

Bird Monitoring in Plantations

BirdLife Australia and PF Olsen Australia bird monitoring program

birds are in our nature



**Responsible
Wood** RW/1-10-1

PF OLSEN
AUSTRALIA 

The logo icon for PF Olsen Australia, featuring a green circle with a white tree-like shape inside.


birdlife
AUSTRALIA

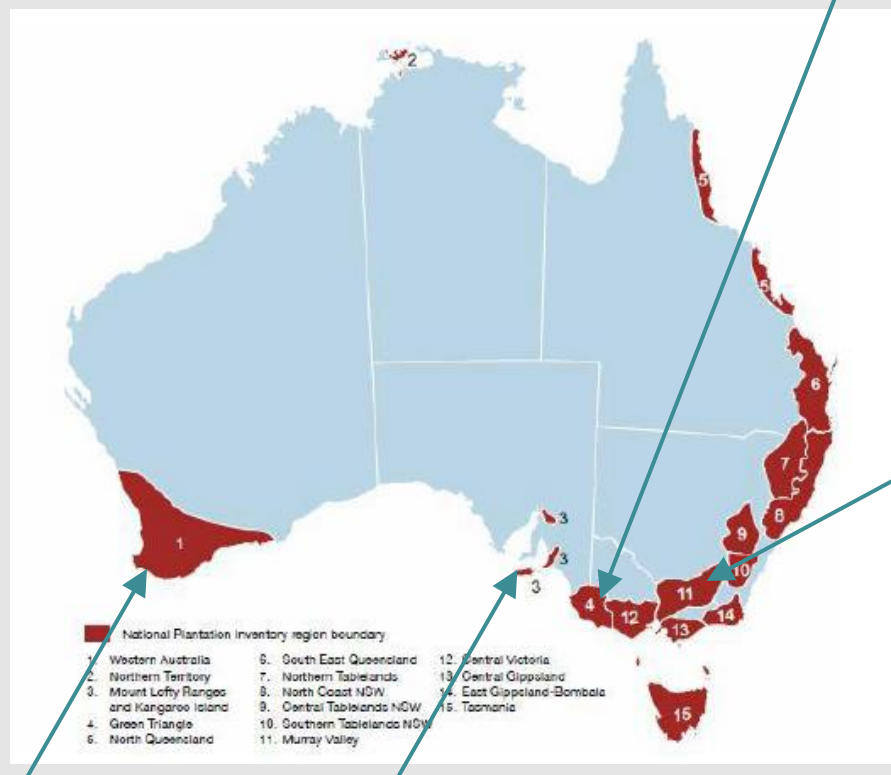
The logo icon for BirdLife Australia, featuring a stylized blue bird in flight.

Acknowledgements

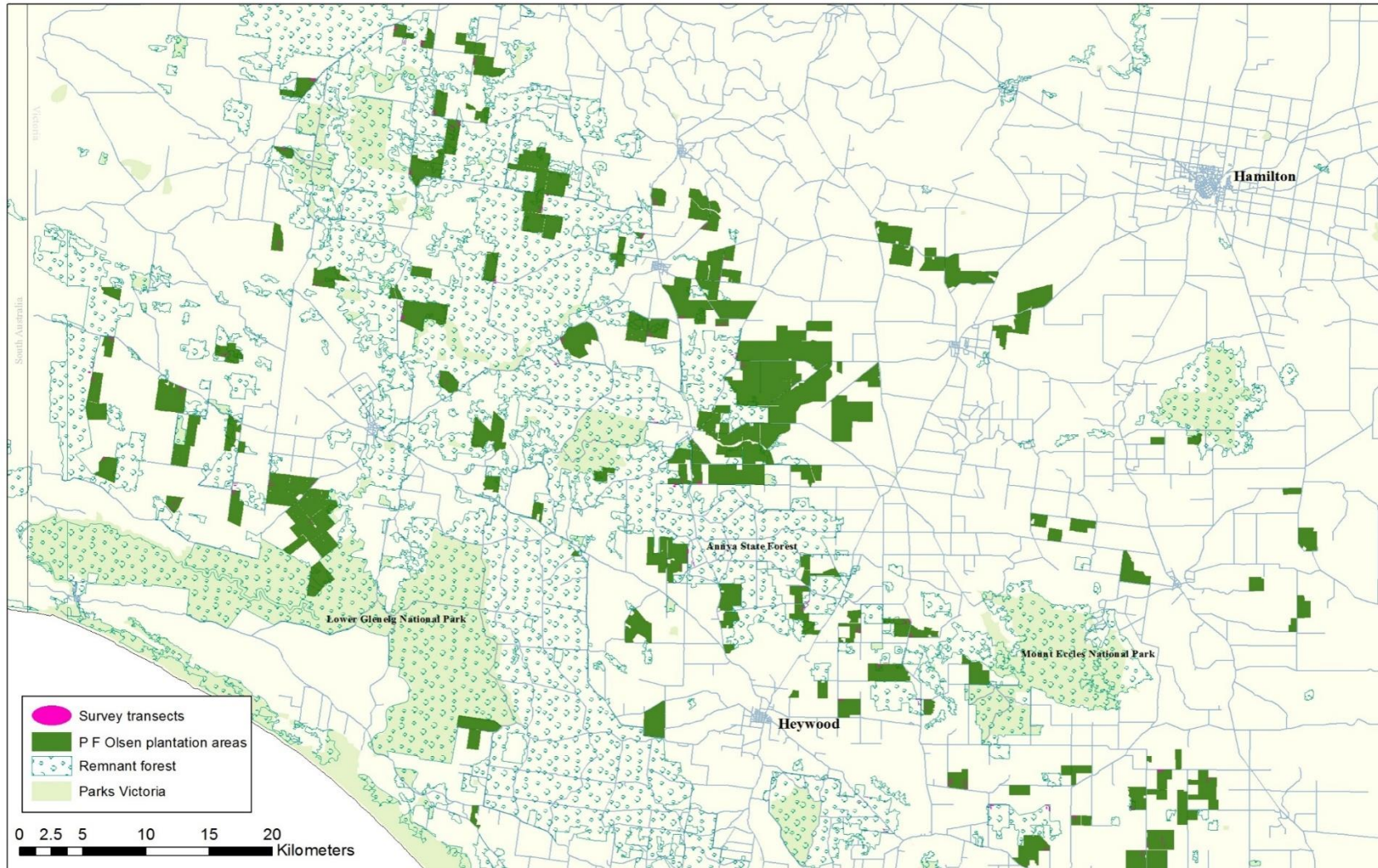
- Acknowledge the country on which each of our survey work is undertaken:
 - Vic Gunditjmara Nation
 - WA Piblemen and Minang groups of the Noongar People
 - NSW Wiradjuri Nation
- Acknowledge the Volunteers who have assisted with the bird surveys
- Acknowledge funding from Responsible Wood to set up NSW sites and to present at today's workshop.

Project Overview and study location

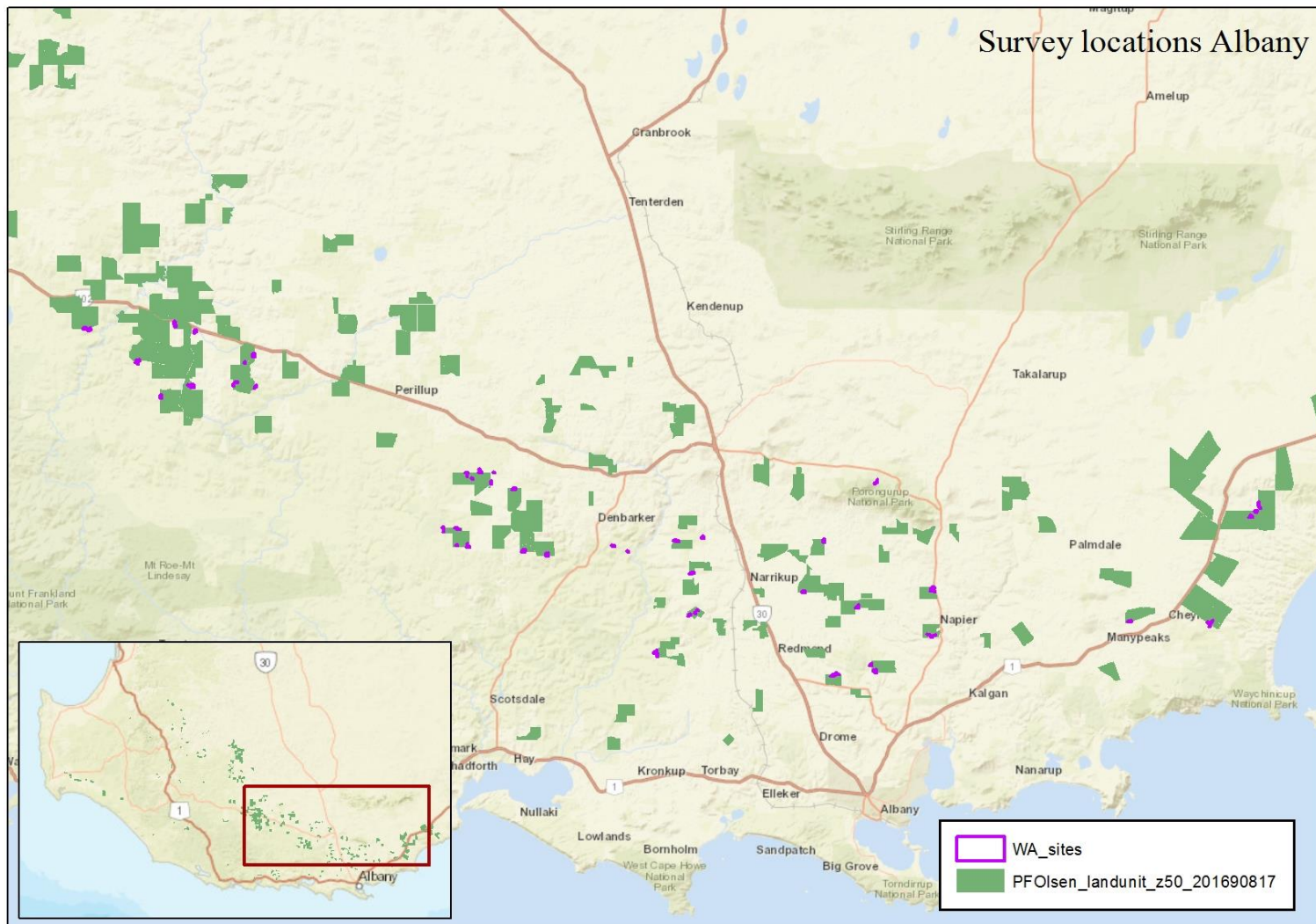
- In 2015 PF Olsen Australia approached BirdLife Australia to help set up a bird monitoring pilot across hardwood plantations in the “Green Triangle” (an important region in Australia’s plantation forestry industry).
- The aims of the monitoring program was to address their monitoring requirements under the Forest Stewardship Council (FSC) and Responsible Wood (RW) certification.
- Requirement to “maintain and enhance” biodiversity across managed land, but not really sure what that means.
- In 2017 pilot survey was run across the estate in South-west Western Australia.
- In 2018 surveys were undertaken for KIPT on Kangaroo Island
- In 2021 sites were established across Softwood plantations in NSW.



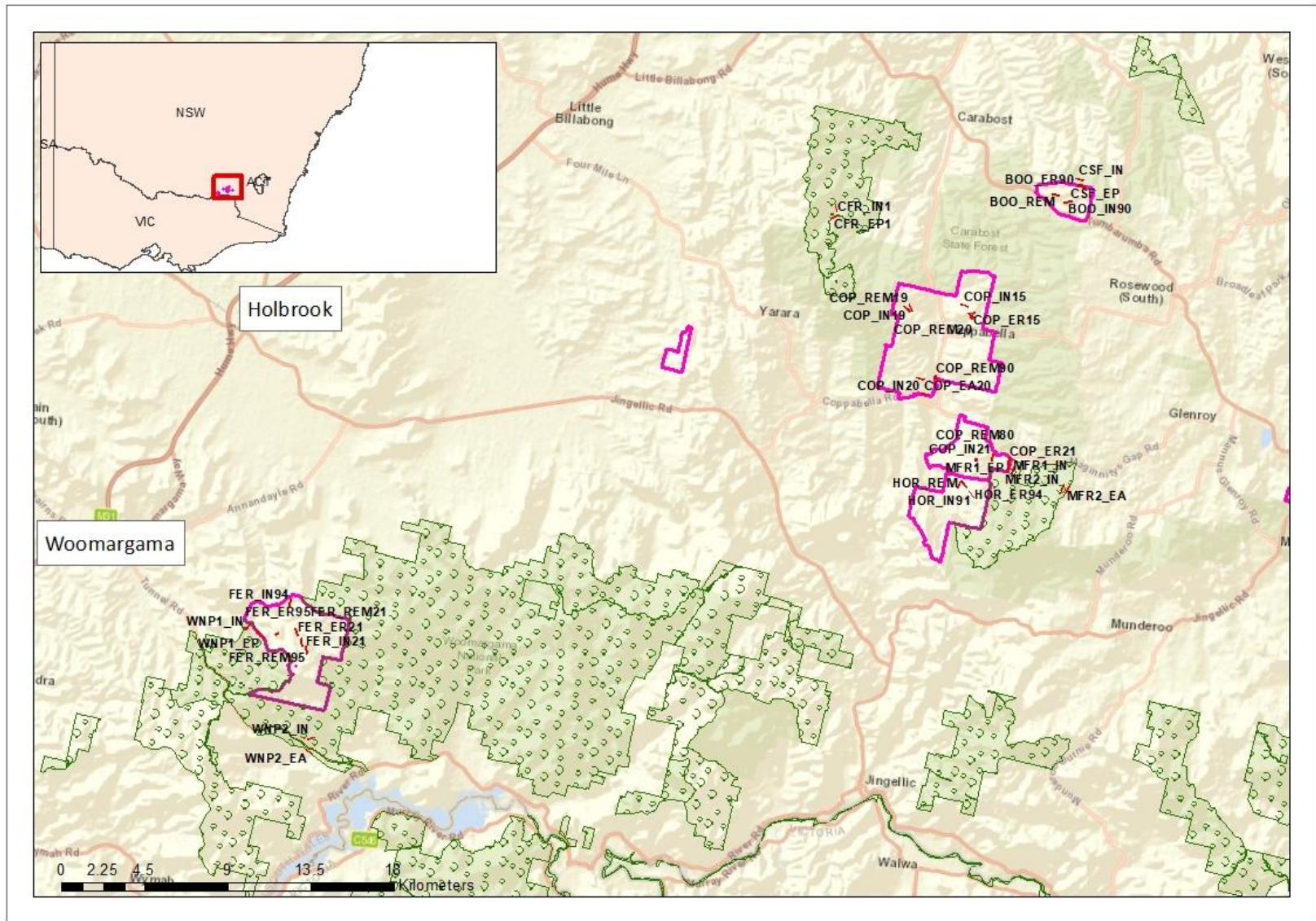
Victoria Landscape



Western Australia Landscape



New South Wales Landscape



Survey Design

- Stratified design
 - Plantation and control sites [now inclusion of Remnant as identified treatment]
 - Across a range of plantation age classes
 - Interior and edge transects
 - Edge treatments – plantation:remnant, plantation:cleared. remnant:cleared
 - Standard 20min 2ha surveys
 - Many sites 400m x 50m transects.

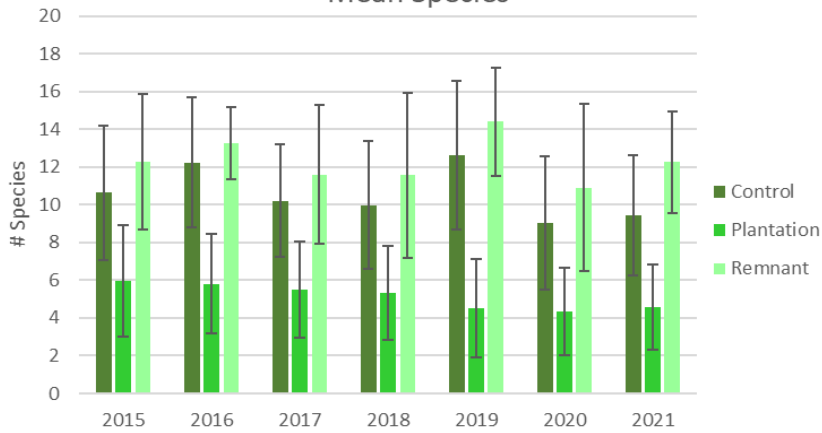
What Do We Measure?

Annually Report on:

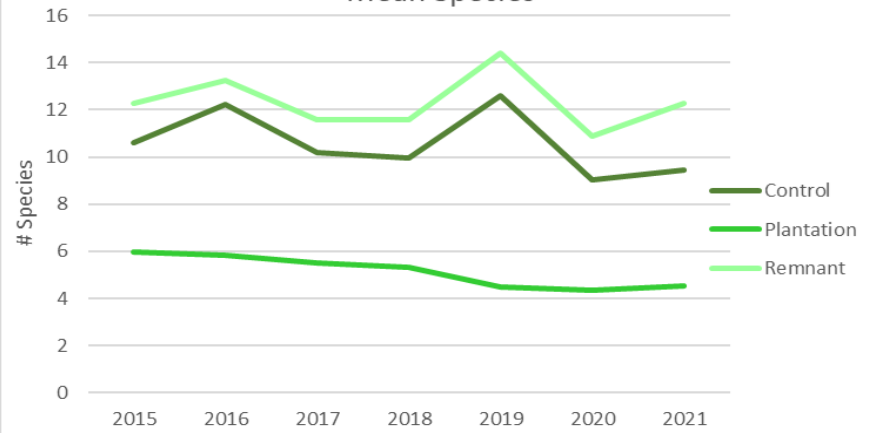
- **Bird Abundance and Species**
- Species Accumulation
- Shannon Index
- Foraging Guilds
- Conservation Priority Species (plus endemic in WA)
- Common Species

Species

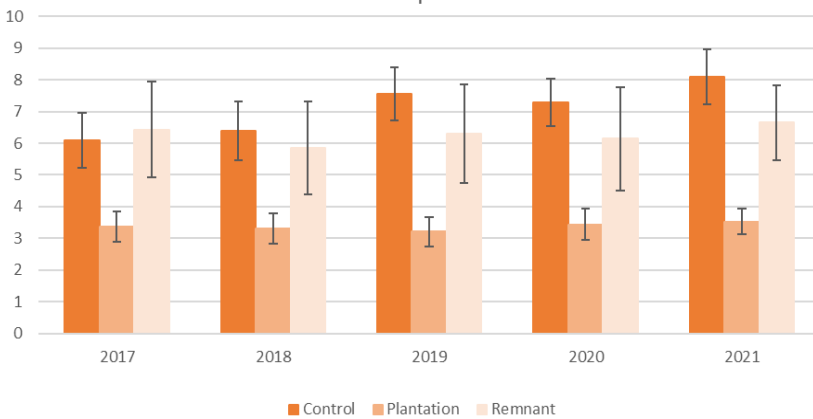
Mean Species



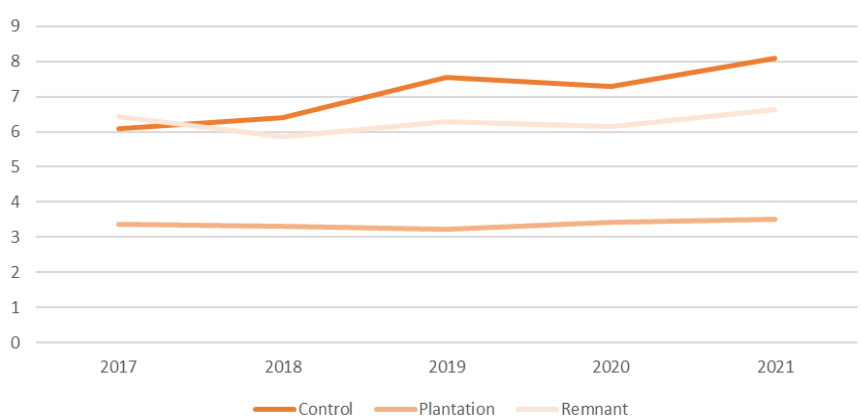
Mean Species



Mean Species

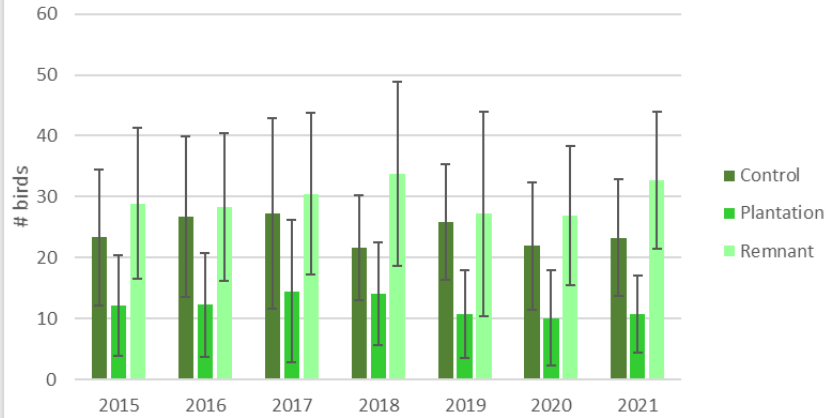


Mean Species

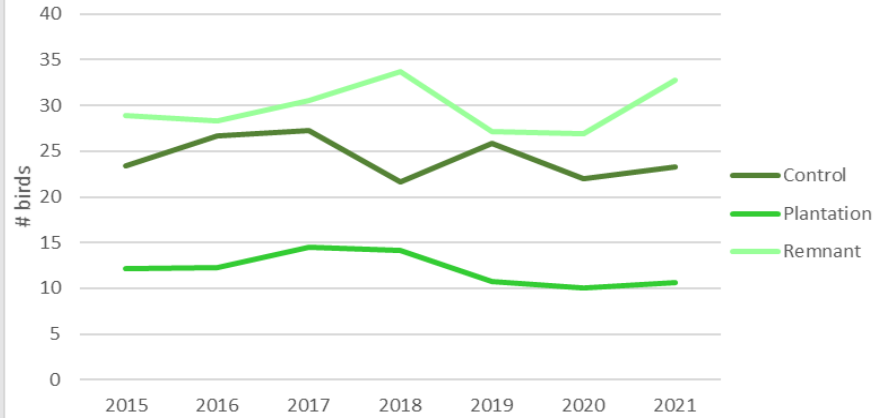


Abundance

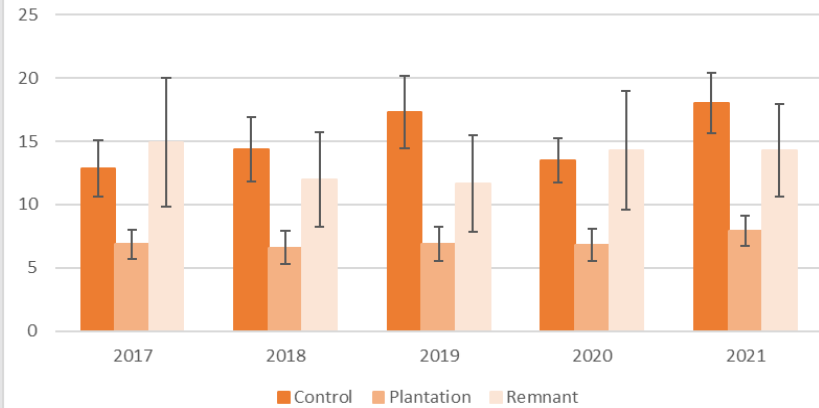
Mean Abundance



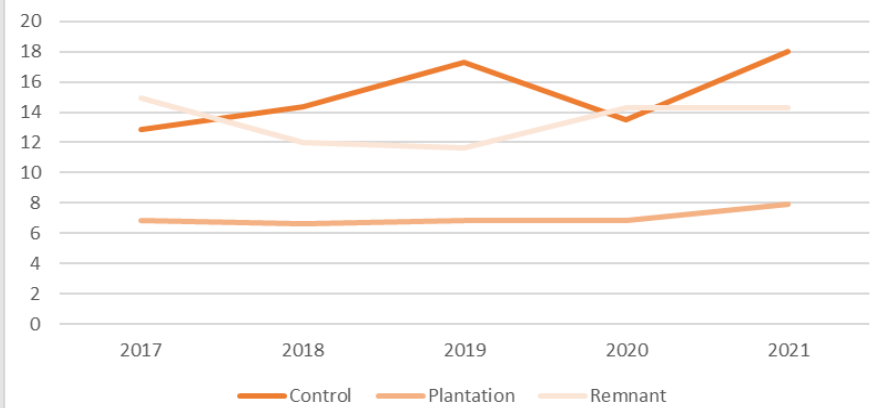
Mean Abundance



Mean Abundance



Mean Abundance



Total Species Recorded – Green Triangle

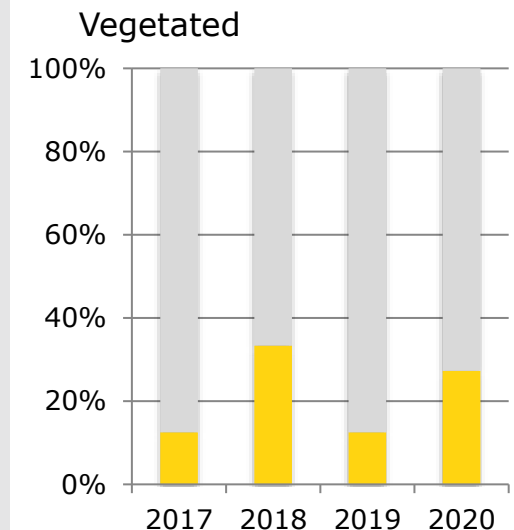
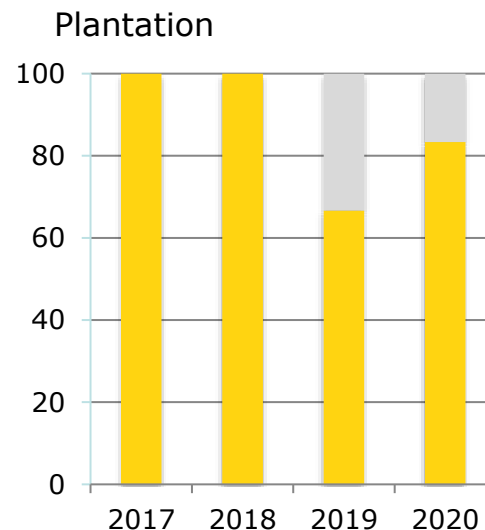
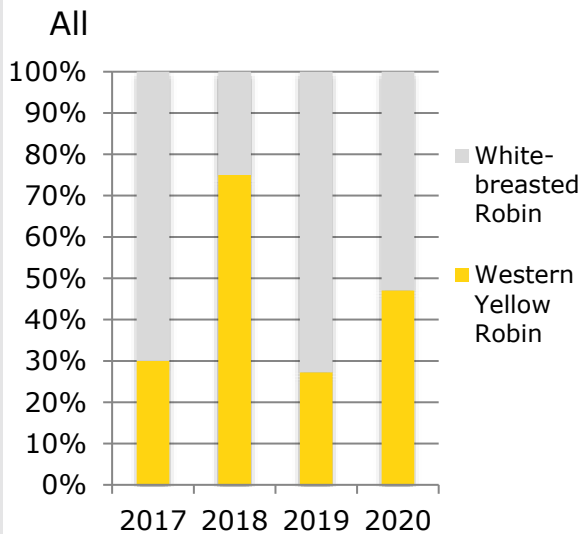
	2015	2016	2017	2018	2019	2020	2021	Total
Control	53	46	45	47	41	40	47	74
Plantation	61	49	61	50	39	43	50	89
Remnant	42	34	37	37	34	40	44	63



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Total Species Recorded SW Western Australia

	2017	2018	2019	2020	2021	Total
Control	46	43	43	41	49	58
Plantation	38	37	37	36	40	57
Remnant	27	23	33	31	34	45



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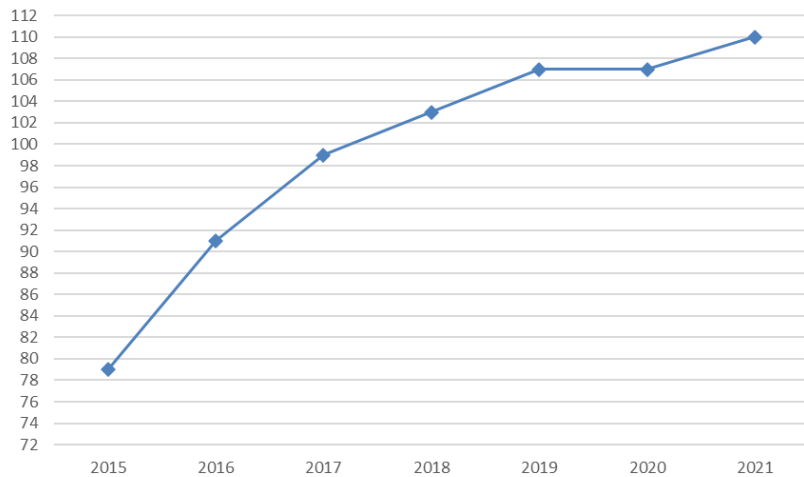
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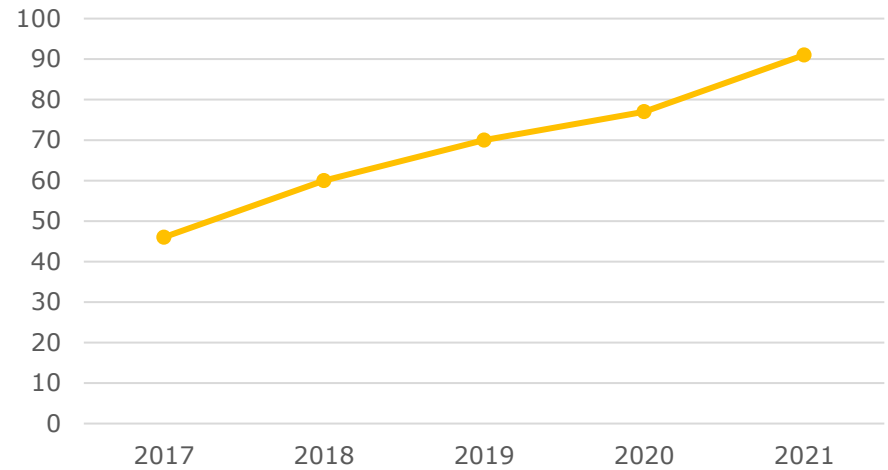
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- **Species Accumulation**
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Species Accumulation

Species Accumulation



Species Accumulation



NSW: starts at 44 species

	# species	Total abundance
Landscape	36 (44)	585 (883)
Control	25 (26)	238 (324)
Plantation	14 (27)	109 (243)
Remnant	27 (33)	238 (316)

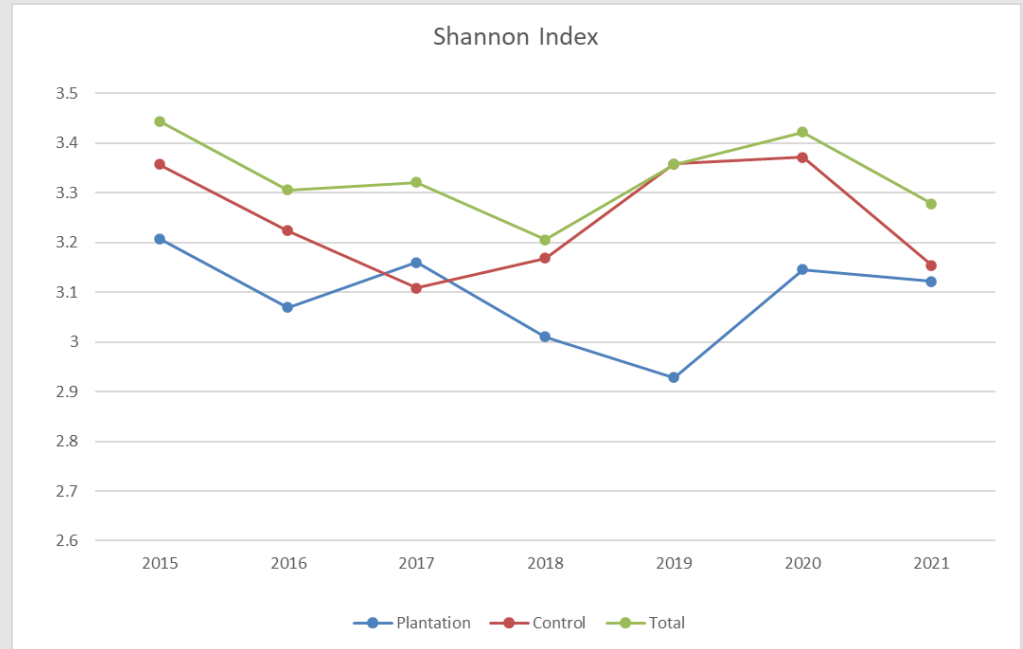
What Do We Measure?

Annually Report on:

- Bird Abundance and Species
- Species Accumulation
- **Shannon Index**
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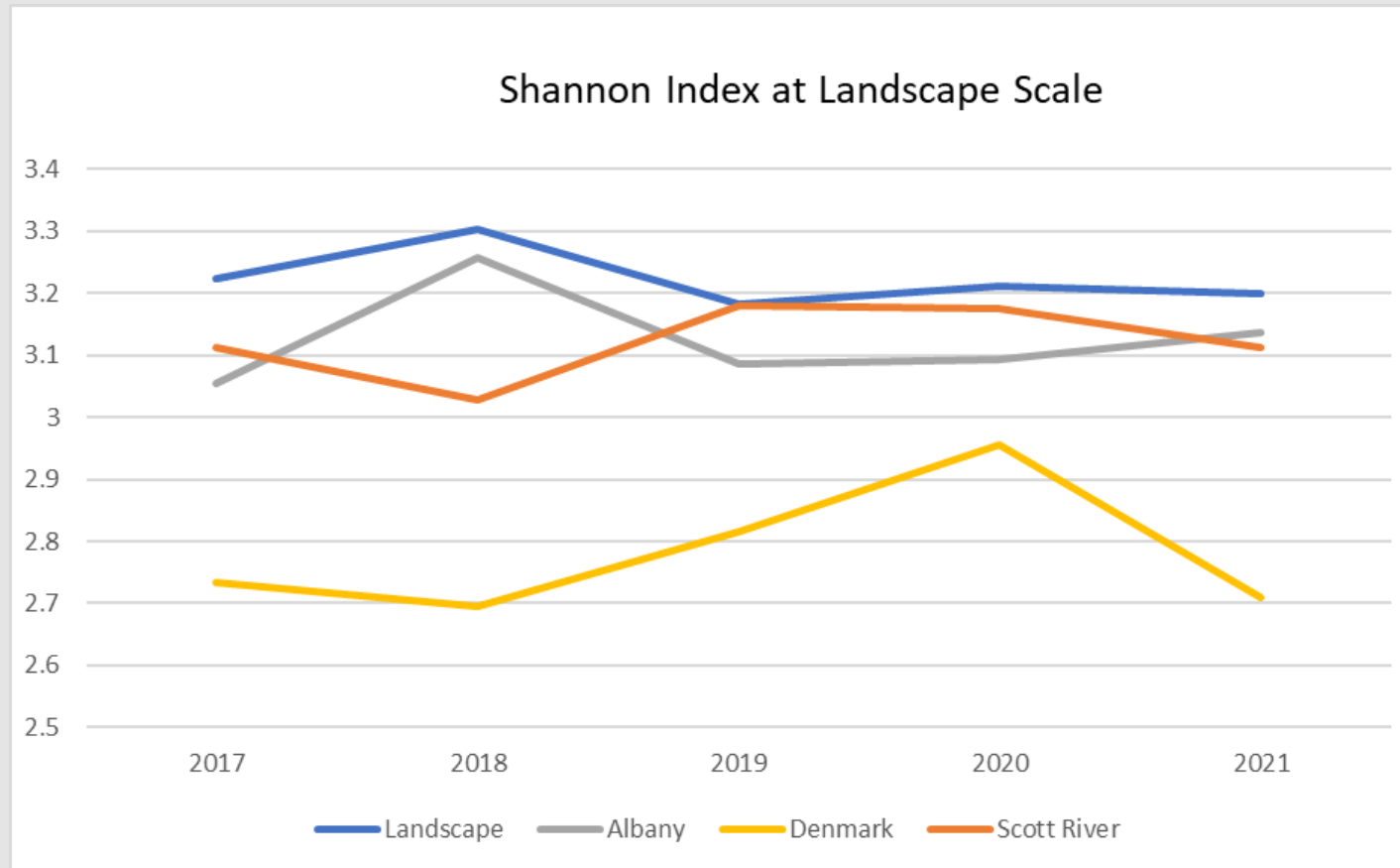
Shannon Index

- Shannon Index is a standard ecological index for measuring diversity
- It considers both the number of species record and how these are represented in the total number of birds recorded.
- Monitoring calculates an annual index at the landscape level (pools all survey data) and we look at the site scale.



	Shannon Index 2021
Landscape	3.05
Control	2.72
Plantation	2.20
Remnant	2.98

Shannon Index - WA



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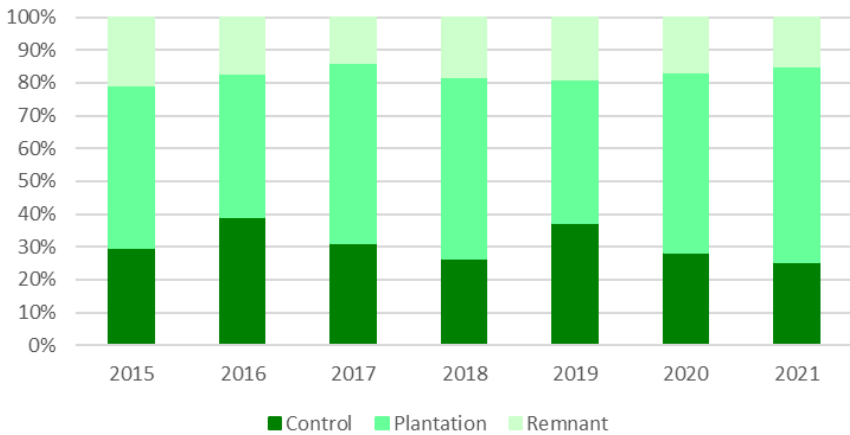
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Foraging Guilds

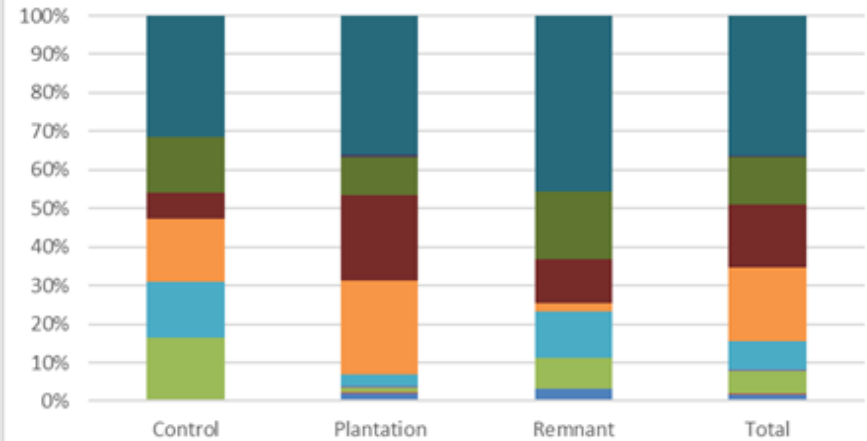
- 14 foraging guilds identified (follow that of Loyn et. al. 2008)
- For Vic: Most abundant Guilds are Nectarivores and Canopy Insectivores
- For WA: Most abundant guild are Nectarivores, Canopy Insectivores and Tall shrub Insectivores
- For NSW: Most abundant guilds Canopy Insectivores, Insectivores that forage on open ground under trees. No Nectarivores recorded in plantations

Foraging Guilds

Percent of Nectarivores with Treatment



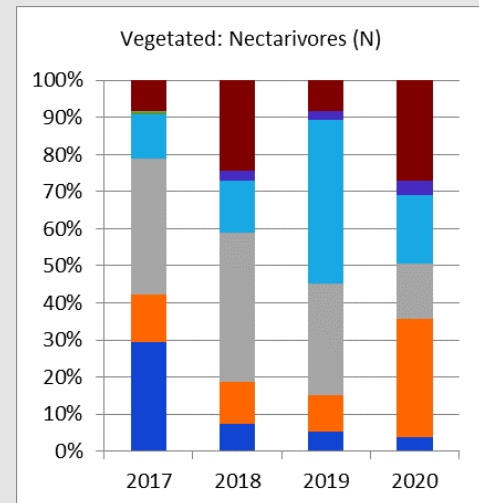
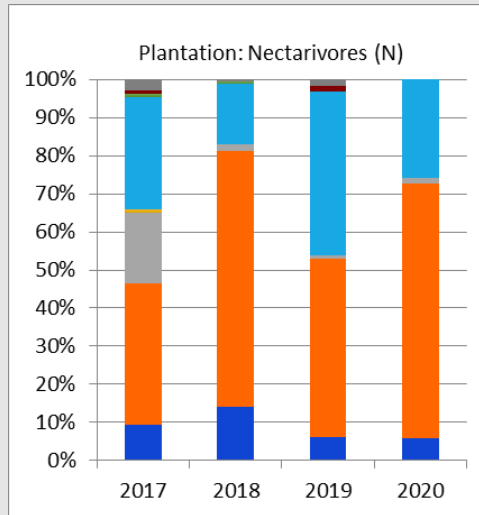
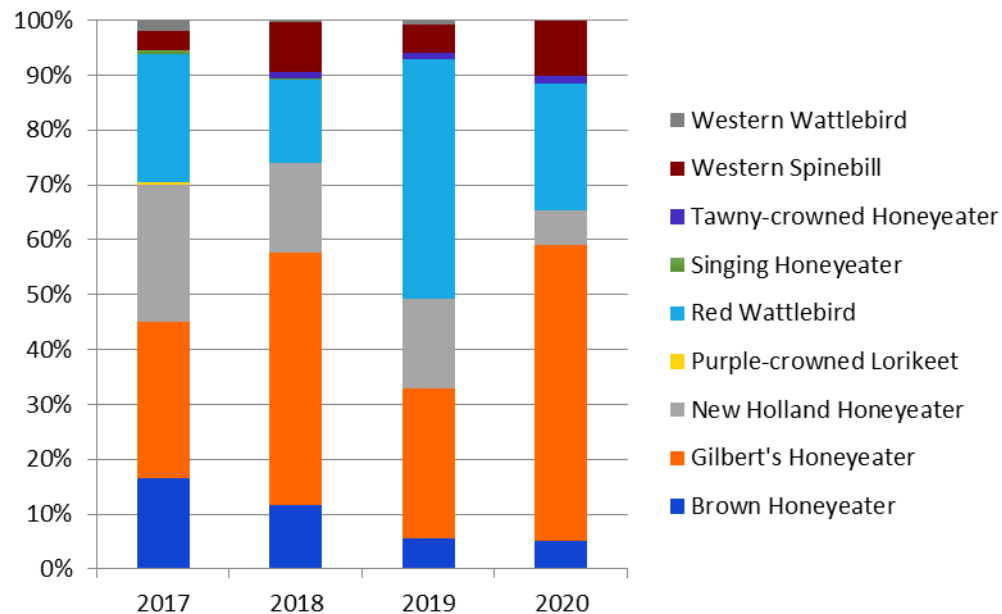
2021



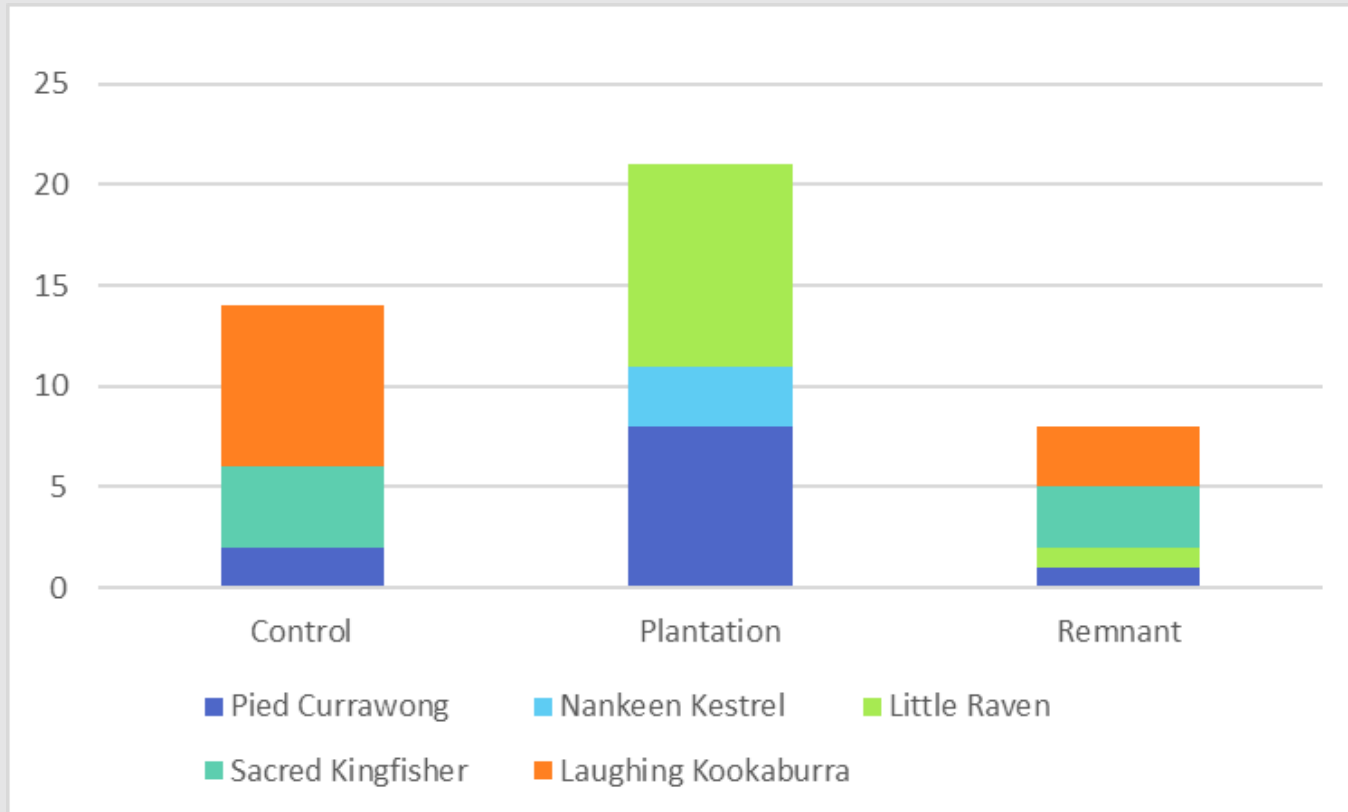
- Brown-headed Honeyeater
- Crescent Honeyeater
- Eastern Spinebill
- Little Wattlebird
- New Holland Honeyeater
- Red Wattlebird
- Tawny-crowned Honeyeater
- White-eared Honeyeater
- White-naped Honeyeater
- White-plumed Honeyeater
- Yellow-faced Honeyeater

Foraging Guilds

All Nectarivores (N) recorded



Foraging Guilds



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Conservation Priority Species

- Report on species listed under both Commonwealth and/or State legislation
- PF Olsen Australia already consider the management of these species, but we can provide further information on when and where species are recorded
- In Western Australia there are also local endemic species that we track as area is a Biodiversity Hotspot.

What Do We Measure?

Annually Report on:

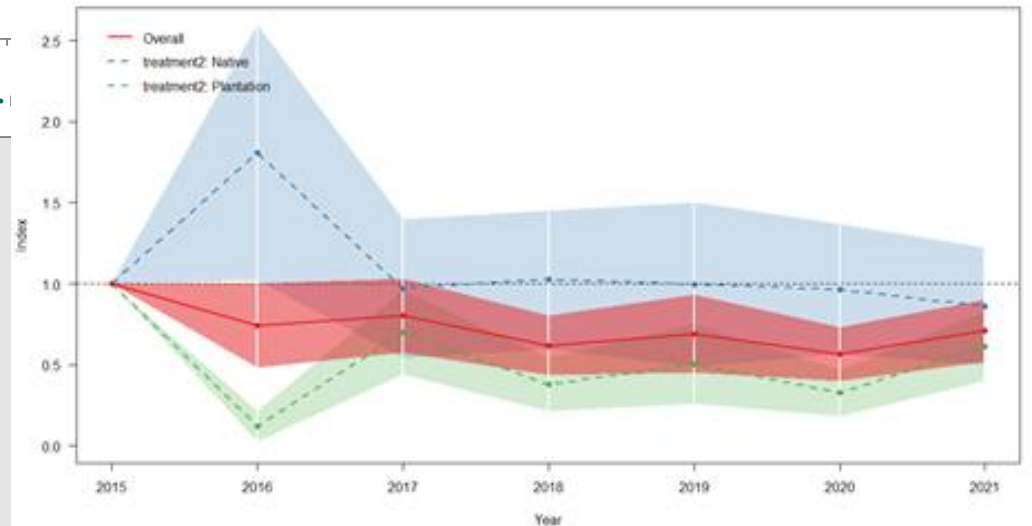
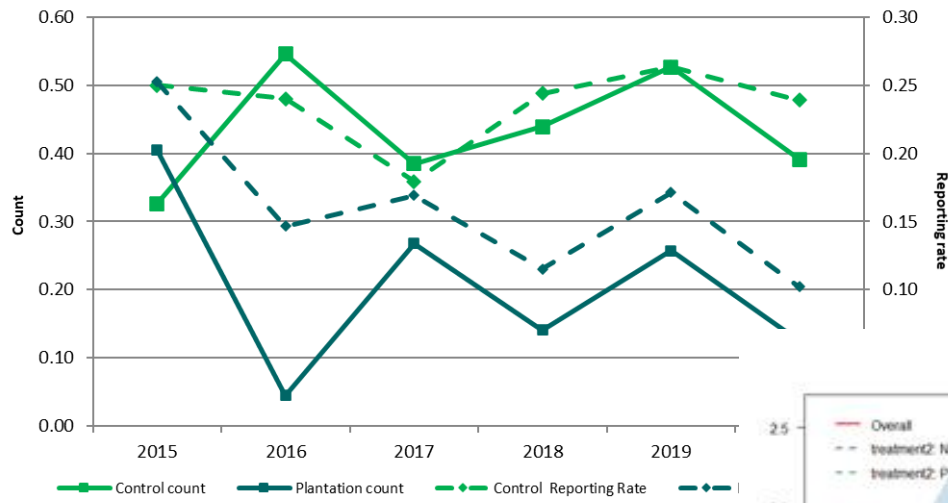
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Common Species

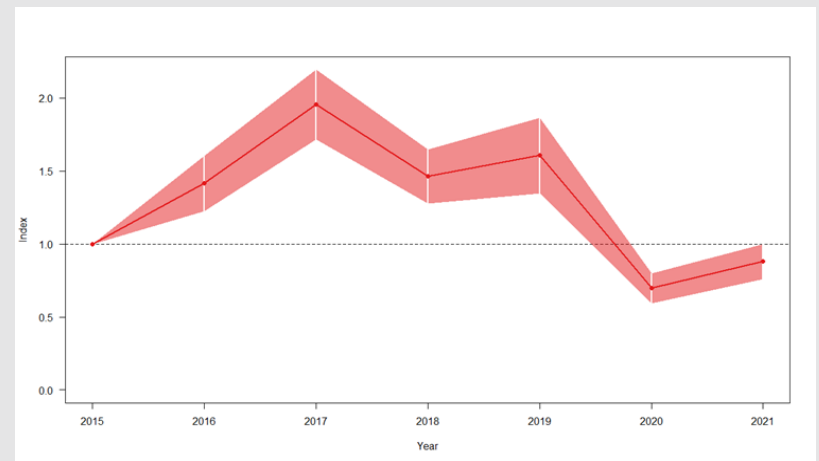
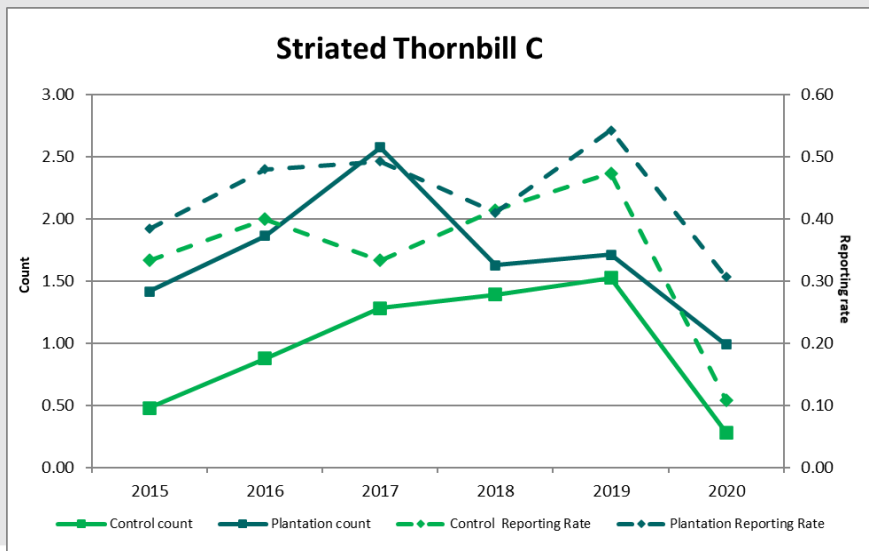
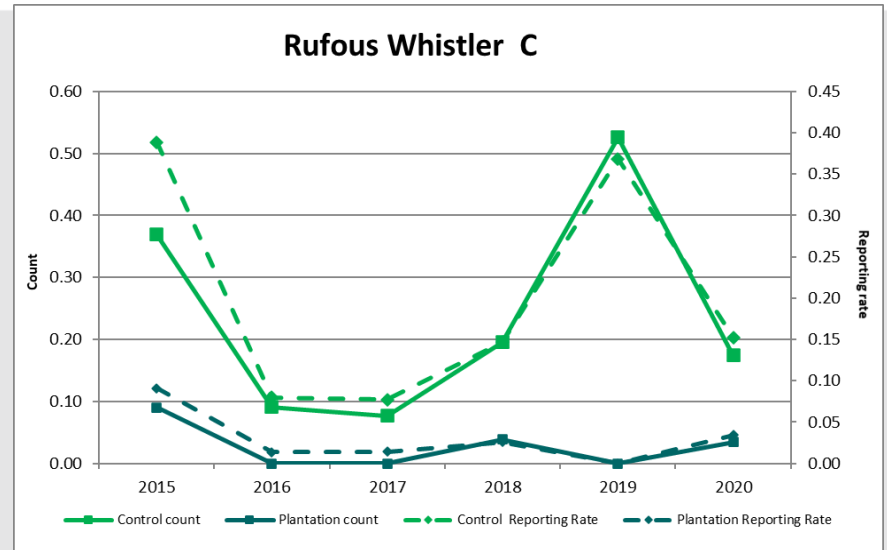
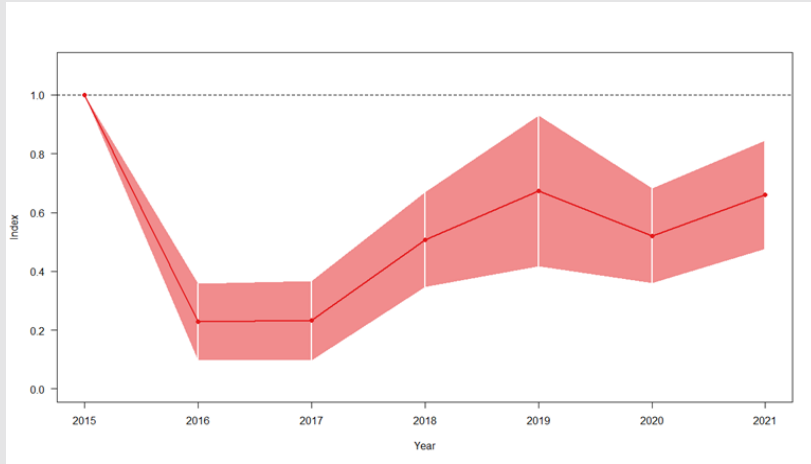
- Why Common Species?
- Common Species selected on criteria in the first year of surveys, thus baselined to this first year.
- Initial trends were presented using standardised counts and reporting rates between treatments. For 2021 trialled using TRIM (Trends and Indices for Monitoring).

Common Species

Spotted Pardalote C



Common Species



Common Species

- The following table summarises the trends observed for common species in the Green Triangle surveys.

Time Trend	Landscape wide trend	Natural vegetation trend	Plantation trend
Increasing trend	<ul style="list-style-type: none"> Pied Currawongs Superb Fairy-wrens Yellow-faced Honeyeaters 	<ul style="list-style-type: none"> White-browed Scrubwrens White-throated Treecreeper 	<ul style="list-style-type: none"> Little Raven White-browed Scrubwrens
No clear trend	<ul style="list-style-type: none"> Black-faced Cuckoo-shrikes Crimson Rosella Golden Whistlers Grey Currawongs Laughing Kookaburra Red Wattlebirds Rufous Whistlers Striated Pardalotes Striated Thornbills Sulphur-crested Cockatoos White-eared Honeyeater White-naped Honeyeater 	<ul style="list-style-type: none"> Australia Magpies Brown Thornbills Eastern Spinebill Eastern Yellow Robins Little Raven New Holland Honeyeaters Spotted Pardalote 	<ul style="list-style-type: none"> Australia Magpies Brown Thornbills New Holland Honeyeaters White-winged Chough
Decreasing trend	<ul style="list-style-type: none"> Brown-headed Honeyeaters Grey Shrike-thrush 	<ul style="list-style-type: none"> Grey Fantail 	<ul style="list-style-type: none"> Grey Fantail Spotted Pardalote

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