

Our Brolgas are not for Wind Companies to Kill Off

The Genetically Pure Endangered Southern Brolga

The Western District Brolga (Southern Brolga, or Native Companion) is the last genetically pure Brolga Species left in the world.

They are the most beautiful of the cranes, quietly living on the savannah plains of the Western Districts of Victoria.



There are only about 200 breeding pairs left (from the last count). They are split into two genetically isolated communities of around 100 breeding pairs each.

The South West Victorian community is critical for the survival of the genetically pure species.

Brolgas mate for life.

If one Brolga is disturbed, chased away or killed, that pair becomes dysfunctional. The bird remaining will not re-mate and produce young, and the bird displaced will also not re-mate and produce young.

If Brolgas don't breed, the species dies out. Only one of the Brolgas from the pair needs to be frightened away or displaced for that pair to become dysfunctional as a breeding pair.

Brolgas avoid wind farms.

Brolgas avoid areas with wind farms. The fast spinning blades frighten Brolgas. A significant buffer distance needs to be in place for Brolgas not to be frightened off. The direct consequence of Brolgas avoiding wind farm developments is the loss of breeding habitat. Without suitable breeding homeranges, more pairs fail to breed, and eventually, the genetically pure species will die out.

Brolgas are homebodies

Brolgas are shy, timid birds. They return to a small number of chosen (historical) breeding sites each year.

These breeding sites or breeding homeranges are specific to each pair.

If a wind farm is built in a pair's historical breeding homerange, they are frightened off and will avoid that home range for breeding. Wind farm developments cause Brolga to lose critical breeding habitats. Loss of breeding habitat means no breeding. And no breeding means the extinction of the species.

Mitigation doesn't work for Brolgas

There is no evidence that mitigation methods such as man-made dams or manufactured wetlands have enticed Brolgas to nest and breed. There is no evidence of Brolgas nesting on strange, newly man-made breeding sites.

Brolgas don't always live by the rule book.

Brolga nesting sites vary from rocky outcrops to fresh water and saline wetlands. The nesting sites are chosen for water access and protection.

Here's a pair of Brolgas nesting on a saltwater wetland.

The Brolga has evolved to adapt to saltwater conditions. They are the only crane species with special glands to allow them to drink salt water. The saline wetlands of Western Victoria are important breeding habitats for the endangered Brolga.



Brolgas for the future

Save the endangered southern
Brolga from extinction in
southwest Victoria, Australia



Our Brolgas are worth fighting for :

[Brolgas for the future - YouTube](#)

<https://youtu.Fighting for the Brolga>

<https://youtu.Podcast>

The Wildlife Act 1975 s58(1) states that it is an offence to:

- (a) Wilfully disturbs, chases or herds protected wildlife or willfully causes protected wildlife to be disturbed chased or herded:
- (b) Wilfully separates protected wildlife from its young or causes it to be separated.

The evidence shows that Brolgas travel a minimum of 5 kilometres during nesting season.

Therefore a minimum 5-kilometre buffer is needed for wind companies to comply with the Act.

A minimum 5-kilometre buffer distance between turbines and breeding home ranges is required to enable Brolgas to breed without being disturbed or chased by the fast spinning turbine blades.

The evidence shows the Government's 900m buffer contravenes s58(1) of the Wildlife Act because turbines at this distance will disturb, chase and herd Brolgas from their breeding homerange and cause young to be separated from their parents.

The Life Cycle of a Brolga

A Brolga's breeding season is approximately from June to November – but can vary according to the seasons. It is crucial for the survival of the species that Brolgas are protecting during this breeding season.

A breeding homerange constitutes pair-specific historical nesting sites.

- After flocking, Brolgas return to their breeding homerange to breed.
- It can take Brolgas some weeks or months to choose the nesting site within the breeding homerange.
- Once a nest is ready, the female usually lays 2 eggs, and incubation is shared by both Adults. (One sits on the nest whilst the other flies off to forage).
- Incubation: Eggs take about 30 days to hatch.
- The young are fed and looked after by both parents, one stays at the nesting site, whilst the other flies off to feed.
- They may swap – or take it in turns to stay with the chick or fly off to forage several times over the day.
- Chicks start walking on day 1.
- Chicks fly at about 3 months.
- Juvenile birds – age is up to about 2 years.
- Juvenile birds are protected by adults for up to 2 years, or until the Adult breeds again.
- Young adult birds commence breeding at about 2 years.
- Adults live up to 50 years.

The Government's 900m buffer does not protect the Brolga over its life cycle.

A 900m buffer protects young walking chicks only, not all birds.

~~After flocking, Brolgas return to their breeding homerange to breed.~~

- ~~• It can take Brolgas some weeks or months to choose the nesting site within the breeding homerange.~~
- ~~• Once a nest is ready, the female usually lays 2 eggs, and incubation is shared by both Adults.~~

Only whilst sitting on the nest is the Brolga protected by the Government's buffer.

- **Incubation: Eggs take about 30 days to hatch.**
- ~~• The young are fed and looked after by both parents, one stays at the nesting site, whilst the other flies off to feed.~~
- ~~• They may swap – or take it in turns to stay with the chick or fly off to forage several times over the day.~~

Only the very young chicks staying close to the nest are protected by the 900m buffer.

- **Chicks start walking on day 1.**
- ~~• Chicks fly at about 3 months.~~
- ~~• Juvenile birds – up to about 2 years.~~
- ~~• Juvenile birds are protected by adults for up to 2 years, or until the Adult breeds again.~~
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- ~~• Adults live up to 50 years.~~

The Evidence shows a 5km buffer is required.

Brolgas are part of Australia's Heritage.

Many Victorian Western District farmers have grown up with the Brolga nesting and flocking in their paddocks. It is part of life on the land in Western Victoria.

In 1988, long before wind turbines existed, the Government acknowledged the vulnerability of the Brolga and listed the Brolga as a threatened species.

[DSE Action Statement 119 - Flora and Fauna Guarantee Act 1988](#)

Brolgas are now listed as an endangered species

Right from the get-go, Governments were concerned that wind farms would impact the Brolga. An Interim Guideline was in place ([Interim Guidelines Brolga 2011 Rev.2012](#)), but a more targeted Brolga vs Wind Farm study was required to identify more specific scientific evidence. So the Governments and the Energy Industry came together and commissioned a study to scientifically investigate the impact of wind turbines on the Brolga by using GPS tracking technology.

They funded a University Student, Inka Veltheim, to undertake a Thesis on the movement of Brolga in South West Victoria.

Veltheim tracked 22 Brolgas; young walking chicks, flighted chicks, juveniles and adults, using GPS telemetry tracking throughout South West Victoria during the years 2011 and 2012.

Veltheim's GPS tracking data clearly shows that Brolgas predominantly travel between 5km - 35km from their nests during breeding seasons (June – November). This was not the evidence the Government or the wind industry wanted to have.

Veltheim's Final Thesis and GPS Tracking Data. *The GPS was turned off after two years - they could turn it back on if they wish*

Veltheim's final Thesis only considered pre-fledged (walking chicks).

Veltheim ignored 93% of the GPS tracking fieldwork data she collected.

She confirmed only the walking chick data was used in her final Thesis. This brings into question the validity of her Thesis for use in Government Brolga policy.

Veltheim 2018 PhD Thesis – Movements, behaviour and ecology of the Brolga.

field-based observations, which may underestimate movement distances and home ranges. In

Chapter 5, I used GPS-tracking to investigate breeding home ranges of pre-fledged chicks to obtain more accurate information on breeding home ranges, movements and habitat use of

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Chapter 1: General Introduction

brolgas. This information can be used to inform conservation, habitat management and the size of turbine-free buffers to avoid wind farm impacts on the species.

The Government went into panic mode. They turned off the GPS tracking, suppressed the data, and left Veltheim to report on walking chicks only in a revised Thesis.

Below is a snippet of Veltheim's GPS tracking data and an extract from her Thesis.

In her final Thesis, Veltheim ignored the data she had collected on the adults, juveniles, and flighted chicks. She ignored 93% of her GPS tracking data and only reported on the walking chicks just a few days old.

The Government is falsely proposing a 900m buffer which is based on walking chicks only. This buffer is not based on the GPS data of all the birds tracked. They could turn the GPS tracking back on if they wish, and continue collecting the data, but the evidence would be too damning. It would prevent wind farm developments in Brolga habitats.

In 2019, Veltheim published a paper that noted the limitations of using pre-flighted (walking) chicks only. (Veltheim et al 2019).

In 2022, Veltheim published a second paper where she admitted to tracking the 23 birds. (Veltheim et al 2022). In this paper, she states that 5.2 km is the distance 95% of the Brolgas travel whilst in residence at their homerange.

The scientific evidence shows that a minimum 5km buffer between breeding wetlands and turbines is needed to protect the Brolgas' historical breeding habitats. 5km is the minimum needed to prevent the Brolga from being frightened away or disturbed. Without a 5km buffer, Brolgas will avoid their breeding homeranges. Brolgas won't breed again. And if they don't breed, the genetically pure Western District Brolga species will die off.

Here's a snippet of Veltheim's GPS tracking data collected in 2011-2012 during the fieldwork for her Thesis.

Once all available data was analysed and graphed it can be shown that Brolgas predominantly travel between 5km and 35km to and from their nests during the breeding seasons (June to November).

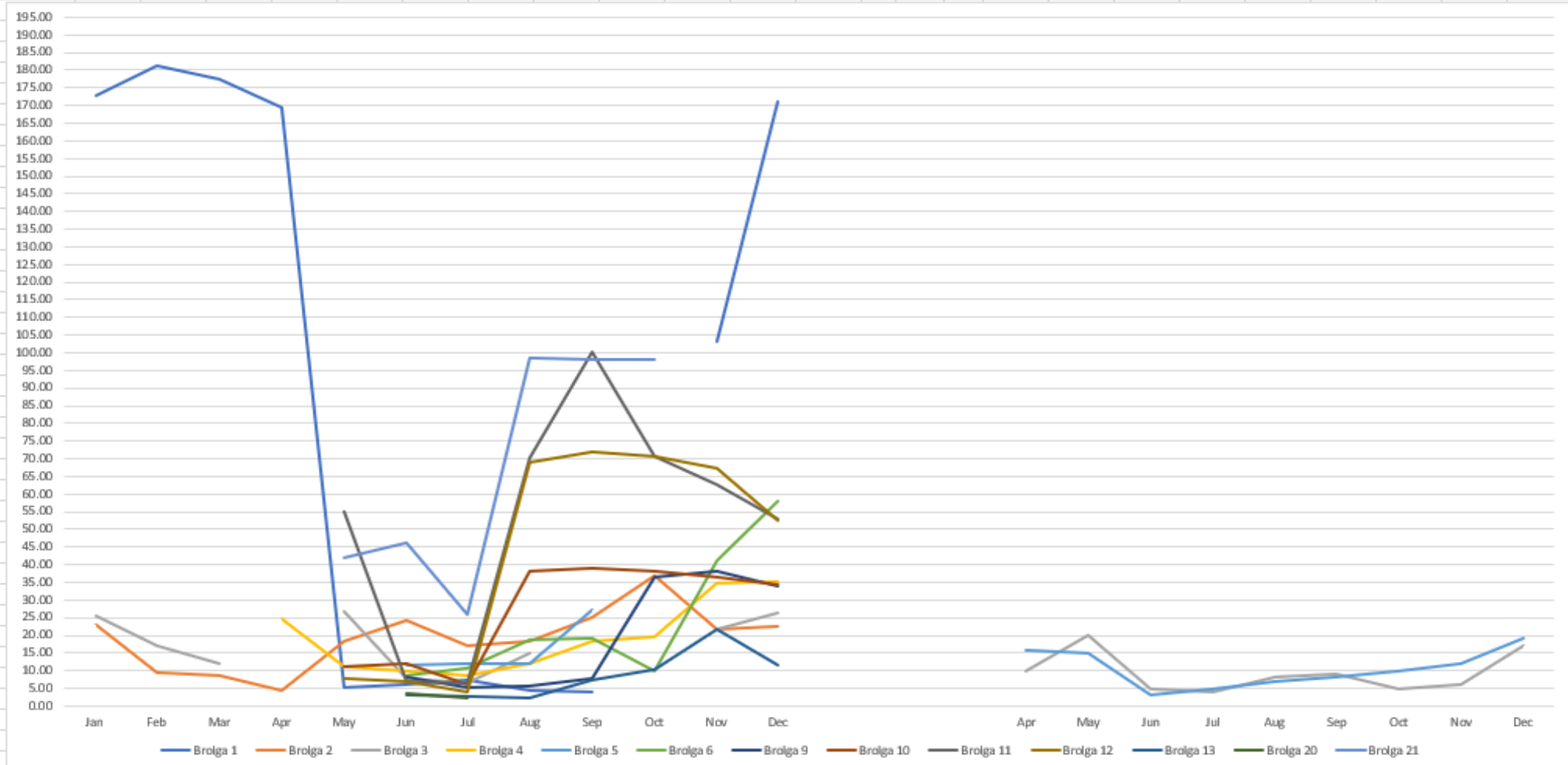
DATEEST	year	month	day	time	X	Y	DATUM	ACCURACYM	NUMBER
9/01/2011 17:16	2011	1	9	17	143.2458	-37.7914	WGS84		1
10/01/2011 12:01	2011	1	10	12	143.2436	-37.7929	WGS84	26 m - 50 m	1
11/01/2011 8:00	2011	1	11	8	143.2446	-37.7932	WGS84	26 m - 50 m	1
11/01/2011 23:01	2011	1	11	23	143.2437	-37.7902	WGS84	< 26 m	1
12/01/2011 23:01	2011	1	12	23	143.2427	-37.7896	WGS84	26 m - 50 m	1
13/01/2011 12:01	2011	1	13	12	143.2407	-37.7952	WGS84	< 26 m	1
13/01/2011 16:01	2011	1	13	16	143.2388	-37.7964	WGS84	< 26 m	1
14/01/2011 16:13	2011	1	14	16	143.2467	-37.7925	WGS84	< 26 m	1
14/01/2011 23:01	2011	1	14	23	143.2441	-37.7904	WGS84	26 m - 50 m	1
16/01/2011 16:01	2011	1	16	16	143.2462	-37.7932	WGS84	26 m - 50 m	1
17/01/2011 16:01	2011	1	17	16	143.2445	-37.7911	WGS84	< 26 m	1
18/01/2011 8:01	2011	1	18	8	143.2473	-37.7915	WGS84	26 m - 50 m	1
19/01/2011 8:01	2011	1	19	8	143.2458	-37.7934	WGS84	26 m - 50 m	1

Kilometres Travelled from Nest Source: Inka Veltheim - Brolga GPS Tracking Data

Brolga	Flocking Range Months					Home Range - Breeding Months 2011							Home Range / Breeding Months 2012												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Brolga 1	173.00	181.10	177.50	169.40	5.30	6.20	7.20	4.30	4.10		103.30	171.30													
Brolga 2	23.00	9.60	8.50	4.50	18.38	24.20	17.00	18.20	24.90	36.90	21.70	22.70													
Brolga 3	25.30	16.90	11.90		26.70	7.90	6.40	14.80			21.70	26.50				10.00	20.00	5.00	4.00	8.00	9.00	5.00	6.00	17.00	
Brolga 4				24.70	11.20	10.00	8.50	12.10	18.40	19.70	34.70	35.30													
Brolga 5				30.80		11.60	11.90	12.20	27.10			31.80				16.00	15.00	3.00	5.00	7.00	8.00	10.00	12.00	19.00	
Brolga 6						8.50	10.70	18.80	19.20	9.80	41.00	58.00													
Brolga 9						8.20	5.20	5.60	7.80	36.50	38.20	34.00													
Brolga 10					11.20	12.10	6.20	38.00	39.00	38.00	36.50	34.50													
Brolga 11					55.00	7.10	6.40	70.20	100.30	70.80	62.80	53.00													
Brolga 12					7.60	6.80	3.80	69.00	72.00	70.50	67.20	52.50													
Brolga 13	No second year of data for this chick					3.20	2.73	2.43	7.39	10.10	21.90	11.60													
Brolga 20	No further data - assumed chick died					3.48	2.16																		
Brolga 21	No obvious nesting				42.00	46.00	26.00	98.50	98.00	98.00															

Insufficient Data: Brolgas 7,8,14,15,16,17,18,19,22 Bird may have died or GPS signal was lost

Distance (kms) The Kilometres each Brolga travelled from their nest per month (as per Table). Note Home Range Months June - November



Veltheim et al. 2019

Veltheim acknowledges that her final Thesis did not involve all birds tracked. She confirms only the data of pre-fledged (walking) chicks were used. Note; one of the 12 chicks initially tagged, died during the tagging process.

assess or mitigate, as movement patterns and home range size are unknown. We deployed 11 GPS transmitters on pre-fledged brolga chicks at breeding sites in 2010–2012, including one at a wind farm, to investigate movement and home range use of brolga chicks. Brolga

Again, Veltheim confirms that only the tracking data of the pre-fledged chicks was used in her analysis.

2.3. GPS data

Data for each individual included the capture date and locations from pre- and post-fledging periods. Only data from the pre-fledging period were used for home range and habitat selection analyses. We determined the most likely fledging date

In this extract, Veltheim confirms the limited scope of her Thesis. It seems she admits her analysis is flawed.

This study was limited to pre-fledged chick movements at breeding sites. We recognise that breeding adults may range further to forage during nest building, incubation and chick rearing. Studies focusing on GPS telemetry of breeding adult pairs are recommended, to identify if larger buffers are required to avoid potential disturbance and mortality effects from turbines during the entire breeding season – from nest building and incubation, to chick fledging. Further GPS tracking studies at wind farms pre- and post-operation are warranted. The 95% UD of the brolga chick at Macarthur wind farm was larger after tur-

In Summary

- Veltheim's Thesis was limited to pre-fledged (walking chick) movement at breeding sites.
- Only data from pre-fledged periods were used in her Thesis, i.e. 93% of the data was ignored.
- Veltheim says that breeding adults range further to forage during the period of nest building, incubation and chick rearing.
- Veltheim recommends GPS tracking of breeding adult pairs, even though she had already collected the GPS tracking data of juveniles and breeding adult pairs.
- As the birds are still tagged, DELWP (Vic Govt) can easily switch the GPS tracking system back on to continue the tracking of all 22 birds.
- Veltheim recognises that large buffers are required to avoid disturbance and mortality from turbines during breeding seasons.

Veltheim et al. 2022

Veltheim incorporates the full set of GPS tracking data set in this paper.

ABSTRACT

No quantitative information exists on the movement patterns of Brolga, *Antigone rubicunda* (Gruidae) although the species is considered to undertake seasonal movements between breeding and non-breeding areas, and has been also described as both non-migratory and partly migratory. Information on this species' movement behaviour is required to understand its basic ecology and inform conservation management across its range. Thus, we sought to investigate whether Brolgas in southern Australia undertake seasonal movements, to define routes travelled by individuals, and to clarify the species' migratory status. Here, for the first time for this species, we quantified the distances travelled, timing of movements between breeding and non-breeding areas, and individual-level differences in movement patterns. We deployed GPS transmitters on five adults, six juvenile and 12 unfledged 6–9 week chicks in Victoria, Australia. Individuals were monitored for 71–646 days. These Brolgas showed partial migratory behaviour, with the south-west Victorian population including resident and migrating individuals, moving 6–30 km and 96–111 km between breeding and non-breeding areas respectively and some remaining resident throughout the year. Brolgas moved 1.6 km from roost to foraging areas on average throughout the year, the majority (95%) of these movements were within 5.2 km and overall Brolgas moved shortest distances during the non-breeding season. We discuss the main potential drivers for these movement patterns. These findings may assist local conservation planning and add to our understanding of Australian waterbird movements more broadly.

ARTICLE HISTORY

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waterbird; GPS tracking;
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In summary

- Veltheim acknowledges she tracked 5 adults, 6 juveniles, and 12 walking chicks.
- Resident and migratory Brolgas moved between 6-30 km and 96-111 km between breeding and non-breeding areas respectively and some remaining resident throughout the year.
- "The majority (95%) of these movements were within 5.2kms"
- "and overall Brolgas moved shortest distances during the non-breeding season".
- Note; one chick died during the tagging process, so only 22 birds were tracked.