mapping produced by the then Department of Sustainability and Environment (DSE 2010a) (now Department of Environment and Primary Industries).

Using rainforest distribution maps (DSE 2010a) and the information in Peel (1999), we also surveyed some suitable, accessible rainforest habitats for Brown Gerygones in South Gippsland and detected the species in additional locations (e.g. Mirboo North Regional Park).

Records from all these sources were examined from temporal, geographic and habitat perspectives to determine if there were any distinct patterns in the western occurrences of Brown Gerygones and how these patterns compared with those of the East Gippsland population.

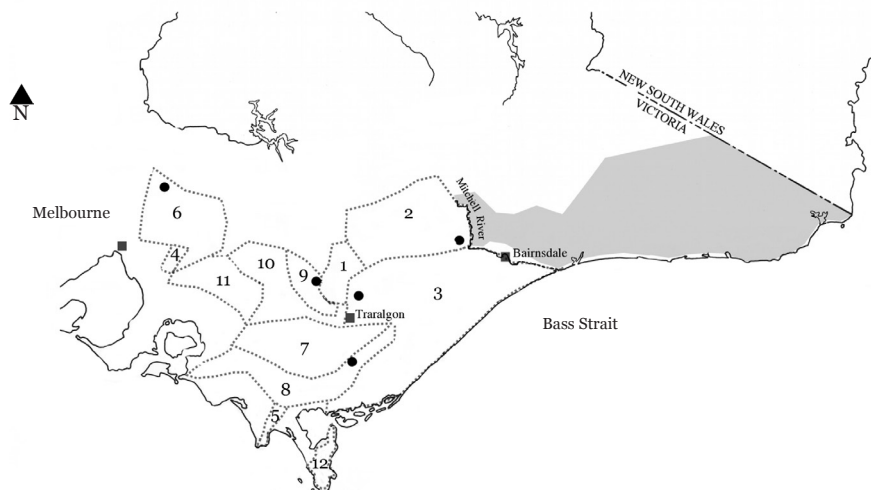
To minimise location and vegetation mapping errors, details of sites and vegetation were obtained from individual observers where possible or (with vegetation) were deduced using the personal knowledge of the authors or local experts. In cases where an EVC could not be attributed to a record, a probable EVC (or EVCs), or a description of non-native vegetation was chosen.

Vegetation quality was assessed qualitatively with accounts from individual observers where possible or using the personal knowledge of the authors or local experts. A distinction between native vegetation and non-native vegetation was used that was based broadly on criteria for understorey strata and isolated canopy trees, as used in Habitat Hectares assessment (DSE 2004).

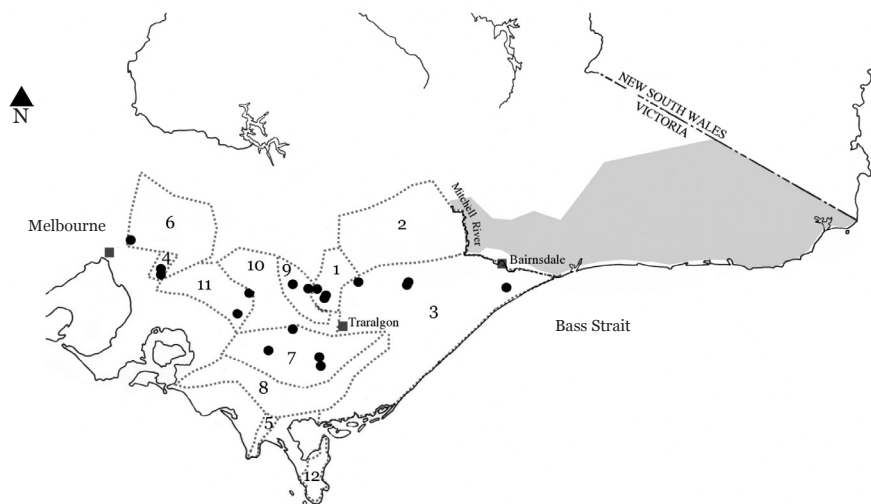
Geographic areas used in the analysis of records were identified on combinations of catchments, vegetation and rainfall:

1. East Gippsland (broadly east of the Mitchell River but not including higher montane to subalpine areas)
2. Central Gippsland Foothills (west of the Mitchell River to the Macalister River catchment)
3. Central Gippsland Plains (i.e. south and west of Bairnsdale)
4. Boola Boola–Thomson Foothills (including Rintoul Creek and part of the Thomson River catchment)
5. Tyers River Catchment
6. Strzelecki Ranges North (Delineation between Strzelecki Ranges North and South is a line approximately joining the highest peaks rather than the watershed between catchments.)

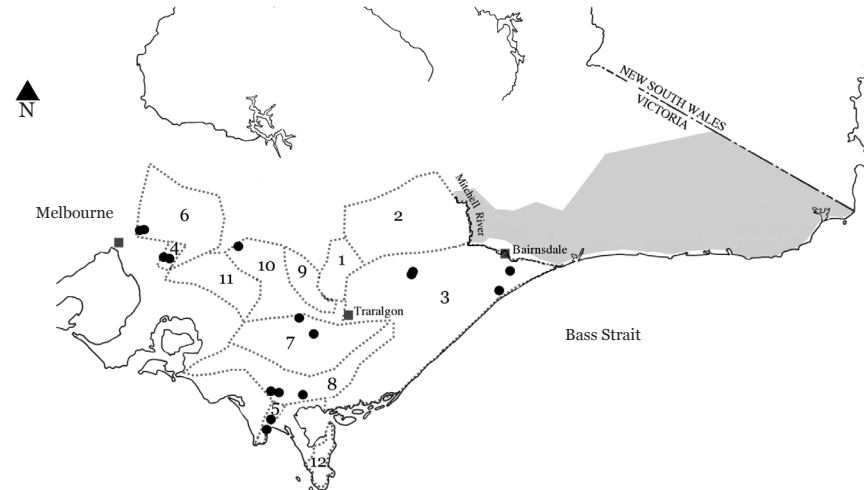
## (a) 1970–1980s



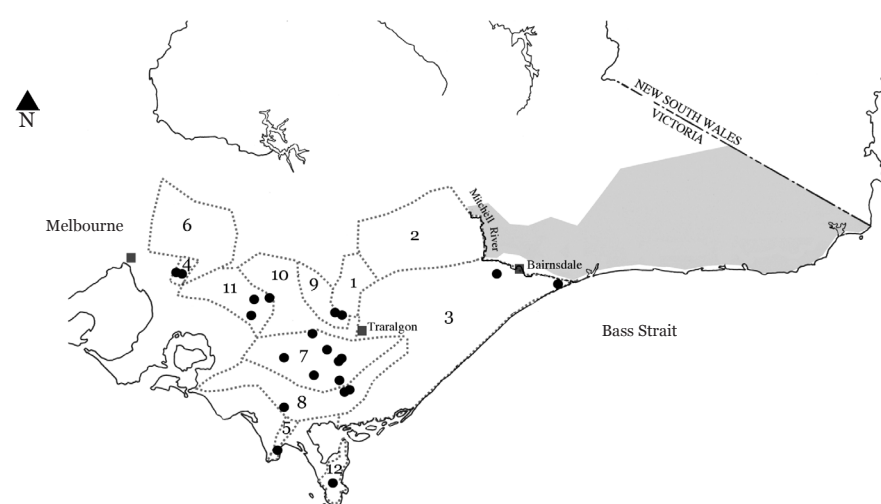
## (b) 1990s



## (c) 2000–2004



## (d) 2005–2009



**Figure 1.** Records of the Brown Gerygone south and west of the Mitchell River and previously published range in East Gippsland, Victoria. (a) 1970–1980s, (b) 1990s, (c) 2000–2004, and (d) 2005–2009. 1 = Boola Boola–Thomson Foothills, 2 = Central Gippsland Foothills, 3 = Central Gippsland Plains, 4 = Dandenong Ranges, 5 = Hoddle Range–Cape Liptrap, 6 = Lower Yarra River Catchment, 7 = Strzelecki Ranges North, 8 = Strzelecki Ranges South, 9 = Tyers River Catchment, 10 = Upper Latrobe River Catchment, 11 = Upper Western Port Catchment, and 12 = Wilsons Promontory. The approximate historic range (after Emison *et al.* 1987) is shaded. Sites where Brown Gerygones have been recorded are indicated by solid black circles.

7. Strzelecki Ranges South
8. Hoddle Range–Cape Liptrap
9. Wilsons Promontory
10. Upper Latrobe River Catchment (excluding the Tyers River catchment)
11. Upper Western Port Catchment
12. Dandenong Ranges, and
13. Lower Yarra River Catchment.

It should be noted that in the following summary of records and discussion, ‘western’ refers to south and west of the Mitchell River.

## Results

At least 89 records (with at least 27 from one site) of the Brown Gerygone west of its historically recognised distribution were obtained up to the end of 2009. These records were collected from throughout Gippsland (Figures 1–2) and were associated with a wide variety of vegetation, including at least ten definite EVCs, other native vegetation (not clearly attributable to an EVC) and non-native vegetation (Table 1). Definite EVCs could not be attributed to many records because of a lack of detail of observations and/or relatively low resolution, frequently modelled vegetation mapping. A summary of the number of sites per area where Brown Gerygones were recorded is shown in Figures 1 and 2. The number of western records of this species is summarised in Figure 3 and detailed for 5-year intervals from 1975 to 2009 below.

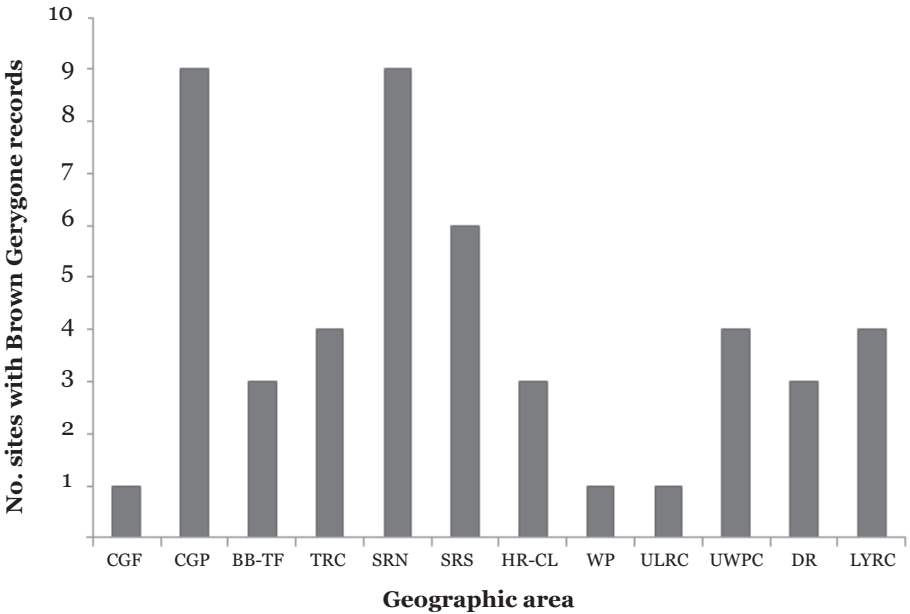
### *Chronology of western records*

#### 1975–1979

The earliest western record of the Brown Gerygone is from the Moilun Creek area (Central Gippsland Foothills) in summer 1976/1977 (January 1977), just to the west of a stronghold of this species in the Mitchell River National Park. Subsequent records were from the outskirts of Sale (Central Gippsland Plains) in autumn 1977 and several in what is now the Tarra–Bulga National Park (Strzelecki Ranges South) in autumn 1978 and summer 1978/1979 (the latter involving a probable local breeding record).

#### 1980–1984

There were two more records from the Moilun Creek area in summer 1980/1981 (including a record of breeding) and in spring 1981. The earliest far-western record is from Cottles Bridge (Lower Yarra River Catchment), in summer 1982/1983, which involved a pair of Brown Gerygones building a nest.



**Figure 2.** Number of sites where Brown Gerygones were recorded south and west of the Mitchell River, Victoria, 1977–2009. CGF = Central Gippsland Foothills, CGP = Central Gippsland Plains, BB-TF = Boola Boola–Thomson Foothills, TRC = Tyers River Catchment, SRN = Strzelecki Ranges North, SRS = Strzelecki Ranges South, HR-CL = Hoddle Range–Cape Liptrap, WP = Wilsons Promontory, ULRC = Upper Latrobe River Catchment, UWPC = Upper Western Port Catchment, DR = Dandenong Ranges, and LYRC = Lower Yarra River Catchment.

#### 1985–1989

There was a breeding record for the Brown Gerygone from Erica (Tyers River Catchment) in summer 1986/1987.

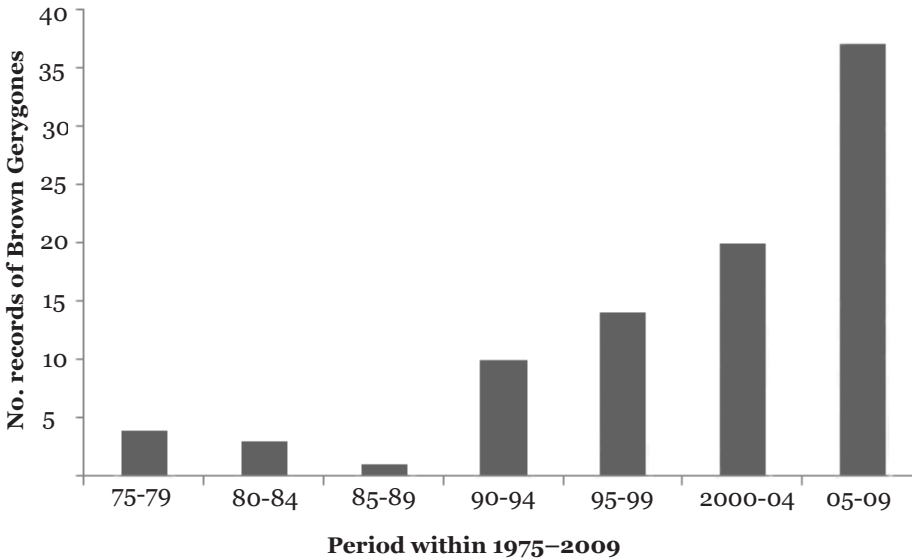
#### 1990–1994

The earliest 1990s records were of small numbers of Brown Gerygones in spring 1990 in the Morwell National Park (Strzelecki Ranges North) and a record of breeding in the Tyers River area (Tyers River Catchment) in late spring 1990.

During 1991–1994, there was a spring record from Erica (Tyers River Catchment), several records mostly involving multiple Gerygones in summer and autumn at Glen Nayook (Upper Western Port Catchment), a record in spring from the Macalister River at Maffra (Central Gippsland Plains), a record in summer at the Banksia Peninsula (Central Gippsland Plains) and a record in winter (of two Gerygones) at Drouin (Upper Western Port Catchment).

**Table 1.** Vegetation types used by Brown Gerygones west of the Mitchell River, Victoria. Source: various observers pers. comm., GA pers. obs., DSE (2010a). \* = vegetation types that could not clearly be distinguished by observer or resolution of mapping. Only one site was specified where closely spaced records from the same vegetation type occur.

<i>Vegetation type</i>	<i>Number of sites</i>
Cool Temperate Rainforest, Damp Forest or Wet Forest*	3
Warm Temperate Rainforest	3
Warm Temperate Rainforest (degraded)	2
Warm Temperate Rainforest or Wet Forest* (degraded ± revegetated)	1
Warm Temperate Rainforest or Damp Forest*	2
Wet Forest	7
Wet Forest (degraded)	1
Damp Forest	6
Damp Forest, Riparian Forest or Lowland Forest*	1
Damp Forest or Shrubby Foothill Forest*	1
Damp Heathy Woodland/Lowland Forest mosaic	1
Lowland Forest or Lowland Herb-rich Forest*	1
Coast Banksia Woodland	1
Coast Banksia Woodland ecotone with several EVCs*	1
Coast Banksia Woodland or Damp Sands Herb-rich Woodland*	1
Damp Sands Herb-rich Woodland	1
Heathy Woodland	1
Riparian Forest	3
Swampy Riparian Complex or Damp Forest/Riparian Forest*	2
Floodplain Riparian Woodland (degraded ± revegetated)	2
Floodplain Riparian Woodland/Box Ironbark Forest ecotone*	1
Plains Grassy Woodland (+ planted exotic and native trees/shrubs)	1
Exotic/native planted vegetation ± remnant indigenous trees	6
Unknown	1



**Figure 3.** Records of Brown Gerygones south and west of the Mitchell River, Victoria, 1975–2009.

#### 1995–1999

There were winter records of Brown Gerygones in the southern Dandenong Ranges and at Budgerie East (Strzelecki Ranges North); spring records near Mount Worth State Park (Strzelecki Ranges North), near Rawson (Tyers River Catchment) and in the Rintoul Creek area (Boola Boola–Thomson Foothills); a summer record at Cowarr (Central Gippsland Plains); an autumn record at Kew (a suburb of Melbourne, in the Lower Yarra River Catchment); and a record at Uralla Nature Reserve, Trafalgar (Strzelecki Ranges North). There were also records in autumn, spring and summer at Maffra (Central Gippsland Plains).

#### 2000–2004

Observations of Brown Gerygones were widespread during this period, with records in autumn and spring in the southern Dandenong Ranges; winter at Kew and Lower Templestowe (suburbs of Melbourne, in the Lower Yarra River Catchment); winter and spring at Maffra (Central Gippsland Plains) and Rotamah Island (Central Gippsland Plains); summer at Narracan and Uralla Nature Reserve (Strzelecki Ranges North), Toora North and upper Stony Creek valley (both Strzelecki Ranges South); late spring and summer at Waratah Bay (four birds) and Waratah North (Hoddle Range–Cape Liptrap); and summer at Raymond Island (Central Gippsland Plains) (involving a small flock) and west of Noojee (Upper Latrobe River Catchment). Records at Waratah Bay and Waratah North were the first for the Hoddle Range–Cape Liptrap area. The Toora North record was of Gerygones building a nest (breeding success was unknown).

## 2005–2009

Further records of Brown Gerygones were made in autumn, spring and summer in the Dandenong Ranges; in most months at a variety of sites in the Strzelecki Ranges North; in winter at Stony Creek (Strzelecki Ranges South) and Lindenow South (Central Gippsland Plains); in spring at the upper Albert River and Jack River (both Strzelecki Ranges South), Glen Nayook, Tarago State Forest and Drouin West (all Upper Western Port Catchment); in winter and summer at Wirilda Environment Park near Tyers and Tyers Regional Park, respectively (Tyers River Catchment); in summer at Walkerville (Hoddle Range–Cape Liptrap); and in autumn on the Boole Poole Peninsula (Central Gippsland Plains). The first records for Wilsons Promontory were noted in spring and summer.

At Uralla Nature Reserve (Strzelecki Ranges North), Brown Gerygones were recorded once in spring and during annual surveys in summer in all years 2005–2009; multiple breeding events and up to 21 individual birds were noted. Multiple birds were recorded at many of the other sites also, and breeding was recorded once at the Morwell National Park.

### *Habitat or vegetation use south and west of the Mitchell River*

The vegetation types at sites where Brown Gerygones have been recorded south and west of the Mitchell River are listed in Table 1. The most commonly used vegetation types are Rainforest (Warm Temperate and probably Cool Temperate), Wet Forest and Damp Forest, with swampy riparian and floodplain vegetation types also occasionally used. Vegetation at many sites was highly degraded and fragmented with low native flora diversity and cover, and high diversity and cover of planted or invasive exotic flora. Some sites were so degraded or altered that they could not be classed as native vegetation (following DSE 2004). Several sites containing native or exotic vegetation were within largely cleared agricultural landscapes, usually with narrow strips of remnant vegetation providing connections to larger areas of native vegetation.

## Discussion

The habitats occupied by Brown Gerygones at western sites differ slightly from that typically occupied in East Gippsland in terms of vegetation type, structure, composition and naturalness. In East Gippsland, Gerygones are generally recorded from rainforest communities, but they also use wet, damp and lowland forests (Emison *et al.* 1987; Loyn 1993; Higgins & Peter 2002), which are broadly equivalent to the Wet Forest, Damp Forest and Lowland Forest EVCs, respectively. There are many fewer records of Gerygones from Lowland Forest EVC compared with Wet Forest or Damp Forest EVCs.

The rainforests used by Brown Gerygones in East Gippsland are mainly dominated by Common Lilly Pilly *Syzygium smithii* and Kanooka *Tristaniopsis laurina* (Emison *et al.* 1987; GA pers. obs.) and are broadly found within the Warm Temperate Rainforest and Gallery Rainforest EVCs, respectively (Peel 1999; DSE

2010b). These forests typically occur in lowland-foothill areas, extending into the highlands along some river valleys, with Warm Temperate Rainforest growing up to 400–800 m above sea-level where it merges into Cool/Warm Temperate Rainforest Overlap (Woodgate *et al.* 1994).

Emison *et al.* (1987, p. 209) noted that Brown Gerygones also used ‘upland rainforests dominated by Southern Sassafras [*Atherosperma moschatum*]’ but there are fewer records from these habitats than from rainforests at lower elevations (BA 2013; DSE 2013). The habitat description by Emison *et al.* (1987) corresponds with the Cool Temperate Rainforest EVC (East Gippsland sub-community) (Woodgate *et al.* 1994; DSE 2010b).

In general, the sites that are mainly inhabited by Brown Gerygones in East Gippsland are riparian, particularly gullies. These tend to support rainforest, Wet Forest and Damp Forest EVCs because of their more mesic and sheltered landscape position.

Other habitats in non-rainforest gullies and on ridges near rainforest gullies in East Gippsland tend to be used in the non-breeding season (Emison *et al.* 1987) or by Brown Gerygones ‘probably wandering from more typical habitat’ (Loyn 1993, p. 45). The EVCs in these habitats (determined from records in DSE 2013 and BA 2013) include Limestone Box Forest, Riparian Scrub, Riparian Forest, Coast Banksia Woodland and Blackthorn Scrub. Most of these EVCs frequently occur in riparian or gully situations close to Warm Temperate Rainforest and other habitat typical of Gerygones (following Woodgate *et al.* 1994; DSE 2010b; GA pers. obs.). Records from non-rainforest EVCs are in both the breeding (September–January in south-eastern Australia: Higgins & Peter 2002) and non-breeding season.

Heavily disturbed areas (such as those cleared of native vegetation and with some degree of regeneration or weed infestation) have generally not been recorded as being used by Brown Gerygones in East Gippsland, the only published exception being the use of logging regrowth (Loyn 1993).

The main differences between Brown Gerygones’ use of western and East Gippsland sites are relatively less use of Warm Temperate Rainforest (which is much rarer in the west and mainly lacks Lilly Pilly and Kanooka as dominant canopy species, usually being replaced by Sweet Pittosporum *Pittosporum undulatum* and Blackwood *Acacia melanoxylon*: DSE 2010b), and greater use of riparian forests and scrubs, coastal vegetation (i.e. banksia and heath-rich communities) and non-native vegetation west of the Mitchell River.

Sub-communities of Cool Temperate Rainforest in West and South Gippsland and the Central Highlands differ from those in East Gippsland by usually having Myrtle Beech *Nothofagus cunninghamii* co-dominant with Southern Sassafras (DSE 2010b). Where Brown Gerygones have occurred in western habitats containing a mosaic of Cool Temperate Rainforest with Wet Forest and/or Damp Forest, there appears to be relatively low cover and abundance of Myrtle Beech, coinciding with lower altitude locations. Brown Gerygones appear to be absent from the normally higher altitude occurrences of Cool Temperate Rainforest dominated mainly by Myrtle Beech.

Unlike habitat used in East Gippsland, western sites are occasionally situated within or close to cleared land and are relatively narrow and/or degraded in terms of floristic composition and structure. Several other habitats cannot be classified as native vegetation and actually constitute gardens and parkland, often with simple vegetation structural complexity and very few indigenous plant species. Examples of gardens are in the Drouin area, Maffra and Narracan; the latter two sites included replanted native vegetation with remnant trees at Narracan. Two parkland sites are at Cowarr Weir and Macalister Swamp Reserve; both sites retain remnant trees formerly part of Floodplain Riparian Woodland vegetation. The latter site is particularly notable for Brown Gerygones' use of exotic vegetation (including nesting in vine or scrambler plants) and their absence after willows *Salix* sp. and other exotic plants were removed (D. Fraser pers. comm.).

Although most western sites of Brown Gerygones records are similar to those in East Gippsland by being in riparian or gully situations, a relatively large proportion is in areas of low relief such as on the floodplains of major rivers including the Gippsland Lakes hinterland. This may simply be a reflection of East Gippsland being a continuous hilly to mountainous landscape whereas West Gippsland and South Gippsland contain more discrete ranges (e.g. Wilsons Promontory and the Strzelecki Ranges) and extensive floodplains.

## Conclusion

Records of Brown Gerygones west of the Mitchell River in Gippsland since 1977 indicate a substantial expansion in the historically recognised range of this species in Victoria. Indeed, persistence of breeding records and observations of Gerygones throughout the year suggest that this species could be considered resident in West to South Gippsland. However, in the Greater Melbourne area, it should be regarded as a vagrant. Overall, the western increase in range of the Brown Gerygone is surprising given its usually sedentary status and strong preference for relatively small, specialised habitats.

Some interesting questions about this range expansion that are worthy of further research include: why has the range of the Brown Gerygone expanded and how has this species adapted to utilising new habitats? Factors such as climate change, alteration of habitat in East Gippsland, and changes to western habitats may be worth investigation.

## Acknowledgements

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