

# 1. Birds in almond crops

This research aimed at identifying temporal change patterns and factors influencing the occurrence of birds in almond crops.

Factors involved in bird use of and damage to a particular crop type may depend on: stages of crop development, crop characteristics and location, availability and accessibility of alternative natural food resources for birds, associated bird community, climatic factors (e.g. variability in rainfall).



## Assessing damage

Large parrots (Cockatoos- Galah)



Regent parrot



A stratified random sampling approach was used to survey eight farms, and line transect (total of 32 transects) surveys were conducted around the periphery of selected block of almonds.

A rapid damage assessment technique was developed to assess the amount of almond damage in trees attributable to different bird species.

Small parrots (Mallee ringneck)



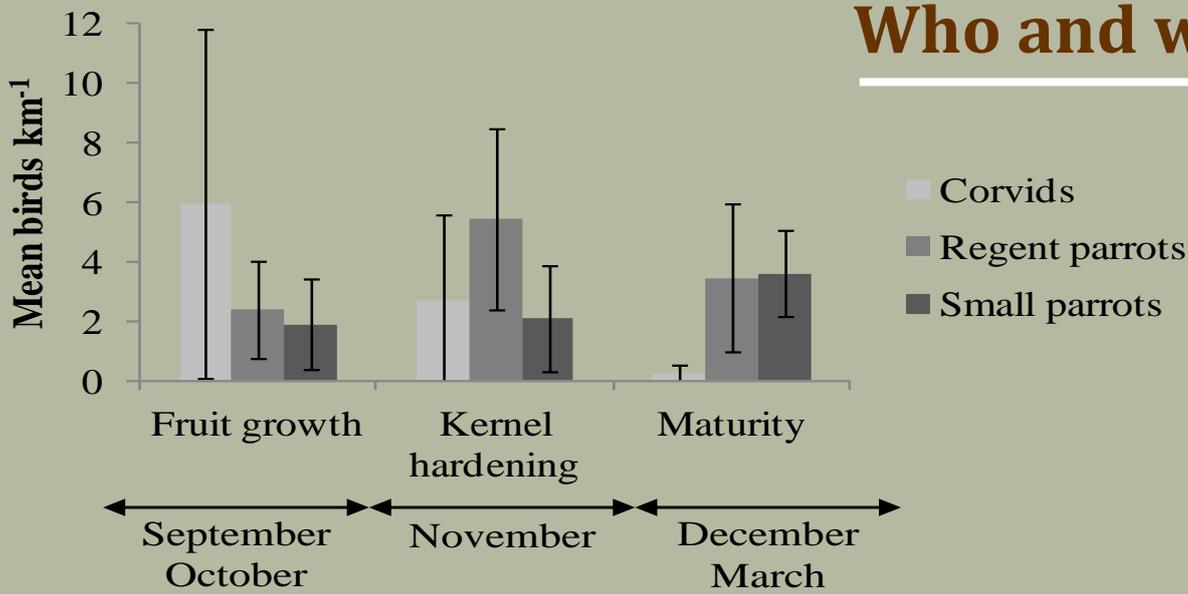
Small parrots (Yellow rosella)



Observations of birds feeding and the collection of damaged almonds after feeding assisted in attributing particular types of damage to the following species groups: large parrots/cockatoos (Sulphur-crested cockatoo, Corella sp., or Galah); small parrots (Yellow rosella, Mallee ringneck, Blue bonnet, Red-rumped parrot, Mulga parrot).

- *Cockatoos were responsible for the greatest damage (27.6% in one transect), however 22 of the 32 transects had no cockatoo's damage.*
- *Small parrots were responsible for small amounts of damage, despite the damage was more widespread (14 transects with damage varying between 1% and 3.7%).*
- *Regent parrots were responsible for the least amount of damage (less than 2% in 20 transects, and 12 transects had no damage from this species).*

## Who and when?



Birds use the almond orchard at different stages of nut development. The timing of almond maturity may coincide with increased foraging by some species (e.g. small parrots and Regent parrots).

## Services provided by birds

Regent parrots eat ripening almonds only when the fruits reach maturity (December). During fruit growth (September to October) and kernel hardening (November), Regent parrots eat the old nuts from the previous season which remained on the orchard floor post harvest. The removal of un-harvested nuts is a free service the birds provide to growers.



## Alternative options



Differences in the quantity, quality, availability and/or variety of alternative foods (native versus farm crops) between the 2009/10 and 2010/11 seasons most likely explains differences in the pressure exerted on almond orchards as a food resource. Native birds may be using almond during times of low wild food availability as a fallback food.

Harvesting at the earliest possible time (before December) would limit the damage birds do to almonds and decrease costs to almond growers.

*The key to predicting crop damage by birds is in gaining a better understanding of the relationship between weather, plant productivity, food availability and bird movement patterns.*