

Tribute to Alison Betty Doley AM: farmer and conservationist (28 October 1938 to 20 February 2019)

Alison Doley was a third generation farmer on *Koobabbie*, a 7173 ha wheat and sheep property, in the Waddy Forest district, near the town of Coorow in the northern wheatbelt of Western Australia (WA). In 1906 the property was taken up by her grandparents, Samuel and Alice Rudduck, when the first white settlers commenced farming in the district.

As a young woman, Alison joined the Western Australian Junior Farmers. In 1961 she won a P&O Junior Farmer trip to Britain to study agriculture. At the conclusion of the trip she was awarded a scholarship to the University of Western Australia where she completed an economics degree. In 1962 her mother died and her father died in 1964. In 1966, she and her husband John, took over *Koobabbie*. Until John's death in January 2007 they worked as a team as stewards on *Koobabbie* to develop a productive agricultural enterprise with the objectives of ecological and economic sustainability (Doley 1995, 2003).

In 1986 Alison became an inaugural member of the Waddy Forest Land Conservation District Committee and served as its President. Land conservation was important to her, and she was involved in several projects, including the installation of piezometers, and the measurement of the effect of windbreaks and shelter belts on water management and crop yield. From the late 1970s, rising groundwater tables developed as a major problem in the Western Australian wheatbelt as a result of over-clearing native vegetation. The replacement of perennial vegetation with agricultural crops and pastures changed the hydrological balance, with water tables rising, bringing salt stored deep in the soil to the surface, resulting in salinisation of the soil such that it is unproductive for most agricultural enterprises. In order to assess the risk to *Koobabbie*, Alison maintained nine bore holes and one piezometer to monitor

changes in water table levels and water quality. The results of this monitoring were used to guide revegetation on the property. Between 2007 and 2011, 165 ha of *Koobabbie* were revegetated with native species of local provenance.

The Marchagee Focus Catchment was established in 1996, taking over from the Waddy Forest Land Conservation District Committee. Alison was a founding member of this group, and an active participant. She worked on the principle that monitoring is essential to management. To that end she set up and maintained several monitoring projects of agricultural and natural resources, the results of which informed her management of the property. One monitoring project established by her grandparents, and continued by Alison and John, was the *Koobabbie* meteorological station (Bureau of Meteorology site #8067 location Koobabbie), which has provided over 100 years of meteorological records.

Alison was also concerned about cultural heritage. In 1996 she was the first President of the Coorow Heritage Group, which collected artefacts from the district for display in a local hall. This concern about cultural heritage extended to the built environment on *Koobabbie*. Most of the original buildings have been preserved; these include the old 24-stall horse stables. Her attention to detail in preservation was shown when the shearing shed needed renovation; instead of using modern materials, she had the old gimlet (*Eucalyptus salubris*) posts removed, treated, and put back in place.

Alison actively encouraged agricultural research and offered *Koobabbie* as a trial site for several studies. For example, from 1988 she collaborated with research staff from the WA Department of Agriculture to look for biological control of lucerne fleas (*Sminthurus viridis*) and red-legged earth mites (*Halotydeus destructor*) which were having major impacts on fodder production. During this collaboration she provided land for trial plots, free accommodation for research staff, and equipment for the collection and distribution of the biological control agents.

Alison had a keen interest in natural history and nature conservation. In 1954, she joined the Western Australian Junior Naturalists' Club, and she remained a member of the Naturalists' Club until her death. The Coorow Wildflower Group was established in 1979 with her encouragement, and she was an active member from its inception until its demise in the late 1980s. She collected native seeds for the group, which then propagated them for regeneration. She was one of the organisers of the group's program of presentations and field days by scientists and naturalists, most of whom she accommodated on *Koobabbie*.

Alison regarded all remnant vegetation as important. Forty-one percent of *Koobabbie* consisted of native vegetation and commencing in 1970 nearly all of the property's native



Fig. 1. Alison Doley with a Carnaby's cockatoo nestling at *Koobabbie* in November 2016 (photograph Rick Dawson).

vegetation was fenced to prevent grazing by domestic livestock. This was done for conservation purposes, and with little financial support from conservation agencies. In addition, she was concerned about conserving native vegetation along roadsides. For many years, she actively lobbied the Coorow Shire Council concerning unnecessary tree removal, inappropriate dumping of rubbish, and the need to rehabilitate gravel pits. When the Western Australian Roadside Conservation Committee was re-formed in 1986, she was one of the first to volunteer to assist with mapping of road verge vegetation. She was also actively involved in revegetation of roadsides with native species.

In order to understand the conservation significance of *Koobabbie*, Alison commissioned surveys of the property's flora and fauna during which several threatened species were identified. The western portion of *Koobabbie*, purchased by the Doleys in 1987, is dominated by 1864 ha of uncleared salt lake country. The area is of botanical interest as a specimen of a prostrate perennial herb, *Ptilotus fasciculatus* was collected in 1987; it had formerly been considered extinct. There are also populations of the declared rare flora *Caladenia drakeoides* and *E. stowardii* and the only known population of a salt-tolerant succulent species formerly called *Halosarcia koobabbiensis*, now known as *Tecticornia* sp. Coorow (P.G. Wilson 12750) (<http://florabase.dec.wa.gov.au/search/current/14020> accessed 28 February 2018). Because of its conservation significance the Doleys took the salt lake country out of production, managed it as a nature reserve, and placed it under a conservation covenant. *Koobabbie* also has the only known population of *Eremophila koobabbiensis*. It also hosts a breeding population of Carnaby's cockatoo (*Calyptorhynchus latirostris*), which is listed as endangered under Western Australian and Federal Government legislation and internationally by the IUCN, and Major Mitchell's cockatoo (*Lophochroa leadbeateri*), a species specially protected under Western Australian Government legislation.

Every week since May 1987 until the end of 2018, Alison recorded every species of bird seen on *Koobabbie*. These data have provided a unique opportunity to examine the changes that have taken place in the avifauna of the extensively-cleared northern wheatbelt of Western Australia, and to assess *Koobabbie*'s contribution to the conservation of the avifauna of the area covered by the Northern Agricultural Catchment Council (Saunders and Doley 2013). Data collected by Alison demonstrated that *Koobabbie* is an important area for the conservation of the region's avifauna. Two hundred and fifty-four hectares of the property were mapped, and listed as an important bird area (IBA) by BirdLife Australia for the support of 'up to 32 breeding pairs of the endangered Carnaby's Black-Cockatoo which nest in Salmon Gum on the property', and three other biome-restricted species (western corella (*Cacatua pastinator*), regent parrot (*Polytelis anthopeplus*), and blue-breasted fairy-wren (*Malurus pulcherrimus*)). *Koobabbie* was the only West Australian IBA on a private property on which long-term research was encouraged by the owner. This research was important for several reasons. The first related to Alison's approach to conservation. For over 30 years she kept records of the avifauna of the property and made the data freely available for others to use (Saunders and Doley 2018). The second was that she designated areas of the property

for the conservation of the biota, particularly endangered species of plants and animals. The third was that she actively encouraged research workers from government (CSIRO, Department of Biodiversity, Conservation and Attractions (DBCA) and predecessor departments) and non-government conservation agencies (BirdLife Australia and predecessor organisations, and WWF-Australia), together with those from tertiary institutions, as well as private citizens, to conduct research on conservation issues on *Koobabbie* and provided accommodation and other support for the research. One good example of this approach was the study of the property's breeding population of Carnaby's cockatoo over a ten-year period (Fig. 1). This involved staff from DBCA, CSIRO, BirdLife Australia, Murdoch University, Perth Zoo and WWF-Australia. This study produced important results that have application for conservation management, particularly on private property (Saunders *et al.* 2014).

Alison's dedication to data collation was demonstrated in January 2019, when she was terminally ill, and was about to be moved to a palliative care establishment. She had completed her weekly bird data collection for 2018, and she asked one of her neighbours to make sure that the completed data booklet for 2018, and all of the completed data booklets from 1987 to 2017 were sent to Denis Saunders; the former for putting the data into the CSIRO Data Access Portal for others to use, and all the originals to be lodged with an organisation for others to access.

Carnaby's cockatoo has disappeared from much of its former range as a result of clearing of native vegetation. Accordingly, the remaining breeding populations are critically important. The birds breed in tree hollows, as do galah (*Eolophus roseicapilla*) and western corella, both of which are over-abundant in the wheatbelt, compete for hollows with Carnaby's cockatoo, and in some cases destroy Carnaby's cockatoo eggs and take over hollows. Since November 1989, with appropriate licences from Government agencies, Alison arranged for the destruction of any galah or western corella investigating hollows used by Carnaby's cockatoo, red-tailed black cockatoo (*Calyptorhynchus banksi samueli*) and Major Mitchell's cockatoo, or in the vicinity of such hollows. This control measure resulted in an increase in breeding success of Carnaby's cockatoo, in three pairs of Major Mitchell's cockatoo nesting each year and a large number of red-tailed black cockatoo being able to nest without competition (Saunders and Doley 2017). Feral cats, *Felis catus*, are known to climb trees and prey on cockatoos breeding in hollows, killing nestlings and adults. In view of the threats cats pose to breeding cockatoos, as part of her culling program, Alison also had cats destroyed on the property.

Tree hollows for breeding cockatoos are a limited supply as they only occur naturally in eucalypts over 150 years old. Alison arranged with volunteers from Birds Australia to repair natural tree hollows that had become derelict. This increased the number of available natural hollows. In 2004, to bolster the supply of hollows, she arranged for the erection of seven artificial hollows on *Koobabbie*. In the period from 2004 to 2013, six of the seven hollows were used at least once by Carnaby's cockatoo, a successful experiment the results of which have been used to guide the development and installation of artificial hollows for endangered cockatoos.

Alison was an inaugural member of the Carnaby's Cockatoo Recovery Team set up by the WA Department of Conservation and Land Management (now DBCA) in the mid-1990s. She remained a member until shortly before her death. During her membership she drove from *Koobabbie* to Perth twice a year (over 550 km round trip) to provide valuable advice to the Recovery Team on managing a rural property on which Carnaby's cockatoo breeds.

The Doleys were two of the first landholders to join Western Australia's Land for Wildlife scheme. They applied for registration in December 1996, before the program was officially announced. With nearly half of the property managed primarily for nature conservation, *Koobabbie* was a valued member of the program and provided an inspiring example of how farming and conservation can go hand in hand, to the benefit of both.

Not only did Alison conduct monitoring of the natural resources of *Koobabbie* and manage for nature conservation, she communicated her results in several different fora. She gave numerous talks at conferences (including one international conference), seminars, workshops and on radio. She also published articles in various newsletters, including informative articles in *Western Wildlife* the Land for Wildlife Newsletter, as well as the papers she published in peer-reviewed scientific journals (see reference list).

The breadth of her interests in natural history is demonstrated in a selection of her writings: *Western Wildlife* 6/4, 2002. 'Salinity: some plusses' which provides personal comments on the value for stock grazing and/or nature conservation of areas of primary or secondary salinity; *Western Wildlife* 7/3, 2003. '80 years of grazing, fencing, then – an exciting discovery!' which provides the story of what happened after linear woodland remnants, left uncleared as windbreaks by her grandparents, were fenced and allowed to regenerate. Many understorey species regenerated, including a Priority species, and a completely new *Eremophila*, known as *Eremophila sp. Koobabbiensis*; *Western Wildlife* 9/2 2005. 'Should tadpoles be moved when an ephemeral pool dries up?' which questions whether landholders should intervene to save animals when they come across them in sites that are certain to dry out before the tadpoles metamorphose; *Western Wildlife* 10/3 2006. 'Preserving observation bores' which describes the problem with short-lived pvc piping used for observation bores, and how to overcome it; and *Western Wildlife* 10/3 2006. 'Tapeworms in sheep, another good reason to poison foxes' which informs readers that foxes can spread the dog tapeworm into sheep.

Alison had a long history of hosting groups from organisations that foster their ideas of sustainability. These included the Western Australian Naturalists' Club, and the Wildflower Society. She hosted a field day to demonstrate the importance of repairing derelict tree hollows and erecting artificial hollows. In 2006 she hosted a field day for 26 Land for Wildlife landholders from the Darling Range, east of Perth. That year Alison celebrated the 100th anniversary of farming on *Koobabbie* and the 10th anniversary of Land for Wildlife in Western Australia. On another occasion she hosted a group of Year 12 Geography students over a weekend, doing a project on farming which covered all aspects from soils to economics. For many years, Dr Stephen Davies taught a course at Curtin University on Landcare Regeneration/Community Restoration. Alison

contributed a lecture on conservation on *Koobabbie* to that course each year. As part of that course she led expeditions on her property for around 40 students for two days, as well as providing overnight accommodation for all attendees.

Alison was a quiet achiever who did not seek the limelight. Her philosophy (and that of her late husband) is summarised in one her scientific publications. In Doley (2003) she wrote:

The remnant vegetation is an integral part of the farm providing shelter on the lee sides in storms and nesting sites for birds, many of which assist in insect control. It helps to control water flow, reduce wind erosion and makes the farm a far more pleasant place to live and work. We do not deny that others could produce more from our farm in the short term, but we believe that Koobabbie is ecologically and economically sustainable under our management regime. The challenge is to integrate ecological and economic sustainability over a large enough area to provide the security, quality of environment, and economic resilience to allow towns like Coorow to be restored as part of an equally sustainable social system.

Alison's value to Australia was recognised when she was made a Member of the Order of Australia (AM) on Australia Day 2017, for 'significant service to conservation and the environment in Western Australia through revegetation and catchment recovery initiatives.' Australia would be an environmentally better place if we had more land owners and managers with Alison's vision of the future, and her love of nature.

Denis A. Saunders

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