



Bringing wildlife back to the farm (and why this is good for business)



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'Farms for Wildlife' - *Are the two compatible?*

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What we will cover in this talk

- What are the different types of habitat in the Kara Kara region
- Why different types of habitat support different species of wildlife
- How biodiversity can benefit agricultural production
- What makes a good farm for wildlife, and what you can do to create or improve wildlife habitat on your property





Habitats of the Kara Kara area



Heathy Dry
Forest (LC)

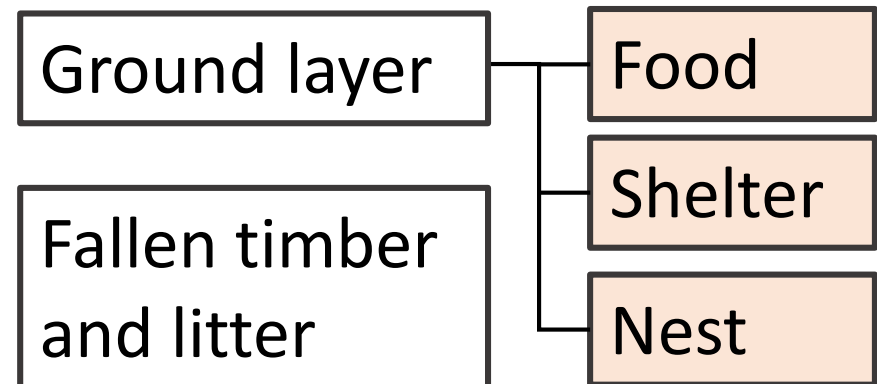
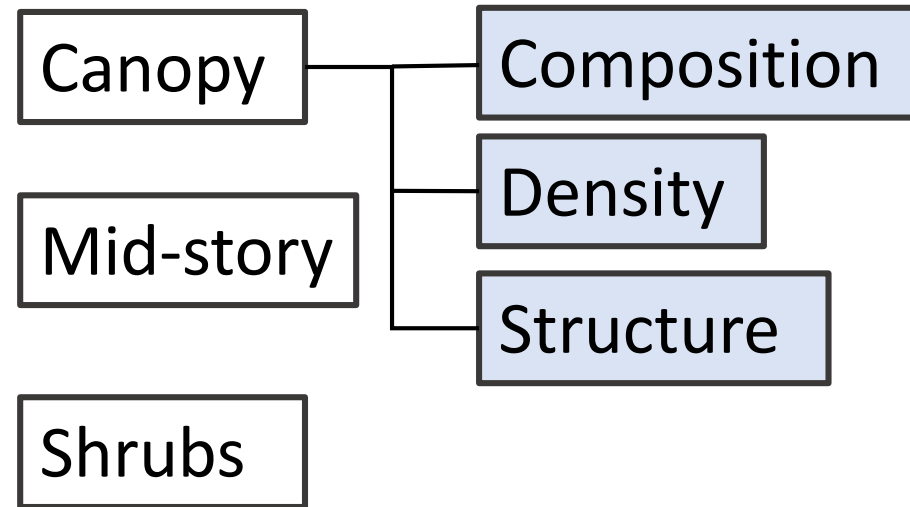
Grassy Woodland (V)

Box-Iron Forest (D)

Woodland (E)



Elements of habitat (and why different species need different habitat)



Fauna Guilds

- **Canopy**
Honeyeaters, parrots and lorikeets, owls, some thornbills, possums and gliders, butterflies, lerp, beetles, spiders.
- **Mid-storey**
Hollow-nesting species (eg. goannas, tuans, parrots, kingfishers), treecreepers, shrike-thrush, shrike-tits, tree geckos
- **Shrub-dependent**
Orb-weaving spiders, some thornbills and wrens, babblers, honeyeaters, spinebills, feathertail glider,
- **Ground-dwelling**
Pouncers (robins, flycatchers, kingfishers), button-quail, quail-thrush, scrub-wrens, speckled warblers, doves and bronzewings, firetails, wallabies and kangaroos, dunnarts and antechinus, tuans, frogs, skinks and geckos, snakes.



Thornbills as an example



Thornbills as an example



Robins as an example



Robins as an example





All kinds of clever

What you can do to enhance wildlife habitat on your farm?

What do I have?

What should be here?

What's missing?

How can I increase productivity?

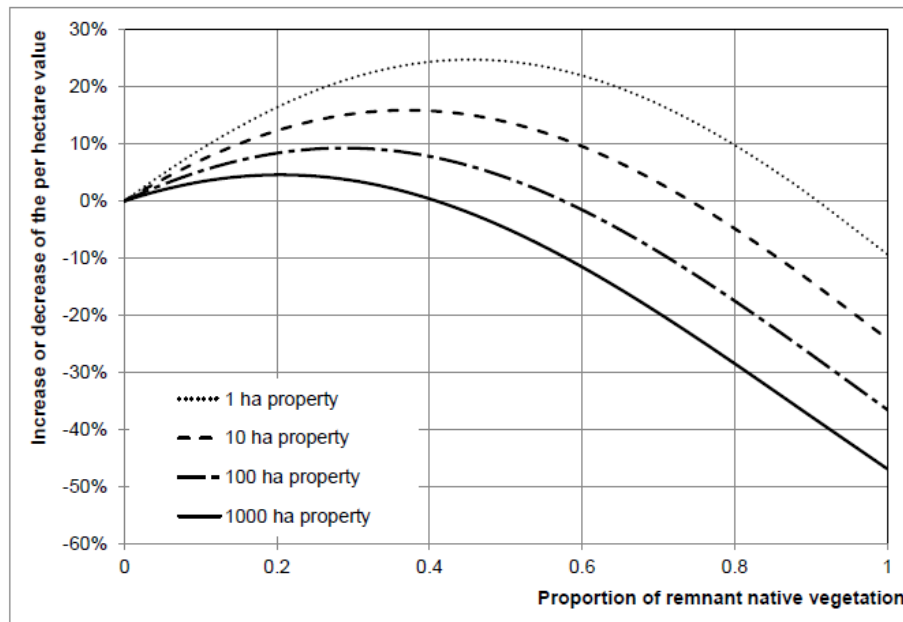
How can I support 'bottom-up' processes?

How can I increase connectivity?

What you can do to enhance wildlife habitat on your farm?

1. Maintain all remnant vegetation

Native veg increases the value of your farm



10 ha property – 37% cover (increase value by 16%)

100 ha property – 29% cover (increase value by 9%)

1000 ha property – 20% cover (increase value by 5%)

From Polyakov et al. (2014) *American J of Ag Economics*

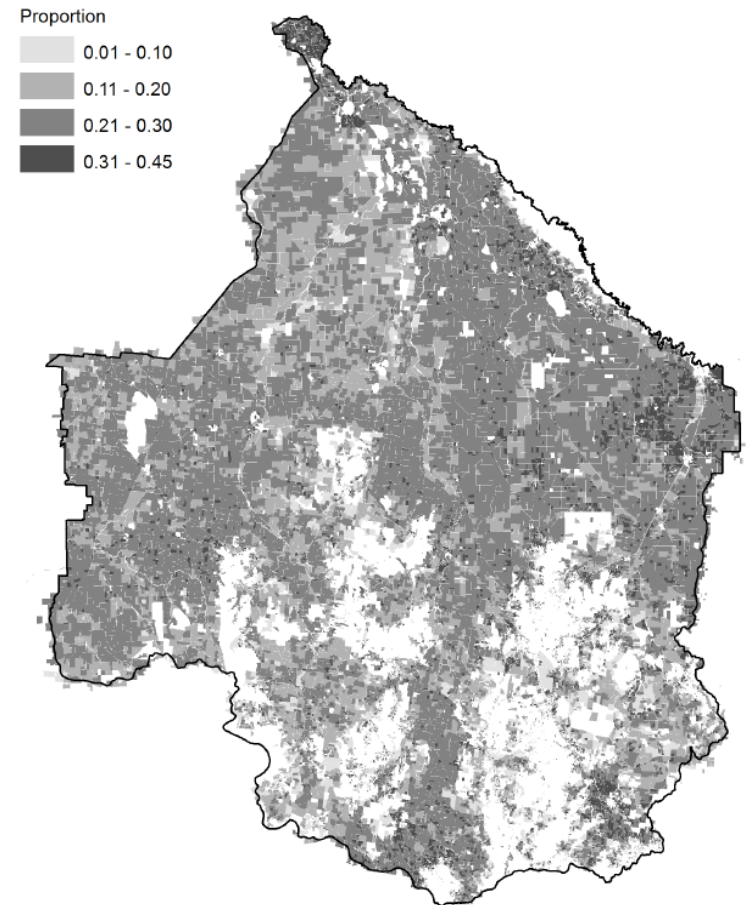


Figure 6. Additional proportion of native vegetation required to achieve predicted maximum property values

What you can do to enhance wildlife habitat on your farm?

1. Maintain all remnant vegetation
2. Protect and retain scattered paddock trees

Marvellous micro-bats

- Bats are widespread; use a variety of habitats; high diversity of species.
- On Northern Plains, highest levels of activity in riparian vegetation and smaller blocks (< 200 ha) of remnant vegetation within farmland.
- Activity levels in roadside vegetation and scattered trees in paddocks were similar to larger blocks of forest.
- More bats using isolated trees in paddocks than cleared open farmland.
- Females of the Lesser Long-eared Bat recording feeding up to 12 km away from roost sites.
- Bats can consume up to half their body weight in insects per night; feed extensively on a range of pest species, including Rutherglen Bugs.



What you can do to enhance wildlife habitat on your farm?

1. Maintain all remnant vegetation
2. Protect and retain scattered paddock trees
3. Reduce inputs and improve your soil

Let nature do the work ...

Conventional
(apply
insecticide)

Low input
(apply
insecticide)

Control
(no
insecticide)

5 sites across 4 states, across two years, and testing canola and wheat

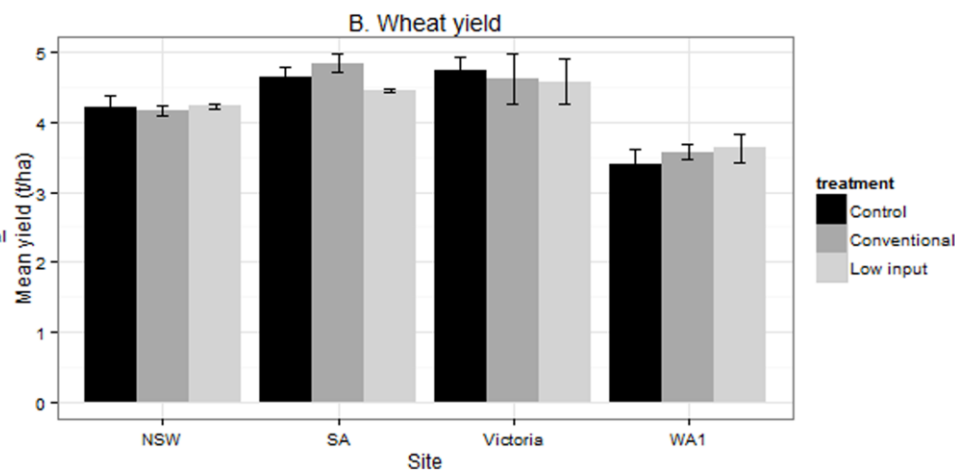
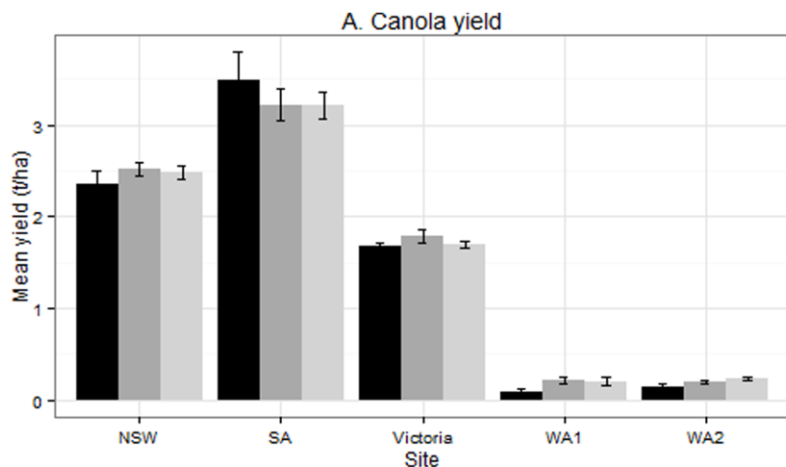


Let nature do the work ...

- Insecticide use did reduce the abundance of many pest species

BUT

- Damage caused by pests not significantly higher in control and low input sites
- Yields not significantly different across treatments
- None of the insecticide inputs provided an economically justifiable yield gain.



From: Macfadyen et al. (2014) Reducing Insecticide Use in Broad-Acre Grains Production: An Australian Study. PLoS ONE 9(2)

What you can do to enhance wildlife habitat on your farm?

1. Maintain all remnant vegetation
2. Protect and retain scattered paddock trees
3. Reduce inputs and improve your soil
4. Control feral predators and exotic herbivores (fence off critical areas)
5. Increase native veg through replanting – consider climate change, connectivity, pollinators, nectar, grasses
6. Mistletoe is good, not bad
7. Leave fallen timber and coarse woody debris
8. Install nest-boxes and particular habitat features (native bee hotels, re-snagging, re-logging, re-rocking)
9. Consider ecological thinning

Ecosystem services provided by wildlife

- Pollination (insectariums, native vegetation) – wasps, bees, birds
- Pest control – by and of invertebrates & vertebrates
- Consumption of waste products – carrion, 'mummy nuts'



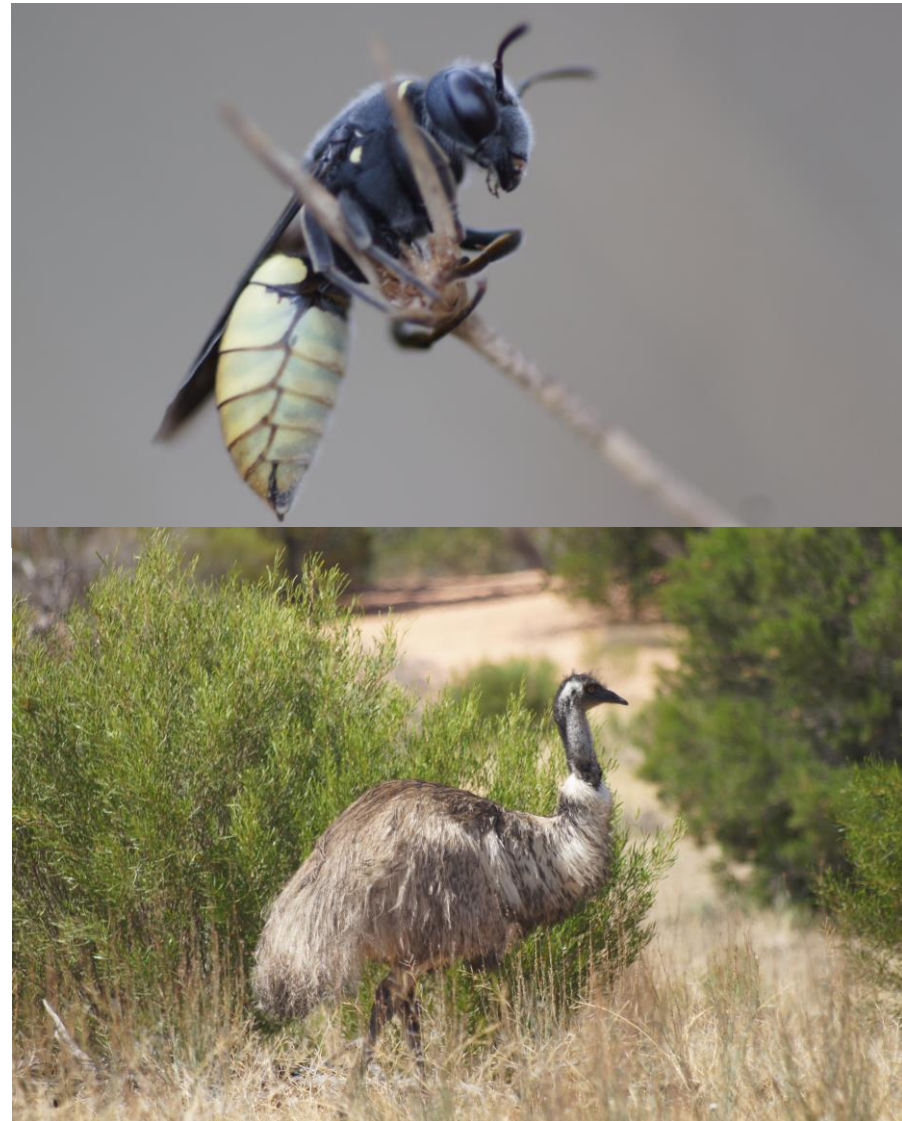
Regent parrots and the 'mummy' nuts



- During harvest, some almonds fail to drop.
- These “mummy” nuts act as reservoirs for fungal and insect pathogens that reduce future crop yields.
- Conventionally, growers remove mummy nuts using a mechanical tree shaker or by hand.
- Regent Parrots also remove mummy nuts.
- Economic benefit of this ecosystem service is greater than loss incurred by birds to harvest by \$25-\$275 / ha, resulting in a positive net return.

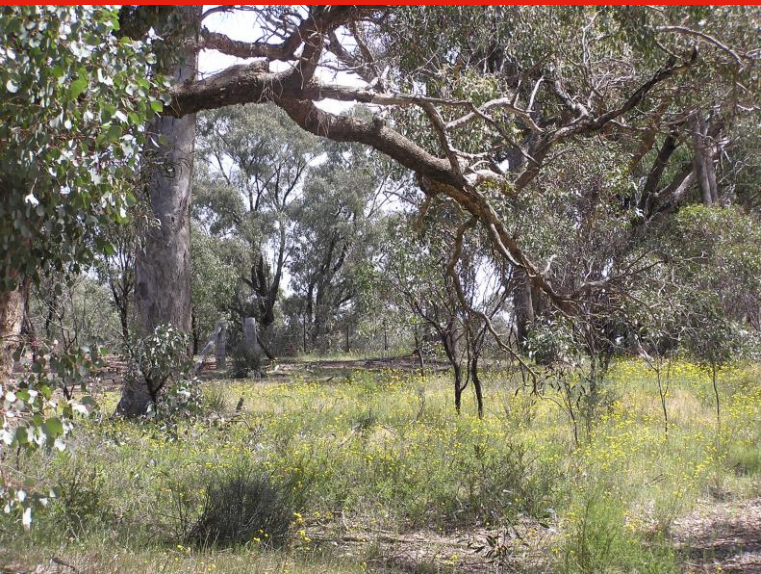
Ecosystem services provided by wildlife

- Pollination (insectariums, native vegetation) – wasps, bees, birds
- Pest control – by and of invertebrates & vertebrates
- Consumption of waste products – carrion, 'mummy nuts'
- Nutrient-cycling and decomposition (invertebrates, dung beetles, worms)
- Seed dispersal – birds, ants, rodents
- Fungi spore dispersal – digging mammals





Thank you



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