Early season bud surveys of swift parrot foraging habitat in Tasmania – August 2024

RESULTS AT A GLANCE

- Bud surveys were undertaken across 7 broad regions in the SPIBA and core range of the swift parrot. This included roadside surveys at 129 sites, assessing bud, flower and capsule levels in *Eucalyptus globulus, E.ovata* and *E. brookeriana* trees where present, of around 10 trees per site.
- Globulus bud was highly variable and patchy. It was absent or negligible in the Southern forest and on Bruny island, where good flowering occurred last breeding season. Many of the *E.globulus* trees were heavy in old and recently enclosed capsules, indicating flowering occurred last season or just recently. There were some heavy levels of bud on the Tasman peninsula, and localised areas or single trees with bud around Hobart, south Barnback and on the East coast. It seems that on the east coast, globulus has flowered early this season, with flowering at Swansea, Orford, and on the peninsula at Koonya and Nubeena.
- *E. brookeriana* bud levels were moderate to high at small number of sites that were surveyed.
- Across all regions, *E. ovata* was consistently present and often heavy in bud at all sites, with some early flowering present on the east coast, Tasman peninsula, along coast between Dover and Southport and on Bruny Island.
- Based on these survey results, the *E. ovata* and *E. brookeriana* on the Eastern Tiers, and East coast extending from Swansea through Wielangta down to the Tasman Peninsula, Bruny Island and southern forest coastal areas, provide the best foraging resource for swift parrots this coming breeding season.
- No bud surveys were conducted on Maria Island, Channel, Meehan Range/South Arm, or areas north of Lake Leake, and so no comment can be made about these areas.
- At the time of this report, there have been early sightings of swift parrots at Boomer Bay, Mt Nelson, Dunrobin and Lune.

Background and Aim

Pre-season bud surveys of foraging trees (*E. globulus, E. ovata* and *E. brookeriana*) provide good insight into pre-empting where swift parrots are likely to breed in the coming season. This is because swift parrots are nomadic migrants that exploit the richest patches of food resource – moving to breed wherever food is most abundant (Stojanovic et al 2015).

Results from these bud surveys will help STT focus its swift parrot survey efforts and inform operations active during the breeding season.

Methods

The search area was limited to the southeast core breeding range, swift parrot important breeding areas (SPIBAs) and Lonnavale forest area. This included seven broad regions (see below). Areas not covered by these surveys include Maria Island, Buckland, Meehan Range, Royal George and St Mary's SPIBAs, and the Channel area.

Surveys were conducted between 13th and 23rd August, by two teams lead by Marie Yee and Andrew Hingston, totalling 8 work days. Sites were selected based on the 2023 monitoring sites, recent swift parrot sightings, local knowledge and opportunistically stopping at areas with potential foraging

trees. There were some additional and different sites compared to last year, with an absence of surveys this year in the Tooms, Channel and South Arm area, and areas north of Lake Leake.

Region	Number of survey sites
Eastern Tiers and east coast	*22*
Wielangta	*18*
Tasman and Forestier Peninsulas	*31*
Hobart and surrounds area	*5*
Lonnavale forests	*11*
Southern forests	*20*
Bruny Island (north and south)	*22*
TOTAL	129

At each survey site, an average of 10 trees were assessed with binoculars for the intensity of buds, flowering and capsules, scored as follows: nil = 0, Low (<10% of the canopy) = 1, Moderate (10-40%) = 2, or High (>40%) = 3. Number of trees assessed per site ranged between 3 and 15.

From this scoring, % of foraging trees with bud present, and % bud intensity for each site can be derived. % bud intensity is based on the observed bud score relative to the full potential of a heavy bud score. For example, a tree with a moderate bud score 2 would have a 66% bud intensity, where as a tree with heavy bud score - 3 would have 100% bud intensity. If all trees assessed at a site had heavy bud, then the bud intensity score would be 100%.

Results

A total of 1238 trees from 129 sites across 7 broad regions were surveyed. As expected, there was good correlation between % of trees with bud with bud score intensity, that is the more trees with bud present also equated to higher levels of bud intensity observed (Figure 1a, 2, Appendix A).

This year there was a marked difference in bud presence and intensity between eucalypt species, where *E. ovata* was consistently high in bud, everywhere, with some trees already starting to flower (Figure 1b, 2). This extends all the way from the Eastern tiers, East coast, and down to the Tasman Peninsula, Southern forest coastal areas and Bruny Island. It seems that in some areas, flowering has extended from the winter season and will extend through this spring and possibly summer, with many of these trees heavy in capsules from either last season's or recent flowering, and with new bud crops present.

In the Eastern tiers, the *E. brookeriana* trees were also heavy in bud, although sample size for sites with this species was small and highly localised (Fig 1b, 2).

The presence of bud in *E.globulus* was highly variable and patchy, absent or negligible in some areas such as the Southern forests and parts of the east coast, Eastern tiers and Bruny Island. There were some heavy levels of bud on the Tasman peninsula, and localised areas or single trees with bud around Hobart, south Barnback and on the East coast (Orford, Swansea) (Fig 1c, Fig 2). Most of the *E.globulus* trees had varying levels of capsules present, from both last season and the recent winter season, which explains why buds are absent this season. At the time of the survey, there was some blue gum flowering present on the east coast at Swansea, Orford, Koonya and Nubeena, with musk lorikeets observed feeding on trees at Swansea.

The results of this season's surveys are notably different from last years (Figure 3), with this season having higher levels of bud on the Tasman peninsula and east coast for both *E.globulus* and *E.ovata,* the absence of *E.globulus* bud in the Southern forests; and greater patchiness of *E.globulus* bud in the Hobart area. The consistent presence of heavy levels of *E. ovata* bud across the core breeding range in south east Tasmania indicates that this species will be an important food resource for swift parrots this breeding season.

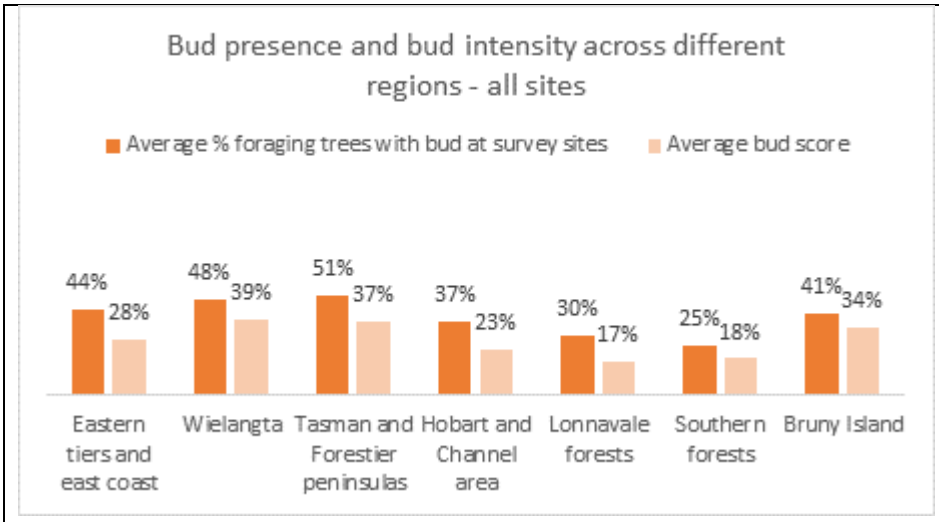

Fig 1a. All sites

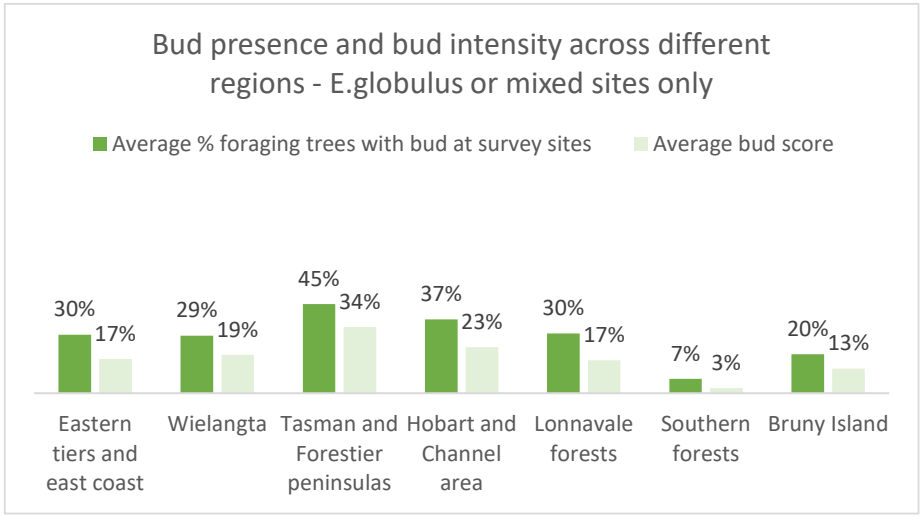

Fig 1b. Globulus or globulus + ovata sites only

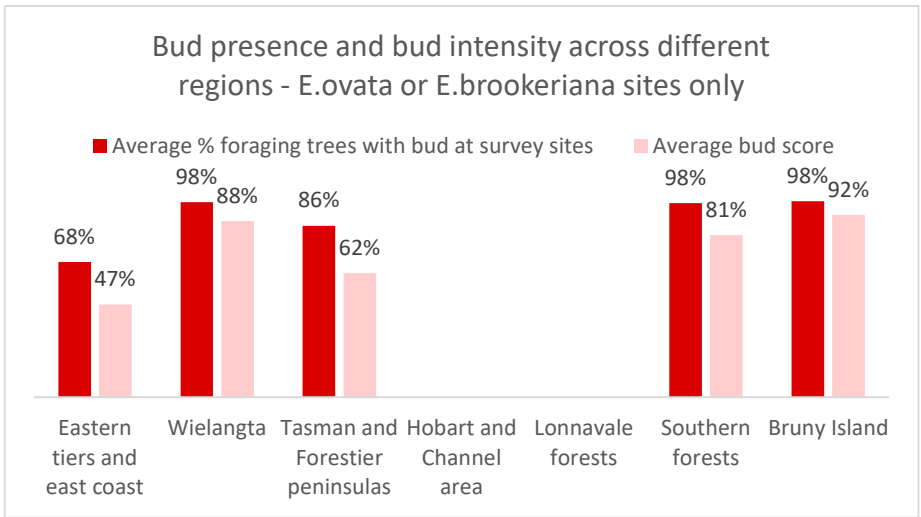

Fig 1c.Ovata or Brookeriana sites only

Figure 1. Results of August 2024 bud surveys and relative bud intensity scores by region, pooled across all survey sites (Fig 1a), including only survey sites with E.globulus or mixed E.globulus and E.ovata or E.brookeriana (Fig 1b), or sites with E.ovata or E.brookeriana only (Fig 1c)

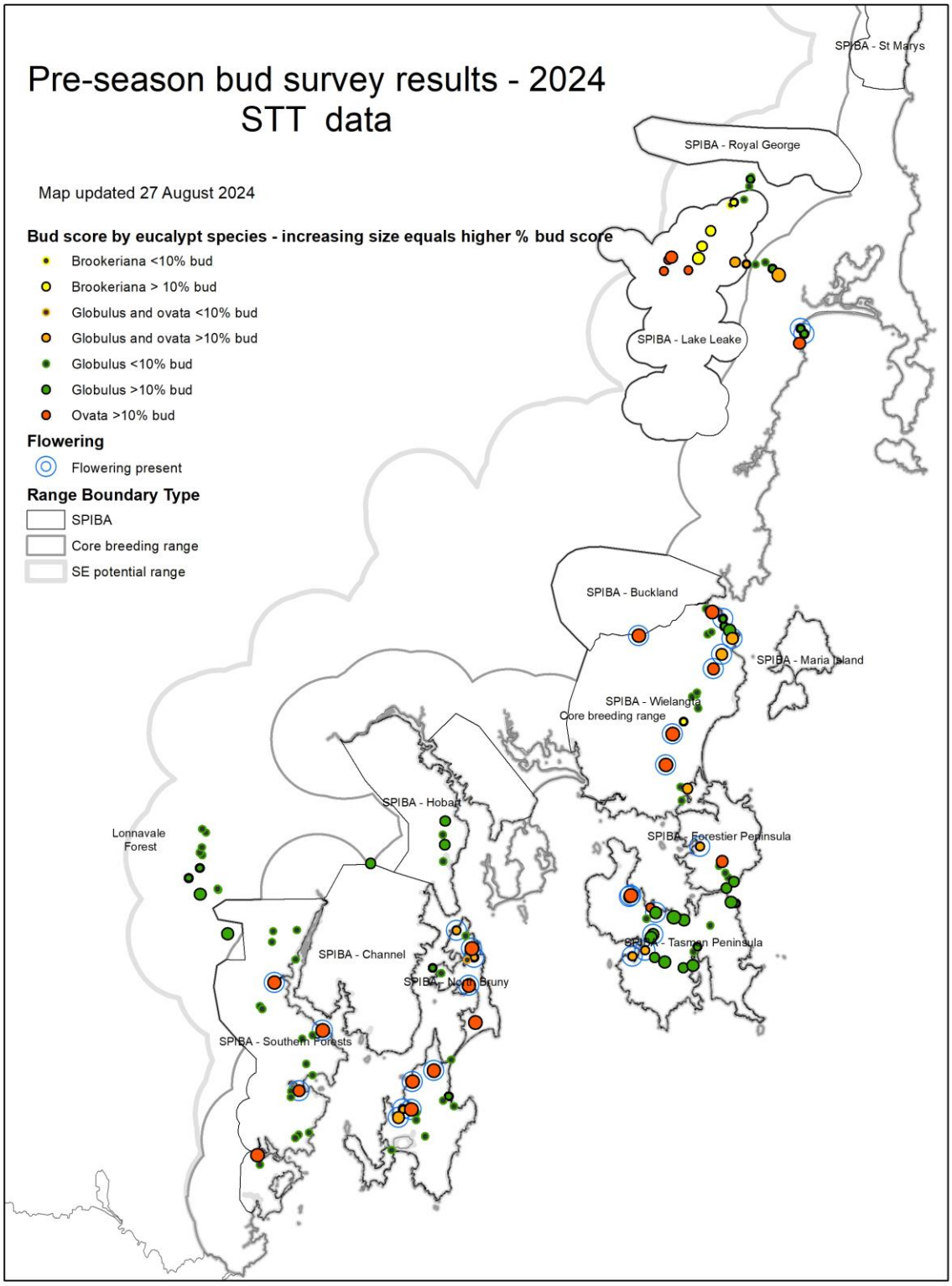

Figure 2. Map of relative bud intensity scores and flowering presence, by eucalypt species, observed in August 2024, showing swift parrot SPIBA, core, and south east potential breeding range.

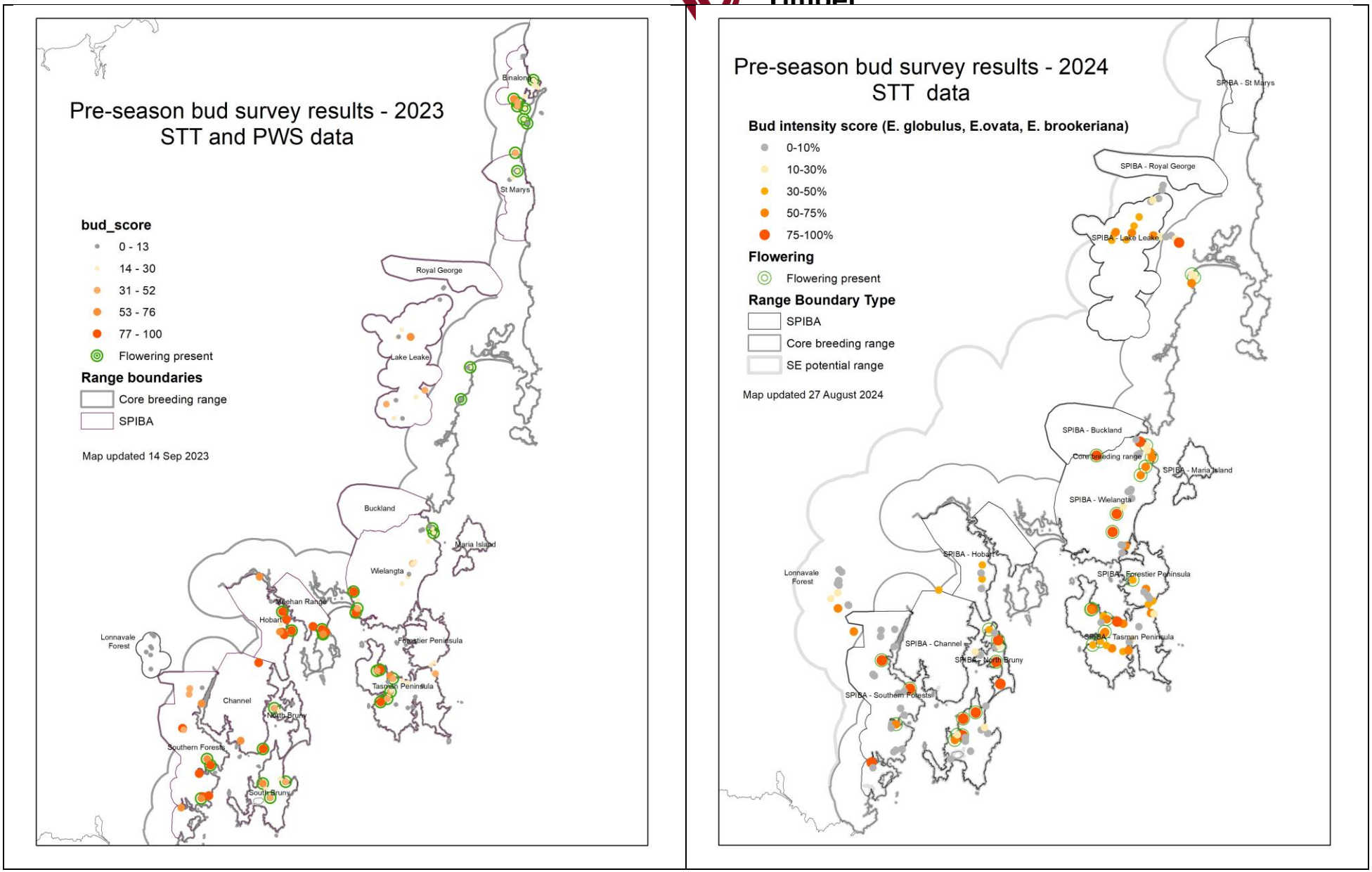

Figure 3. Comparison of 2023 and 2024 relative bud intensity scores and flowering presence pooled across all foraging eucalypt species showing the swift parrot SPIBA, core, and south east potential breeding range boundaries.

References

Stojanovic, D., Terauds, A., Westgate, M.J., Webb, M.H., Roshier, D.A. & Heinsohn, R. (2015). Exploiting the richest patch has a fitness pay-off for the migratory swift parrot. Journal of Animal Ecology 84,1194–1201.

Appendix A - Bud survey results showing sample size and sites by species within each region

Region	Number of survey sites	Number of trees assessed	Average % foraging trees with bud	Average bud intensity score
Eastern tiers and east coast	**22**	**199**	**44%**	**28%**
Globulus	9	65	20%	9%
Globulus + Brookeriana	2	24	13%	10%
Globulus + Ovata	3	17	69%	49%
Brookeriana	3	41	60%	45%
Ovata	5	52	73%	47%
Wielangta	**18**	**193**	**48%**	**39%**
Globulus	10	102	22%	12%
Globulus + Brookeriana	1	11	18%	12%
Globulus + Ovata	2	29	72%	62%
Ovata	5	51	98%	88%
Tasman and Forestier peninsulas	**31**	**273**	**51%**	**37%**
Globulus	23	192	43%	31%
Globulus + Ovata	4	49	59%	48%
Ovata	4	32	86%	62%
Hobart and Channel area	**5**	**55**	**37%**	**23%**
Globulus	5	55	37%	23%
Lonnavale forests	**11**	**94**	**30%**	**17%**
Globulus	11	94	30%	17%
Southern forests	**20**	**193**	**25%**	**18%**
Globulus	16	148	7%	3%
Ovata	4	45	98%	81%
Bruny Island	**22**	**231**	**41%**	**34%**
Globulus	11	112	11%	5%
Globulus + Ovata	5	50	39%	29%
Ovata	6	69	98%	92%

Report prepared by Marie Yee, Stewardship Branch, STT (28/8/2024)