

## APPENDIX 9D

### BLACK COCKATOO NEST ASSESSMENT (2023)

LOTS 64, 201, 507, 508



Australian Black Cockatoo Specialists

# **Assessment of 28 trees for Nesting values for three species of Black-Cockatoo in Lots 64, 201, 507, 508 Keysbrook, Western Australia**



Doral Mineral Sands Pty Ltd  
Western Australia

7 May 2023



# Australian Black Cockatoo Specialists

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All images source: Rick Dawson

## INTRODUCTION

Australian Black Cockatoo Specialists (ABCS) are pleased to submit this report to Doral Mineral Sands Pty Ltd (DMS) regarding the inspection of 28 trees that had been identified by M.J. & A.R. BAMFORD CONSULTING ECOLOGISTS (BCE) as potential Black cockatoo hollows in Lots 64, 201, 507, 508, Keysbrook WA on Wednesday 3rd and Thursday 4<sup>th</sup> May 2023.

## BACKGROUND

Doral Mineral Sands Pty Ltd operates the Keysbrook Mineral Sands Mine, south of Perth, and is proposing to expand its operations into Lots 64, 201, 508 and 507. The majority of the project area is cleared farmland used for livestock grazing, with a few paddock trees and areas of planted eucalypts.

Three threatened black-cockatoo species occur in the area: Forest Red-tailed (*Calyptorhynchus banksii naso*), Carnaby's (*Calyptorhynchus latirostris*) and Baudin's (*Calyptorhynchus baudinii*) Black Cockatoos, with their conservation significance under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and WA *Biodiversity Conservation Act 2016* (WABC Act) presented below (DBCAs, b, c):

Due to the presence of these species in the general area, ABCS was commissioned to undertake an assessment of 28 trees in Lots 64, 201, 507, 508 that had been identified by BCE as potential Black cockatoo nesting hollows.

## INSPECTION METHOD

ABCS has over 25 years' experience in conducting black cockatoo nesting surveys and has a specially fitted 4WD vehicle that can carry ladders over 10m and all equipment to conduct the survey. As it is very late in the nesting season most nesting activity will have been completed, however ABCS has extensive experience and can provide confirmation of any nesting attempts by Black Cockatoos.

The objective of the survey was to establish if the 28 identified trees in Lots 64, 201, 507, 508 are suitable for nesting by Black cockatoos. The scope of this project included:

- undertaking a close visual inspection of the hollows via camera pole, drone and or ladder, any evidence of nesting/suitably of the hollow was then photographed.
- Details of any use including non-target species was recorded.

Black Cockatoos are known to 'prospect' (inspect a hollow for suitability) This can be done over many days. Prospecting can be one or all of the following:

- Chewing the top of the hollow or side walls,
- Entering hollow,
- Heavy faeces load
- Compacting hollow floor, and
- Digging a depression in the hollow floor.

Rick Dawson has over 25 years' experiences inspecting black cockatoo hollows from the Murchison to Ravensthorpe and has arguably inspected (visually, by ladder) more black cockatoo hollows than anyone else in WA.



## CONCLUSION

Lots 64, 201, 507, 508 are very degraded and have been subjected to heavy grazing for many years. They have no understory and the remaining dead stags are all unstable due to the long term farming of cattle who have exposed the lower trunk and root areas of most trees.



All 28 trees that were identified by BCE as containing possible black cockatoo hollows were inspected visually by ladder, camera pole or drone.

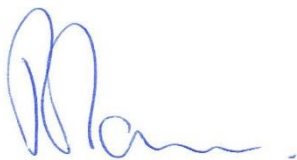
The following trees do not have any hollows that are suitable or have been used by black cockatoos (see Annex1): DMS29, DMS275, DMS277, DMS280, DMS281, DMS284, DMS308, DMS309, DMS318, DMS319, DMS327, DMS472, DMS475, DMS489, DMS490, DMS491, DMS714, DMS724, DMS727, DMS729, DMS732, DMS947, DMS1115, DMS1118, DMS1122, DMS1125, DMS1126.

Tree DMS215 is a Large very unstable burnt dead stag, with three hollows that BCE identified. The upper and lower hollow are too small and not deep enough for black cockatoos. The middle hollow is shallow, however as it goes back into the branch it is suitable for Black cockatoos. There is faeces and compaction is consistent with nesting, most likely Galah or Owl, no signs of use by black cockatoos. This hollow is rated as 'potential', however unlikely to be used by black cockatoos due to its size. The main trunk of the tree has been burnt through from the bottom, and up out of the main fork, it is unstable and will most likely fall over in very high winds.

It was very clear that non endangered cockatoos, parrots and raptors are using the dead stags and live trees, therefore ABCS recommend that if they are needed to be cleared, that this is not done in the nesting season for parrots and cockatoos (June to December). It should also be noted that raptors can breed all year and therefore the hollows in trees, DMS29, DMS215, DMS275, DMS280, DMS308, DMS309, DMS319, DMS327, DMS489, DMS490, DMS491, DMS714, DMS947, DMS1118, DMS1125, should be inspected prior to clearing. ABCS can assist with this if required.

## CONTACT INFORMATION

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Rick Dawson  
Director  
Australian Black Cockatoo Specialist  
7 May 2023

## Annex 1: Specific details of each hollow

East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398497	6410111	Dead	3	700	DMS29	64	4/05/2023	NO	A Large dead stag, with three hollows that BCE identified, the upper and lower hollow are too small and the middle hollow is small and exposed to the elements, and they are all not suitable for Black Cockatoos.
398344	6409732	Dead	3	1200	DMS215	64	4/05/2023	Potential	A Large very unstable burnt dead stag, with three hollows that BCE identified. The upper and lower hollow are too small and not deep enough for black cockatoos The middle hollow is shallow, however as it goes back into the branch it is suitable for Black cockatoos. There is faeces and depression consistent with nesting, most likely Galah or Owl, no signs of use by black cockatoos.
399305	6410629	Dead	3	1350	DMS275	201	3/05/2023	NO	This tree is a medium size unstable dead stag. Three hollows were identified by BCE as potential however none are suitable for black cockatoos. The hollow to the south has broken open at the floor, with large cracks and will break off soon, the central hollows is just a very large depression and only a few centimetres deep. The hollow to west has started to fall through and also has large cracks and will break away soon..
398784	6411402	Dead	wear	600	DMS277	508	3/05/2023	NO	Is a tall unstable dead stag with small trunks, the one very small hollow has cobwebs and charcoal and is too small for Black Cockatoos, and due to the trunk size they have no potential to become so in the future.
398466	6411348	Dead	3	450	DMS280	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however all hollows are too small for black cockatoos.
398568	6410778	Dead	2	530	DMS281	508	3/05/2023	NO	A small diameter dead stag, with two hollows identified by BCE, however all hollows are too small and/or degraded, and unsuitable for black cockatoos.
398449	6410537	Dead	2	600	DMS284	508	3/05/2023	NO	Is a medium unstable dead stag, that BCE identified to have two hollows. The lower hollows is open to the element the upper hollow is too small for Black cockatoos to nest in.
399157	6410716	Live	2	650	DMS308	201	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. Both were shallow and not suitable for Black Cockatoos. The highest hollow has green spray and Galah feathers. A pair of Galah's perched in a limb close by watching us as we look in

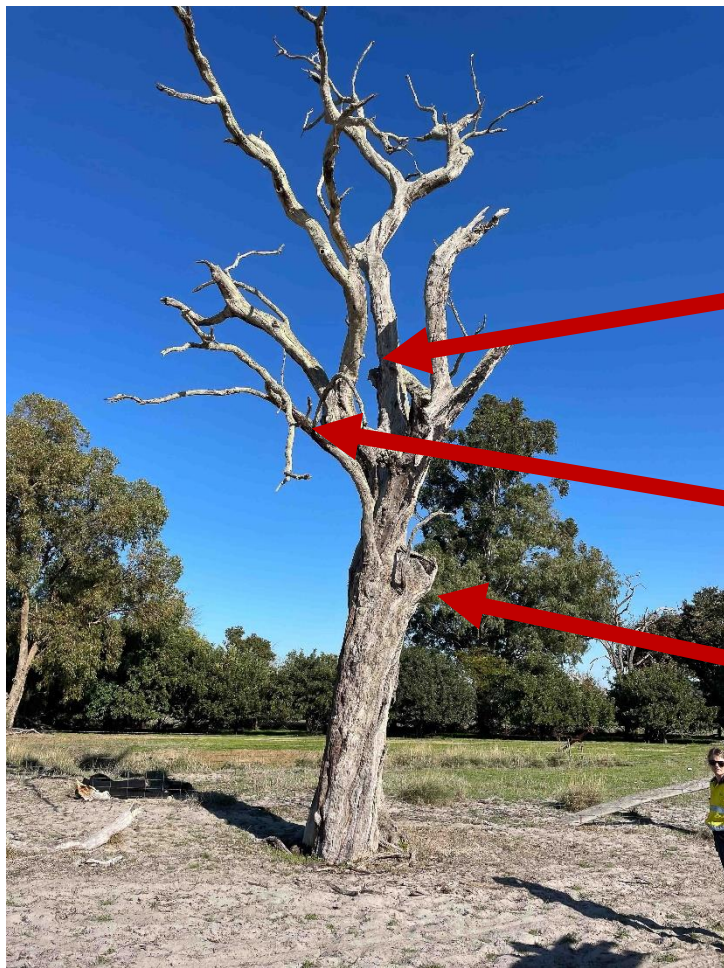
									the hollow. The lower hollow is very shallow and exposed to the elements. <b>This hollow needs to be checked prior to clearing.</b>
398940	6411221	Live	3	650	DMS309	201	3/05/2023	NO	A medium size live tree. Three hollows were identified by BCE. However all three have entries that are too small for black cockatoos.
398876	6411401	Live	2	500	DMS318	201	3/05/2023	NO	A medium size live tree, with a dead trunk. Two hollows were identified by BCE. However all two entries and trunks are too small for black cockatoos.
398844	6411495	Live	2	600	DMS319	201	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However both are too small for black cockatoos.
398559	6411326	Live	2	550	DMS327	508	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However both are too small for black cockatoos.
398973	6410966	Dead	Chew marks 1 hollow	800	DMS472	201	3/05/2023	NO	A medium size live tree. One hollow with chew marks identified by BCE. However the hollow is too small for black cockatoos.
398413	6411294	Dead	2	570	DMS475	508	3/05/2023	NO	A medium sized dead stag, two hollows were identified by BCE as potential however only one very shallow depression was observed, and not suitable for black cockatoos
398596	6411655	Live	White down feathers??	650	DMS489	508	4/05/2023	NO	A medium size live tree. One hollow with white down feathers was identified by BCE. However the hollow is too small for black cockatoos.
398612	6411644	Live	Wear marks ???	600	DMS490	508	4/05/2023	NO	A medium size live tree. With wear marks (Galah) identified by BCE. However the entry and the hollow are too small for black cockatoos.
398610	6411628	Live	2	900	DMS491	508	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However both are too small for black cockatoos.
399186	6410436	Dead	4	550	DMS714	201	3/05/2023	NO	A medium sized dead stag, four hollows were identified by BCE as potential however all are very small and not suitable for black cockatoos
398475	6411511	Dead	2	400	DMS724	508	4/05/2023	NO	A small diameter dead stag, with two hollows identified by BCE, All the limbs and hollows are too small for nesting black cockatoos.
398612	6411203	Dead	3	500	DMS727	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however only one is an actual hollow which is too small for nesting black cockatoos.

398513	6411216	Dead	2	680	DMS729	508	3/05/2023	NO	A medium sized dead stag, two hollows were identified by BCE as potential however only one very small hollow was observed, and not suitable for black cockatoos
398537	6410801	Dead	3	550	DMS732	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however there are no actual hollows in the tree.
398011	6410583	Dead	2	800	DMS947	507	4/05/2023	NO	Is a large unstable dead stag, that BCE identified to have two hollows. The lower hollows is open to the element the upper hollow is too small for Black cockatoos to nest in.
398301	6411660	Dead	1	750	DMS1115	507	4/05/2023	NO	Is a large unstable dead stag, that BCE identified to have one hollow. The limbs and opening of the hollow are too small for Black cockatoos to nest in.
398293	6411526	Dead	1	510	DMS1118	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The limbs and the opening of the hollow are too small for Black cockatoos to nest in.
398069	6410974	Dead	1	500	DMS1122	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The tree has fallen over and now not suitable for Black cockatoos.
398154	6410843	Dead	1	640	DMS1125	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. It has a small hollow at the top of the tree with owl scats and a very uneven floor and is not suitable for Black cockatoos.
398312	6410867	Dead	1	830	DMS1126	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The section of the tree that had the hollow has broken off and now not suitable for Black cockatoos..



## APPENDIX 2 – HOLLOW DETAILS

# Natural Hollow DMS714



East	Northing	Status of tree	Potential hollows by BCE	DBHmm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
399186	6410436	Dead	4	550	DMS714	201	3/05/2023	NO	A medium sized dead stag, four hollows were identified by BCE as potential, however all are very small and not suitable for black cockatoos.



## NATURAL DMS275



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
399305	6410629	Dead	3	1350	DMS275	201	3/05/2023	NO	This tree is a medium size unstable dead stag. Three hollows were identified by BCE as potential however none are suitable for black cockatoos. The hollow to the south has broken open at the floor, with large cracks and will break off soon, the central hollows is just a very large depression and only a few centimetres deep. The hollow to west has started to fall through and also has large cracks and will break away soon.



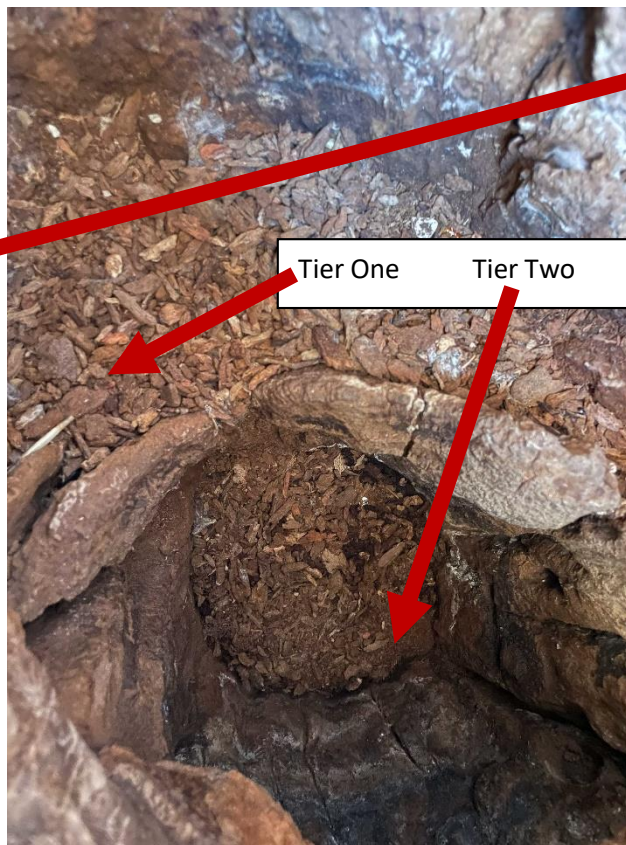
## Natural Hollow DMS308



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
399157	6410716	Live	2	650	DMS308	201	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. Both were shallow and not suitable for Black Cockatoos. The highest hollow has green spray and Galah feathers. A pair of Galah's perched in a limb close by watching us as we look in the hollow. The lower hollow is very shallow and exposed to the elements. <b>This hollow needs to be checked prior to clearing.</b>



## Natural Hollow DMS472



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398973	6410966	Dead	Chew marks 1 hollow	800	DMS472	201	3/05/2023	NO	A large dead stag. One hollow with chewing (Galah) was identified by BCE. This hollow has faeces on the walls and is two tier now. A section of the original floor has dropped to a diameter of 17cm.



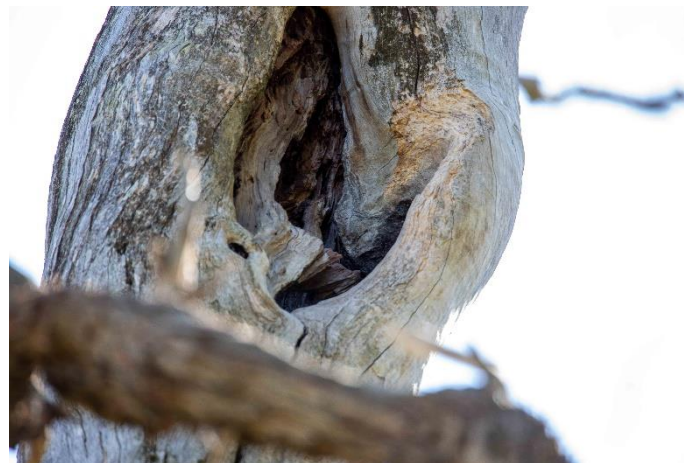
## Natural Hollow DMS309



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398940	6411221	Live	3	650	DMS309	201	3/05/2023	NO	A medium size live tree. Three hollows were identified by BCE. However all three have entries that are too small for black cockatoos.



# Natural Hollow DMS318



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398876	6411401	Live	2	500	DMS318	201	3/05/2023	NO	A medium size live tree, with a dead trunk. Two hollows were identified by BCE. However all two entries and trunks are too small for black cockatoos.



## Natural Hollow DMS319



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398844	6411495	Live	2	600	DMS319	201	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However both are too small for black cockatoos.



## Natural Hollow DM281



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398568	6410778	Dead	2	530	DMS281	508	3/05/2023	NO	A small diameter dead stag, with two hollows identified by BCE, however all hollows are too small and/or degraded, and unsuitable for black cockatoos.



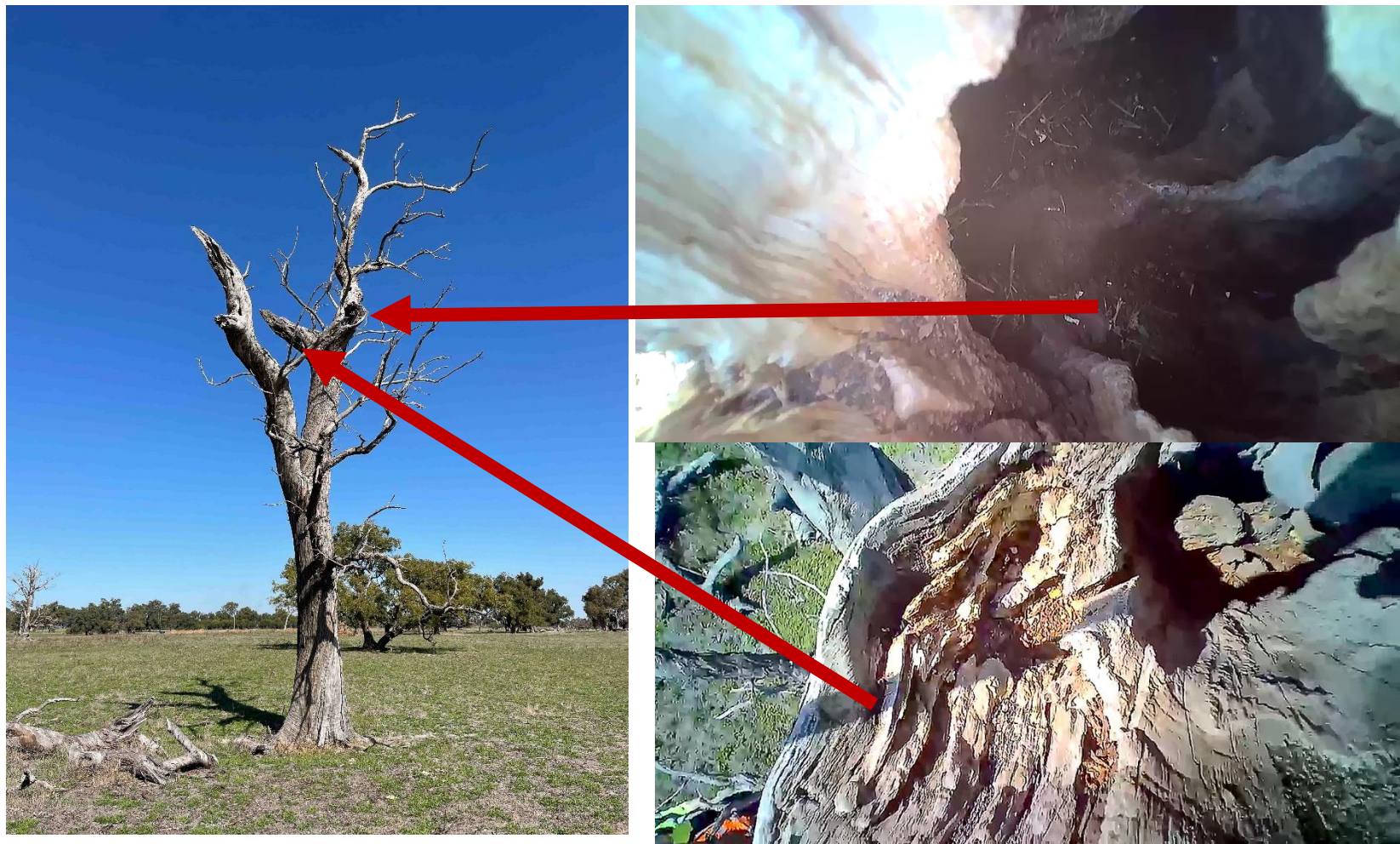
# Natural Hollow DMS732



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398537	6410801	Dead	3	550	DMS732	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however there are no actual hollows in the tree.



# Natural Hollow DMS284



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398449	6410537	Dead	2	600	DMS284	508	3/05/2023	NO	Is a medium unstable dead stag, that BCE identified to have two hollows. The lower hollows is open to the element the upper hollow is too small for Black cockatoos to nest in.



## Natural Hollow DMS277



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398784	6411402	Dead	Wear	600	DMS277	508	3/05/2023	NO	Is a tall unstable dead stag with small trunks, the one very small hollow has cobwebs and charcoal and is too small for Black Cockatoos, and due to the trunk size they have no potential to become so in the future.



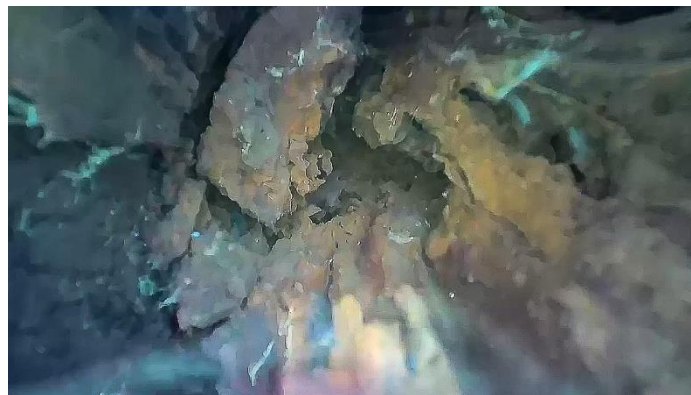
## Natural Hollow DMS727



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398612	6411203	Dead	3	500	DMS727	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however only one is an actual hollow which is too small for nesting black cockatoos.



## Natural Hollow DMS327



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398559	6411326	Live	2	550	DMS327	508	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However both are too small for black cockatoos.



## Natural Hollow DMS729



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398513	6411216	Dead	2	680	DMS729	508	3/05/2023	NO	A medium sized dead stag, two hollows were identified by BCE as potential however only one very small hollow was observed, and not suitable for black cockatoos.



## Natural Hollow DMS280



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398466	6411348	Dead	3	450	DMS280	508	3/05/2023	NO	A small diameter dead stag, with three hollows identified by BCE, however all hollows are too small for black cockatoos.



## Natural Hollow DMS475



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398413	6411294	Dead	2	570	DMS475	508	3/05/2023	NO	A medium sized dead stag, two hollows were identified by BCE as potential however only one very shallow depression was observed, and not suitable for black cockatoos.



## Natural Hollow DMS724



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398475	6411511	Dead	2	400	DMS724	508	4/05/2023	NO	A small diameter dead stag, with two hollows identified by BCE, All the limbs and hollows are too small for nesting black cockatoos.



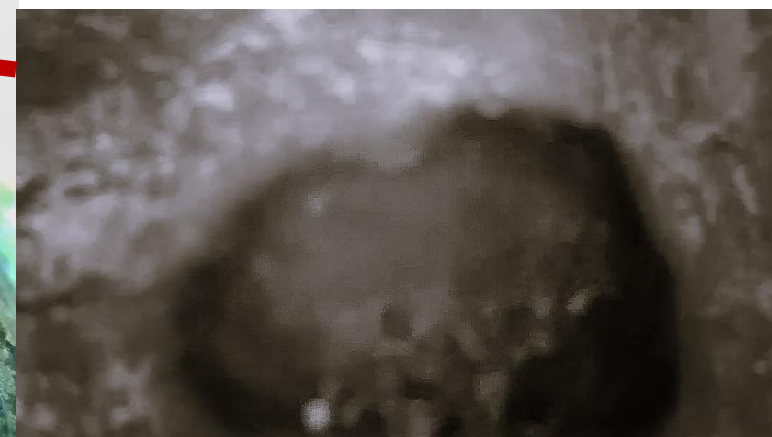
## Natural Hollow DMS489



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398596	6411655	Live	White down feathers??	650	DMS489	508	4/05/2023	NO	A medium size live tree. One hollow with white down feathers was identified by BCE. However the hollow is too small for black cockatoos.



## Natural Hollow DMS490



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398612	6411644	Live	Wear marks ???	600	DMS490	508	4/05/2023	NO	A medium size live tree. With wear marks (Galah) identified by BCE. However the entry and the hollow are too small for black cockatoos.



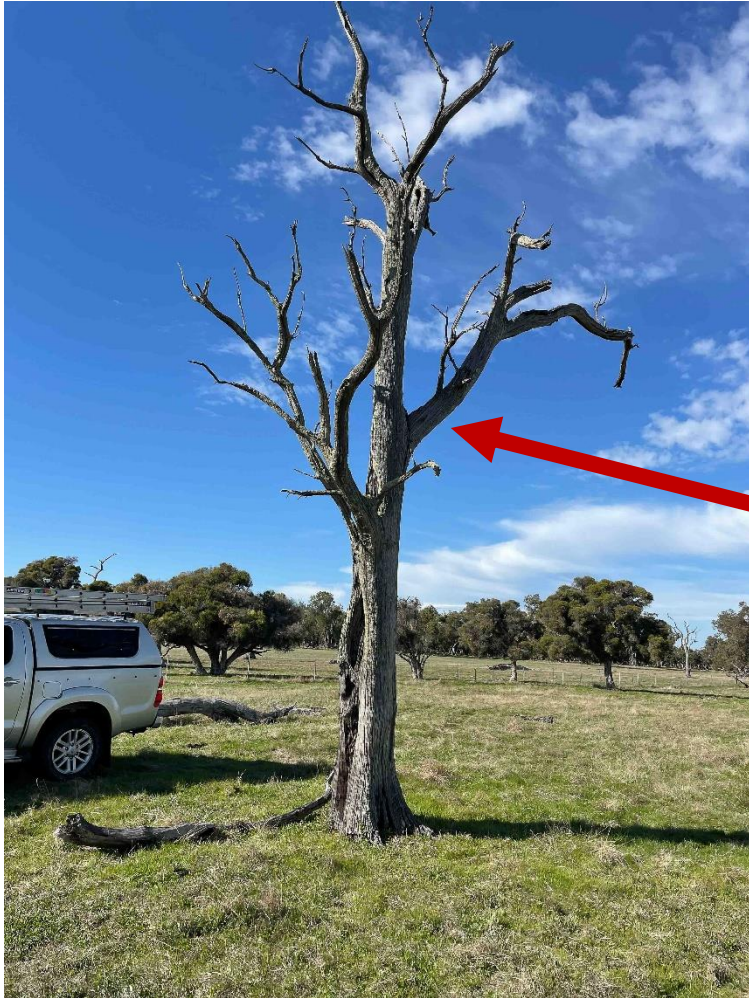
# Natural Hollow DMS491



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398610	6411628	Live	2	900	DMS491	508	3/05/2023	NO	A medium size live tree. Two hollows were identified by BCE. However one is too small for black cockatoos, and the other open to the environment.



## Natural Hollow DMS1118



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398293	6411526	Dead	1	510	DMS1118	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The limbs and the opening of the hollow are too small for Black cockatoos to nest in.



## Natural Hollow DMS1115



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398301	6411660	Dead	1	750	DMS1115	507	4/05/2023	NO	Is a large unstable dead stag, that BCE identified to have one hollow. The limbs and opening of the hollow are too small for Black cockatoos to nest in.



# Natural Hollow DMS1122



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398069	6410974	Dead	1	500	DMS1122	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The tree has since fallen over and now not suitable for Black cockatoos.



## Natural Hollow DMS1125



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398154	6410843	Dead	1	640	DMS1125	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. It has a small hollow at the top of the tree with owl scats and a very uneven floor and is not suitable for Black cockatoos.



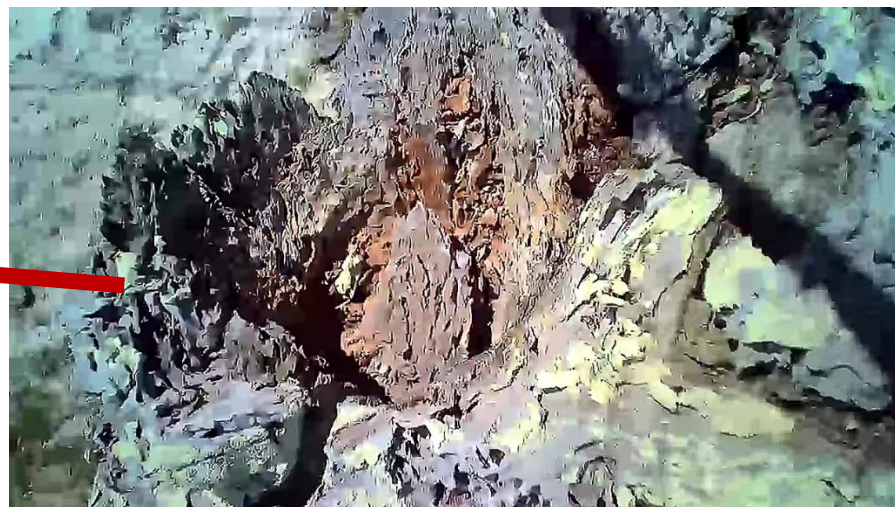
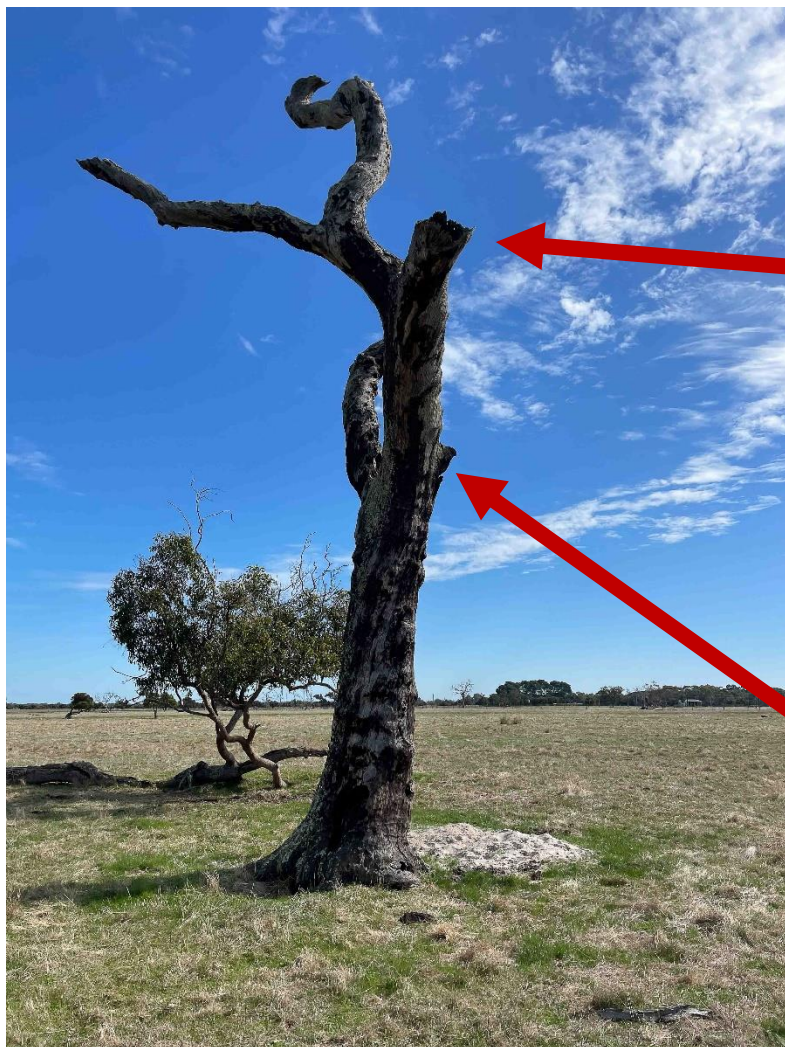
## Natural Hollow DMS1126



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398312	6410867	Dead	1	830	DMS1126	507	4/05/2023	NO	Is a small unstable dead stag, that BCE identified to have one hollow. The section of the tree that had the hollow has broken off and now not suitable for Black cockatoos..



## Natural Hollow DMS947



East	Northing	Status of tree	Potential hollows	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398011	6410583	Dead	2	800	DMS947	507	4/05/2023	NO	Is a large unstable dead stag, that BCE identified to have two hollows. The lower hollows is open to the element the upper hollow is too small for Black cockatoos to nest in.



## Natural Hollow DMS29



DRONE  
used to  
take  
photos



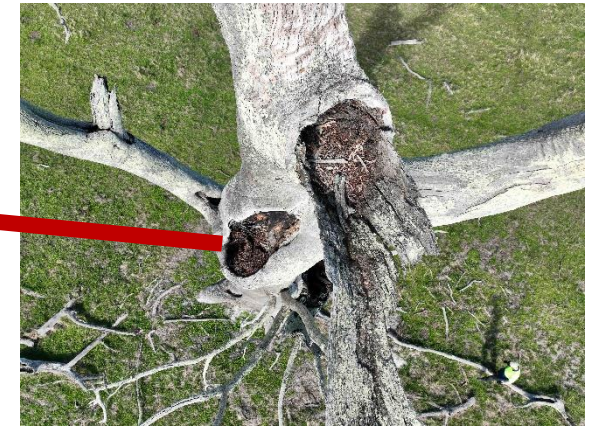
East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398497	6410111	Dead	3	700	DMS29	64	4/05/2023	NO	A Large dead stag, with three hollows that BCE identified, the upper and lower hollow are too small and the middle hollow is small and exposed to the elements, and they are all not suitable for Black Cockatoos.



## Natural Hollow DMS215



Trunk is burnt through to the main fork and exposed next to the lower hollow.



East	Northing	Status of tree	Potential hollows by BCE	DBH_mm	DMS_ID	Lot No	Date	Suitable	Comment/ Assessment
398344	6409732	Dead	3	1200	DMS215	64	4/05/2023	Potential	A Large very unstable burnt dead stag, with three hollows that BCE identified. The upper and lower hollow are too small and not deep enough for black cockatoos The middle hollow is shallow, however as it goes back into the branch it is suitable for Black cockatoos. There is faeces and compaction consistent with nesting, most likely Galah or Owl, no signs of use by black cockatoos.



### Annex 3: Maps of the locations of the 28 hollows inspected and the route taken.

