

Brolga status in SW Victoria and their dependence on secure wetlands

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The LOSS OF WETLANDS – HISTORICAL EVENTS

The greatest impact on Brolga in SW Victoria must surely be the loss of habitat since settlement. The following outline indicates how/why/when this happened.

Wetlands lost since settlement

In Western Victoria about 78% of the Shallow Freshwater meadows and 66% of the Deep Freshwater Marshes have been lost through drainage. On the volcanic plains the situation is similar, with 75% of Freshwater Meadows and Marshes either lost or severely modified. These are the wetland categories that Brolga depend most upon.

In the GHCMA Region (2.6 million ha) about 60% of the regions wetlands (mostly shallow freshwater meadows and marshes) were drained between 1788 and 1994. That drainage goes on (at least 40% of wetlands in the Southern Grampians Shire are on farms), though offset a little in recent years by the restorations works of Nature Glenelg Trust (NGT).

Draining the wetlands

The gold rush in Victoria began in 1851 when the population in Victoria was 77,000. When it ended in 1861 there were 540,000 people present, many staying and looking for land to make a living.

To provide land for settlers the large ‘runs’ held by squatters had to be broken up.

- The 1860 Land Act allowed selections of up to 260 ha.
- The 1869 Land Act ended the pastoral lease system and limited the area to be bought to 130 ha. From 1860 to 1880 land under cultivation increased from 175,000 to 702,000 ha. By 1875 the swamps were being drained and cultivated (some swamps were also drained to eliminate the problem of liver fluke and footrot in sheep). The Great Swamp (Buckleys Swamp) near Hamilton was a major target and 3,500 ha were reclaimed after drainage.
- The 1884 Land Act saw 3 million ha of Crown land alienated for agriculture between 1885 and 1900, with much of that in valleys and swamps.
- Soldier Settlement – large estates on the basalt plains and elsewhere were forced to sell part of their land so the State could set up Soldier Settlement farms for returned soldiers. Of course that led to more pressure to effectively drain swamps; drainage schemes such as at Lake Gorrie, Buckley Swamp, Condah Swamp, Heifer Swamp, Strathdownie and Eumeralla operated from the 1940s.

Wetlands were regarded as impediments to agriculture and their drainage considered essential. There was no consideration of environmental impacts on species that depended on those habitats and thus no policy then of setting aside swamps that could cater for wildlife.

In the last 25 years there has been a drying of the climate. That – and the advent of raised mounds for cropping – has resulted in many of the Shallow Freshwater Marsh and Freshwater Meadows being used for growing crops in what was once mainly pastoral land.

BACKGROUND on BROLGA

There are some facts one needs to know about Brolga. I have cited here some comments that are relevant to the discussion about the ecology and persistence of the Brolga in SW Victoria, including a report in 1882 of original numbers of Brolga in one locality of SW Victoria.

Pizzey & Doyle (1980)

- ‘Drainage of swamps, other loss of habitat and illegal shooting have greatly reduced it in SE Australia, a former stronghold...’

Readers Digest Complete Book of Australian Birds (1988)

- ‘Brolga roost in groups on residual surface water at night’

- 'In the wet season Brolga return to their breeding grounds in shallow swamplands and space themselves out in pairs to nest' (former Wildlife Officer in SW Victoria, Gavin Cerini, observed that it was rare to see more than one pair of Brolga nesting on a wetland).

Anon (1882) The Western Agriculturalist, 1 April – Native Companions and plover

- *"There are myriads of ducks, hundreds of swan, geese, plover, pelicans and, during the morning and evening, native companions in great number. Unfortunately no shooter can get near enough to them to shoot...During the last few weeks farmers in the Lake Linlithgow district have been busily engaged in burning stubble, and the burnt fields are now the haunt of native companions and plover. These can be counted by the thousand and can easily be brought in range by the sportsman creeping up to the bank of the lake. As the much talked of turkeys are conspicuous by their absence, and native companions [Brolga] if properly bled, buried etc. are not bad eating, a profitable hour's sport can be obtained...in one flock of native companions...there could not have been fewer than a thousand birds"*

SWIFFT website – Numbers of Brolga recorded in SW Vic at autumn flocking sites:

1984 – 550-600 birds counted

2002 – 402 birds counted

2004 – 675 birds counted

2005 – no data given on count; no immature birds seen (no recruitment)

2006 – no data given on count; no immature birds seen

2007 – 600-700 birds counted

2008 – no data given on count; 3% were juv. or sub-adult (i.e. 1-2 years old)

2009 – no data given on count; 9-16% for 5 flocks were juv. (less than 1 year)

2010 – no data given on count

2011 – no data given on count (112 birds near Penshurst)

2012 – no survey data given, but results were stated to be 'similar to 2013'.

2013 – 907 birds counted (320 Strathdownie, 241 Penshurst, 100 Willaura); 17% were juv. sub-adult

2014 – no data given on count; 7% juv. or sub-adult

2015 – 448 birds counted; 10% juv. or sub-adult

2016 – 348 birds counted; 8% juv. or sub-adult

2017 – 278 birds counted; 18% juv. or sub-adult

2018 – 377 birds counted; 13% juv. or sub-adult

2019 – 635 birds counted (159 near Willaura, 157 Bool Lagoon); 6% juv. or sub-adult

2020 – no survey

2021 – 413 birds counted (121 at Green Swp, 160 near Penshurst); 9% juv. or sub-adult

2022 – 552 birds counted (208 at Green Swp); 14% juv. or sub-adult

Note that from 2013, counts were all done on the same day, to avoid possible double-counting.

The 2018 count was marred by very bad weather. In 2019 no birds were seen at Strathdownie and the evidence was that 2018 had been a poor breeding year, due to unfavourable climatic conditions.

The number of Brolga breeding pairs appears to be only 200 to 250.

SWIFFT document comments on factors controlling the successful breeding/raising of chicks:

1. Years of higher winter-spring rainfall that maintained levels at the breeding sites into early summer gave best results
2. Cropped shallow swamps are less suitable as breeding sites
3. Predation of eggs and chicks by foxes is a serious problem.

The information above suggests the following conclusions

1. The population of Brolga has dramatically declined in SW Vic since settlement – the current estimate of population is about 700 birds whereas it was once probably several thousand
2. Brolga depend upon shallow wetlands to breed
3. Drainage of swamps has markedly reduced site options for breeding
4. Cropping of shallow wetlands reduces the quality of the site for breeding
5. Brolga breeding success requires adequate winter-spring rain to fill the swamp and maintain it over the period from winter to early summer

6. Climate change has arrived. As an example, the average annual rainfall at Hamilton from 1983-97 inclusive was 666 mm and Lake Linlithgow was never dry in February, but in 1998-2022 inclusive the average annual rainfall was 607 mm and the lake was dry in February in 11 years. The average depth of water in mid-Feb for the 1983-98 period was 159 mm, whereas the average depth for the 1999-2023 period was 32 mm. If the trend continues there will be many fewer suitable wetlands for Brolga to use.
7. Breeding success is also affected by predation of eggs and chicks by foxes
8. Flocking Brolga need to roost in shallow water – poor winter-spring rains remove options

FUTURE MANAGEMENT/CONSERVATION of BROLGA

Restoration and management of wetlands – the difficulties

- About 60% of the wetlands in the GHCMA region are privately owned.
- For obvious reasons, Government is reluctant to restore swamps or to dismantle (or stop funding) drainage schemes.
- Government appears to have little competence in promoting/undertaking restoration schemes
- Breeding pairs of Brolga demand a lot of space, hence only one pair can occupy a small or medium sized wetland. That means that many wetlands must be restored or else some very large wetlands must be restored to provide the necessary space. That issue has not been raised.
- Brolgas are affected by the noise from wind turbines and are reluctant to settle close to them – this is an issue that needs better definition.
- Predation by foxes – these carnivores frequent every swamp and in cleared areas they depend upon the vegetation for cover and for prey. Controlling them is difficult and there are always ready replacements for foxes removed from a favoured area.
- Disturbance from shooters – the protracted annual disturbance from the autumn duck hunting season. Brolga leave any wetland when shooters arrive. Where can they go? There are no sanctuaries to retreat to. An example is that in 2016 when the GMA refused to close Bullrush Swamp to hunting, despite evidence that 53 Brolga were roosting on the lake and foraging in the adjacent paddocks by day. The GMA suggested that the birds could go to Krause Swamp, about 300 m away, despite the fact that it was dry and completely unsuitable. Of course they left Bullrush and moved away.

FUTURE BROLGA MANAGEMENT ACTIONS

The following actions have been proposed by SWIFFT:

1. DELWP co-ordinate planning actions for Brolga across Victoria
2. Liaise with CMAs, Vic Farmers Federation, Greening Australia etc
3. Establish appropriate grazing management/review licences on public reserves that are breeding sites [why not designate the sites to Brolga?]
4. Include Brolga flocking and breeding sites in local government planning schemes [to what purpose?]
5. Count adult, juvenile and sub-adult birds at flocking sites each year
6. Parks Victoria to implement predator control around breeding sites each year
7. Encourage predator control by Landcare Groups around breeding sites
8. Restoration of more normal water flows to wetlands such as Winton
9. Encourage the restoration of shallow and deep freshwater wetlands [how/where?]

Breeding success and population numbers

Point 2. The GHCMA has had a Wetland Tender process in place to encourage landholders to maintain their wetlands. They have in recent years (2013-2019) adopted a formal strategy to ‘*establish a management framework for re-instating drained wetlands*’. What has that achieved? A major difficulty lies in dealing with Drainage Trusts, some of which (e.g. Yatchaw and Strathdownie) are exempt from any action by the CMA. There has been no action taken to rectify that situation.

Point 9. Brolga need more wetlands: apart from habitat losses due to on-going drainage and climate change there is another major problem. The number of suitable wetlands available now is insufficient to cater for the specific requirements of breeding pairs. Nesting pairs will resist any other pair entering their range, even on large wetlands. This is a critical factor. While there is a sound

economic and ecological case for restoring very large wetlands (they provide more variation and habitat for many more species, as well as probably being less affected by climate change), breeding pairs of Brolga need many smaller wetlands if we are going to increase the number of chicks raised.

Point 5. The SWIFFT data gives some idea of annual breeding success, varying from 0 to 18% of the population. If we have an average of 5-10% recruitment every year, in a population of 600 birds, that means 30 to 60 new birds annually. Yet clearly there must be a similar annual loss because the population is NOT increasing. Are they young or old birds? And what else can be done about it? If the birds are not surviving then there is little to be gained from other actions.

Point 7. Work with farmers is important since perhaps 60% of wetlands are found on farms in the SW region. However, it may be difficult to get effective, long-term management of wetlands on farms. That is a major reason why action on public reserves should be a priority.

Point 6 is problematic: PV are chronically understaffed and are unlikely to be able to do much under the current funding regime. More to the point, why is it that DELWYP, who control most of the public wetlands, will not take on the responsibility of controlling foxes on the breeding sites (and on sites that could be suitable in the absence of foxes)

Two issues NOT mentioned in the SWIFFT document:

- Duck hunters disrupt Brolga flocks in autumn – there are NO sanctuaries where Brolga (and duck and other waterbirds) are not hounded. Why not start there? Set aside the known breeding areas of public wetlands for Brolga and other threatened waterbird species. Unfortunately that will not happen because DELWP appears to be dominated by duck hunters, judging by their refusal to exclude any public wetland from hunting.
- Wind turbines situated within 5 km of breeding wetlands may disrupt breeding outcomes – it is claimed that the parent birds may abandon the site when the noise levels on windy days are too high. That issue needs to be resolved through research. While that is being done wind turbines should not be permitted within 5 km of any wetland that is potentially suitable for breeding Brolga to occupy.

Summary

I contend that the 5 main issues in enhancing Brolga numbers in Victoria are:

1. Either the banning of duck hunting OR (a less effective option) providing a network of sanctuaries across the region, wetlands where shooting is prohibited.
2. Providing more effective fox control around existing wetlands on public land.
3. Increasing the number of wetlands on public and private land.
4. Reducing the number of wetlands on private land that are drained.
5. Providing wider buffers around wetlands that have wind turbines nearby.