



Department of
Primary Industries and
Regional Development

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Guidelines for the Management of Pest Parrots and Cockatoos in Western Australia



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Cover photograph: Wheatbelt NRM corella survey

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Purpose of these guidelines

These guidelines outline a best practice approach, within the context of Western Australian (WA) legislation, for the management of pest parrots and cockatoos. The guidelines were produced by the Department of Primary Industries and Regional Development and aim to provide clarity on the legal status of pest parrots and cockatoos and methods available to stakeholders to deliver effective control, ultimately leading to a reduction in economic, environmental and sociocultural damage, and associated costs.

These guidelines inform, but do not prescribe, specific on-ground control measures. Management techniques used to control declared pest animals, including pest birds, must comply with the *Animal Welfare Act 2002* (AW Act) and relevant Codes of Practice (COPs) and Standard Operating Procedures (SOPs) that support the Act.

It is important to acknowledge that there is no quick or easy fix to address the negative impacts of pest parrots and cockatoos, and that considerable time and effort are required before reductions are achieved. Prevention and early intervention are considered the most cost-effective strategies for pest parrots and cockatoos not already present in WA or present in very low numbers.

For pest parrot and cockatoo populations already established in WA, but not widespread, effective management or containment aims to reduce the impacts of those populations in their current locations and detect occurrences of new populations outside the currently identified locations, preventing further harm to the State's agriculture, economy, biodiversity and community assets.

Where pest species are already well established and widespread, management should primarily be focused on reducing the damage or impacts they cause and the associated costs rather than reducing bird numbers per se.

Guiding principles for pest parrot and cockatoo management

Pest parrot and cockatoo management is to be guided by the following eight principles of effective pest animal management embodied in the Australian Pest Animal Strategy 2017-2027 (p 5). These principles apply to all vertebrate pests, including pest birds.

1. Prevention and early intervention to avoid the establishment of new pest animal species is generally more cost-effective than ongoing management of established populations.
2. Pest animal management is a shared responsibility between landholders, community, industry and government.
3. Management of mobile pest animals requires a coordinated approach across a range of spatial scales and land tenures.
4. Management of established pest animals should focus on protecting priority assets but also usually requires a 'buffer' management area around the asset to account for pest animal mobility.

5. Pest animal management should be based on actual, rather than perceived, impacts and should be supported by monitoring to measure whether impact reduction targets are being achieved.
6. Best practice pest animal management balances efficacy, target specificity, safety, humaneness, community perceptions, efficiency, logistics and emergency needs.
7. Best practice pest animal management integrates a range of control techniques, considers interactions between species and accounts for seasonal conditions and animal welfare.
8. The cost of pest animal management should be borne by those who create the risk and those who benefit from its management. Governments may co-invest where there is a net public benefit from any such intervention.

These principles should be incorporated into pest parrot and cockatoo prevention, eradication, containment and management strategies, plans, and actions across all management levels.

Pest parrots and cockatoos present in WA

Pest parrots and cockatoos encompass a suite of birds: those native to WA; those not native to WA but native to Australia; and those not native to Australia. The consideration of these birds as pests is typically associated with an overabundance of the birds and/or their impact(s), or the risk of this occurring should a species become established. These guidelines focus on the commonly encountered species of pest parrots and cockatoos in WA (Table 1).

Management of pest birds in WA is primarily governed by the *Biosecurity and Agriculture Management Act 2007* (BAM Act). If pest birds are Australian fauna, then the *Biodiversity Conservation Act 2016* (BC Act) also applies. The roles of these two Acts are:

- The BAM Act and its associated regulations provide for the control of species that have or may have adverse impacts on WA's biosecurity or agricultural industries/activities.
- The BC Act and its associated regulations provide for the conservation of WA's biodiversity, including the protection of native species and their habitats. It also provides for the keeping and take (control) of native birds.

Table 1: Focus species and sub-species of pest parrots and cockatoos in WA

Species and sub-species	Exotic to Australia	Native to Australia		Keep, take or disturb legislated under	
		WA native	WA exotic	BAM Act	BC Act
Rainbow lorikeet (<i>Trichoglossus haematodus</i>)	No	No	Yes	Yes	Yes
Sulphur crested cockatoo (<i>Cacatua galerita</i>)	No	Yes	No	Yes	Yes
Indian ringneck parakeet (<i>Psittacula krameri</i>)	Yes	No	No	Yes	No
Alexandrine parakeet (<i>Psittacula eupatria</i>)	Yes	No	No	Yes	No
Western long-billed corella – Butler subspecies (<i>Cacatua pastinator butleri</i>)	No	Yes	No	Yes	Yes
Western long-billed corella – Muir subspecies (<i>Cacatua pastinator pastinator</i>)	No	Yes	No	Yes	Yes
Eastern long-billed corella (<i>Cacatua tenuirostris</i>)	No	No	Yes	No	Yes
Little corella – Eastern states subspecies (<i>Cacatua sanguinea gymnopsis</i>)	No	No	Yes	No	Yes
Little corella – Kimberley subspecies (<i>Cacatua sanguinea sanguinea</i>)	No	Yes	No	Yes	Yes
Little corella – Pilbara-Murchison & northern Wheatbelt subspecies (<i>Cacatua sanguinea westralensis</i>)	No	Yes	No	Yes	Yes
Pink and grey galah (<i>Eolophus roseicapilla</i>)	No	Yes	No	Yes	Yes

Impacts of pest parrots and cockatoos

The range of impacts of pest parrots and cockatoos is broadly understood. However, raising public awareness of the extent of the economic, environmental, and sociocultural damage caused by these birds and consequently the benefits of sustained, effective, and humane management, is essential to ensuring public support for the control of pest parrots and cockatoos.

Pest birds have a range of impacts (Table 2). A more detailed understanding of the extent and occurrence of these impacts is required to enable informed decision-making and prioritisation of management activities on a cost-benefit basis, and for the public to appreciate the need for effective management of these pest birds.

Table 2: Summary of the impacts of pest parrots and cockatoos

Species	Impacts							
	Economic			Environmental			Social and public amenity	
	Infrastructure	Agricultural		Threat to native species	Spread of disease	Damage to flora	Noise	Fouling
		Broadacre Crops	Fruit and nut crops					
Corella ^{*1}	Yes	Yes	n/a	Yes	Yes	Yes	Yes	Yes
Rainbow lorikeet ²	n/a	n/a	Yes	Yes	Yes	n/a	Yes	Yes
Sulphur-crested cockatoo ³	n/a	Yes	Yes	Yes	Yes***	n/a	Yes	n/a
Indian ringneck parakeet ^{**4}	Yes	n/a	Yes	Yes	Yes***	Yes	Yes	Yes
Alexandrine parakeet ^{**5}	n/a	Yes	Yes	Yes	Yes***	n/a	Yes	n/a
Galah ⁶	Yes	Yes	Yes	Yes	Yes***	Yes	Yes	Yes

* Includes all sub-species.

** Potential impact as not currently present in WA.

*** All gregarious, flocking birds are potential vectors for disease.

¹ DBCA (2017). *Corellas and other Flocking Cockatoos*, Fauna Notes.

² Chapman T. (2005). The Status and Impact of the Rainbow Lorikeet in Western Australia.

³ <https://www.agric.wa.gov.au/birds/sulphur-crested-cockatoo>, Accessed 21/06/2023; DBCA (2017). *Corellas and other Flocking Cockatoos*, Fauna Notes.

⁴ DAFWA (2007). *Indian Ringneck Parakeet*, Animal Pest Alert No. 1.

⁵ <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/animals/invasive/other/alexandrine-parakeet>, Accessed 21/06/2023.

⁶ DEC (2007). *Galah*, Fauna Notes No. 21.

Pest parrot and cockatoo legal status and species descriptions

The legal status of pest species is integral to ensuring a proportionate approach to their management. Declaring pest species under the BAM Act is crucial for officially recognising their potential negative impact and establishing a legal basis on which to authorise cooperative, statewide management activities.

The legal status of a pest species dictates whether there are obligations to control it or prevent it from entering the state or part of the state. Prohibited organisms and declared pests are considered harmful and require some form of prevention or control.

The BAM Act and BC Act work together to: protect native species; manage the complexities of identifying what constitutes a "pest" species; and to balance control efforts with other considerations, such as the potential for some pests to be considered a commercial or socially valued resource.

The Western Australian Organism List ([WAOL](#)) provides the ability to search for a species and its declaration status as well as information on its associated control and keeping categories.

Permits issued under the BAM Act are required to import and keep exotic animals in WA, except for exempt animals, such as stock and common domestic pets. The keeping of WA native animals is managed under the BC Act by the Department of Biodiversity, Conservation and Attractions, which issues [licences for native fauna](#).

Rainbow lorikeet (*Trichoglossus haematodus*)



Figure 1: Rainbow lorikeet and its legal and control status in WA.

Australian native bird introduced into WA from aviary escapees in the 1960s. Small, fast flying and noisy bird, with brightly coloured feathers: yellow/orange/red breast, violet blue throat, and yellow-green collar.

Table 3: Legal and control status of rainbow lorikeet in WA

Within Perth metro area	Outside Perth metro area	Keeping	Sighting
<p><u>C3 Declared pest</u></p> <p>Landowners are responsible for control on their property using approved means</p> <p>(refer to 'Control Techniques (p. 22)' and Schedule 2 'Prohibited Methods' of BC Regs).</p> <p>Ask Rewild Perth what can you do to make your neighbourhood less suited to the birds.</p> <p>Managed fauna – no licence required from DBCA for control in areas outside of the Kimberley in WA (refer map).</p> <p>Contact local shire or BirdLife WA for control options.</p>	<p><u>C1 Declared pest in areas south of the 20-degree parallel of latitude</u></p> <p>Landowners are responsible to control/remove in areas where they are designated a C1 declared pest (see map).</p> <p>DPIRD will assist landowners to meet their obligations under the BAM Act in areas where they are designated a C1 declared pest (i.e. outside the Perth metro area).</p>	<p>Fauna possessing (pet keeper's) licence required from DBCA.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees.</p> <p>Any unwanted birds must be surrendered to a suitable wildlife carer, not released.</p>	<p>Outside of Perth metro area only, report sightings immediately via:</p> <p>An online report or use the MyPestGuide reporter app (mypestguide.dpird.wa.gov.au)</p> <p>Phone: (08) 9368 3080</p> <p>Email: padis@dpird.wa.gov.au</p> <p>Report suspected roost locations to BirdLife Australia via the Birdata app.</p> <p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Sulphur crested cockatoo (*Cacatua galerita*)

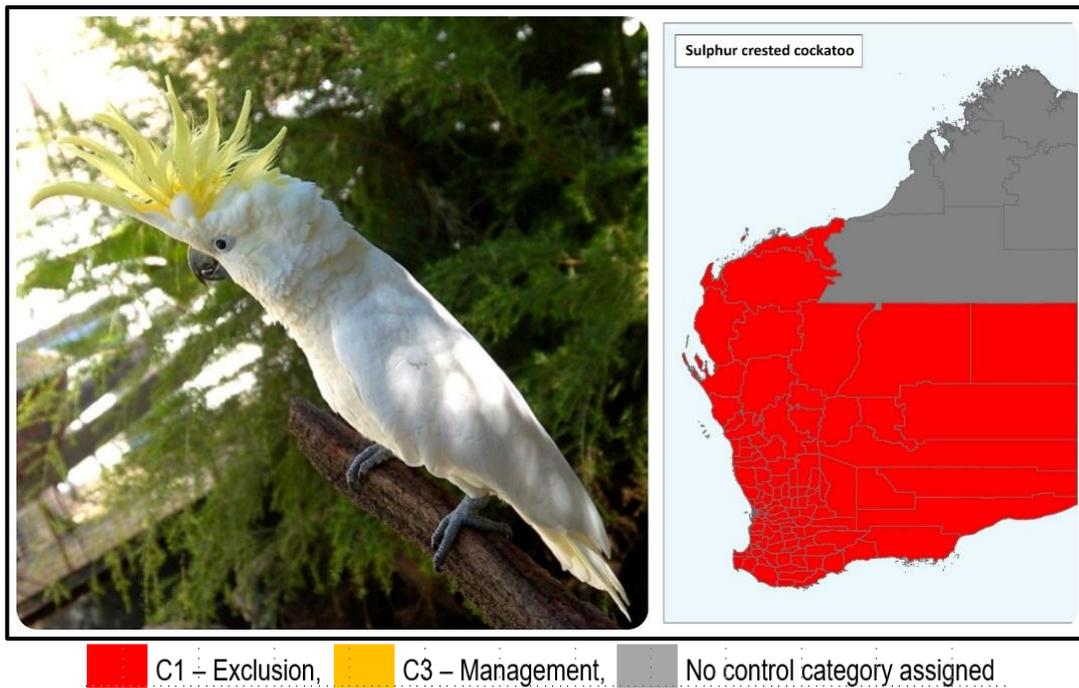


Figure 2: Sulphur crested cockatoo and its legal and control status in WA.

Australian native bird, naturally occurring in WA in the Kimberley region. Introduced beyond its natural range into the areas south of the 20-degree parallel of latitude from aviary escapees.

Table 4: Legal and control status of sulphur crested cockatoo in WA

Legal and control status	Keeping	Sighting
<p><u>C1 Declared pest</u> in areas south of the 20-degree parallel of latitude</p> <p>Landowners are obligated under BAM Act to control/remove in areas where they are designated a C1 declared pest (see map). DPIRD will assist landowners to meet their obligations under the BAM Act in areas where they are designated a C1 declared pest.</p> <p><u>Managed fauna</u> – no licence required under BC Act in areas outside of the Kimberley, damage permit required for control in the Kimberley region (refer map).</p>	<p>Restricted – can be kept under a restricted bird keeping permit.</p> <p>Fauna possessing (pet keeper's) licence from DBCA, restricted species, additional requirements to be met.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees.</p> <p>Any unwanted birds must be surrendered to a suitable wildlife carer, not released.</p>	<p>Report sightings immediately via:</p> <ul style="list-style-type: none"> An online report or use the MyPestGuide reporter app (mypestguide.dpird.wa.gov.au) Phone: (08) 9368 3080 Email: padis@dpird.wa.gov.au <p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Indian ringneck parakeet (*Psittacula krameri*)

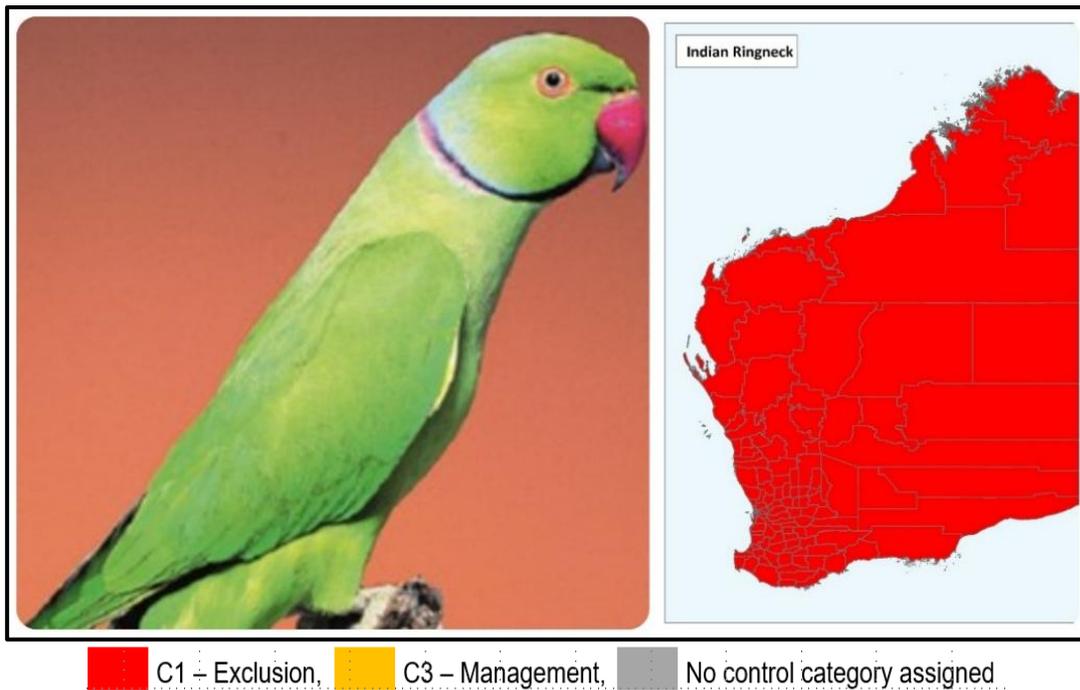


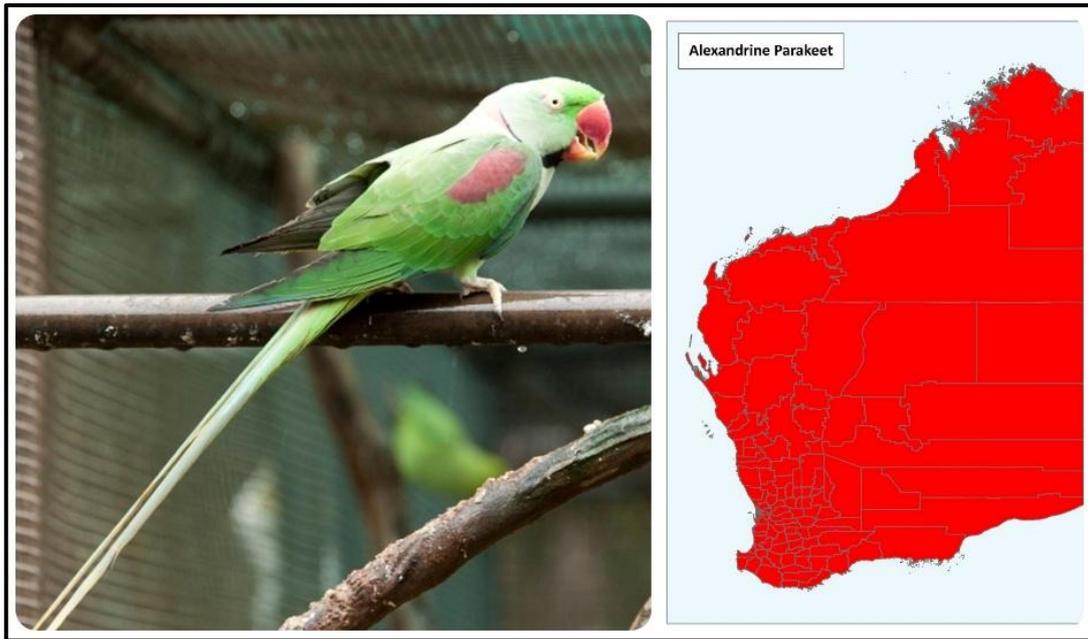
Figure 3: Indian ringneck parakeet and its legal and control status in WA.

Not native to Australia, no known populations in the wild in WA. Has potential to impact grains, horticultural industries, backyard fruits and trees, and compete with native species. Also known as the rose-ringed or African ring-necked parakeet and is widely kept as a caged bird, resulting in many birds escaping or being released into the wild across Australia.

Table 5: Legal and control status of Indian ringneck parakeet in WA

Legal and control status	Keeping	Sighting
<p><u>C1 Declared pest</u> in whole of state</p> <p>Landowners are obligated under BAM Act to control/remove Indian ringneck parakeets detected in the wild in WA. DPIRD will assist landowners to meet their obligations under the BAM Act in controlling Indian ringneck parakeets.</p>	<p>Restricted – can be kept under a restricted bird keeping permit.</p> <p>Import permit also required.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees. Any unwanted birds must be surrendered to a suitable wildlife carer, not released.</p>	<p>Report sightings immediately via:</p> <ul style="list-style-type: none"> An online report or use the MyPestGuide reporter app (mypestguide.dpird.wa.gov.au) Phone: (08) 9368 3080 Email: padis@dpird.wa.gov.au <p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Alexandrine parakeet (*Psittacula eupatria*)



C1 – Exclusion,
 C3 – Management,
 No control category assigned

Figure 4: Alexandrine parakeet and its legal and control status in WA.

Not native to Australia, no known populations in the wild in WA. Has potential to spread disease, impact grains, horticultural industries, backyard fruits and trees, and competes with native species. The largest of the parakeets, predominantly green with light blue-grey sheen on cheeks and back of neck with distinctive yellow tip on the end of tail. A popular caged bird, resulting in many birds escaping or being released into the wild across Australia.

Table 6: Legal and control status of Alexandrine parakeet in WA

Legal and control status	Keeping	Sighting
<p><u>C1 Declared pest</u> in whole of state</p> <p>Landowners are obligated under BAM Act to control/remove Alexandrine parakeets detected in the wild in WA. DPIRD will assist landowners to meet their obligations under the BAM Act in controlling Alexandrine parakeets.</p>	<p>Restricted – can be kept under a restricted bird keeping permit.</p> <p>Import permit also required.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees. Any unwanted birds must be surrendered to a suitable wildlife carer, not released.</p>	<p>Report sightings immediately via:</p> <ul style="list-style-type: none"> An online report or use the MyPestGuide reporter app (mypestguide.agric.wa.gov.au) Phone: (08) 9368 3080 Email: padis@dpird.wa.gov.au <p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Western Australia's 'corella complex'

All corellas present in WA are typically gregarious and can form large, noisy flocks when resources permit. All species/sub-species of corellas in WA are protected under the [Biodiversity Conservation Act 2016](#) as indigenous or Australian fauna. However, where resources have permitted expansion of their natural range, several indigenous species/sub-species of corellas in WA are declared as pests under the [Biosecurity and Agriculture Management Act 2007](#) and should be controlled to minimise their impacts and further range expansion.

The range of corellas present in WA is continually altered through human activities including land clearing, water availability, agricultural food resources and (mis)keeping of the birds as pets. DPIRD is undertaking a review of declared areas of corellas in WA to help provide clarity and resolve any inconsistencies with current declarations and management under both the BAM and BC Acts. As such, maps depicting the declared areas of all corellas currently known to be present in WA are not included in this report as it is anticipated this information will change pending the outcome of the review.

Table 7: Legal and control status of corellas in WA

Legal and control status	Keeping	Sighting
Variable depending on sub-species and geographic location, please check the Western Australian Organism List for current declarations and refer to tables below for species-specific information. Some corellas are classed as managed fauna under DBCA's BC Act, please check DBCA's Wildlife Licencing and Compliance system for further information.	<p>Fauna possessing (pet keeper's) licence required from DBCA.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees.</p> <p>Any unwanted birds surrendered to a suitable wildlife carer rather than released.</p>	<p>Please report sightings of corellas from areas of the state beyond their natural range (review Western Australian Organism List) via:</p> <ul style="list-style-type: none"> An online report or use the MyPestGuide reporter app (mypestguide.dpird.wa.gov.au) Phone: (08) 9368 3080 Email: padis@dpird.wa.gov.au <p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Long-billed corellas

Medium-sized cockatoos with a short (not always visible) crest, pale grey-blue eye ring and a faint yellowish wash on underside of wings and tail. Can be distinguished by long, slim upper bill and are larger and heavier than little corellas (see below).

Two races of native western long-billed corellas are present in WA (*Cacatua pastinator pastinator* and *Cacatua pastinator butleri*) along with a non-WA-native species, the Eastern long-billed corella (*Cacatua tenuirostris*). Whilst currently not a declared pest, *C. tenuirostris* is present, predominantly throughout the Perth metropolitan area and is known hybridise with other corella species.

Table 8: Legal and control status of long-billed corellas in WA

<p>Muir's subspecies Western long-billed corella</p> <p><i>Cacatua pastinator pastinator</i></p>	<p>Butler's subspecies Western long-billed corella</p> <p><i>Cacatua pastinator butleri</i></p>	<p>Eastern long-billed corella</p> <p><i>Cacatua tenuirostris</i></p>
 <p><u>Declared pest</u></p> <p>C1 Areas of state where not naturally occurring (excluding C3 areas).</p> <p>C3 Southwest land division where not naturally occurring.</p> <p><u>Specially protected fauna</u> under <i>Biodiversity Conservation Act 2016</i> and Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p> <p><u>Fauna taking licence</u> required from DBCA in all areas.</p>	 <p><u>Declared pest</u></p> <p>C1 Whole of state where not naturally occurring.</p> <p>C3 Areas outside natural range where present.</p> <p><u>Managed fauna</u> under BC Act, see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>	 <p><u>Permitted</u></p> <p>Well established around Perth on southerly Swan Coastal Plain to Busselton.</p> <p><u>Managed fauna</u> under BC Act, see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>

Little corellas

Upper bill is **not** longer than lower bill (refer long-billed corellas). Little corellas are mostly white, with a fleshy blue eye-ring and a pale rose-pink patch between the eye and bill. In flight, a bright sulphur-yellow wash can be seen on the underwing and under tail.



Figure 5: Little corella on ground and in flight (Photo credit: Gary Tate).

Table 9: Legal and control status of little corellas in WA

Little corella – Eastern states subspecies <i>Cacatua sanguinea gymnopis</i>	Little corella – Kimberley subspecies <i>Cacatua sanguinea sanguinea</i>	Little corella – Pilbara-Murchison and northern Wheatbelt subspecies <i>Cacatua sanguinea westralensis</i>
<p><u>Permitted</u></p> <p><u>Managed fauna</u> under BC Act see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>	<p><u>Declared pest</u></p> <p>C1 Areas of state where not naturally occurring</p> <p>C3 Areas where recorded present outside natural range</p> <p><u>Managed fauna</u> under BC Act see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>	<p><u>Declared pest</u></p> <p>C1 Areas of state where not naturally occurring</p> <p>C3 Areas where recorded present outside natural range</p> <p><u>Managed fauna</u> under BC Act see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>

Pink and grey galah (*Eolophus roseicapilla*, synonym *Cacatua roseicapilla*)

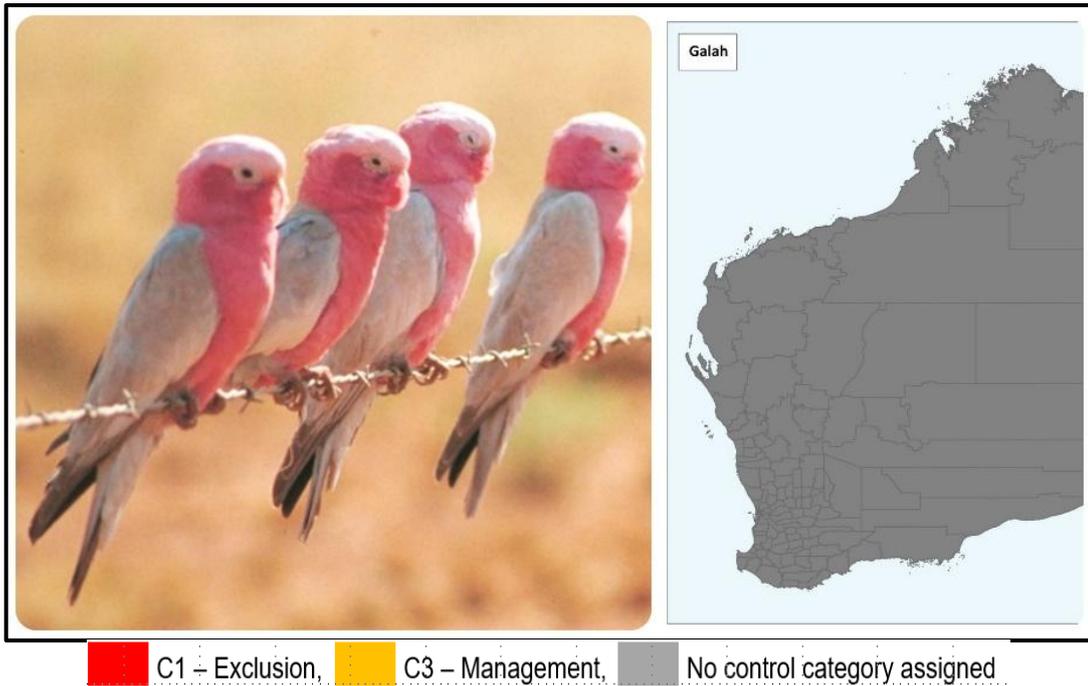


Figure 6: Pink and grey galah and its legal and control status in WA.

One of the most common and familiar of Australia’s parrots, becoming more abundant around areas of human habitation. Known to breed with other members of the cockatoo family, including corellas.

Easily identified by rose-pink head, neck and underparts with paler pink crown and grey back, wings and undertail. Form large, noisy flocks that feed on seeds, including cultivated crops.

Table 10: Legal and control status of pink and grey galah in WA

Legal and control status	Keeping	Sighting
<p>Declared pest in whole of state (unassigned control category)</p> <p>Managed fauna under BC Act see dbca.wa.gov.au/licences-and-permits/fauna for permits and conditions relevant to specific areas.</p>	<p>Exempt – category A species. Fauna possessing (pet keeper’s) licence not required from DBCA.</p> <p>Aviaries must be secure and incorporate a double door system to prevent accidental escapees. Any unwanted birds must be surrendered to a suitable wildlife carer, not released.</p>	<p>If applicable, report the sighting or damage to your local Recognised Biosecurity Group.</p> <p>Report sick or injured wildlife.</p>

Key success factors for effective management of pest parrots and cockatoos

The key success factors detailed below are viewed as critical to the long-term success of any pest parrot and cockatoo management program.

1. Management must continue in perpetuity, even when population densities are low, to prevent rapid population recovery or growth when control activities cease.
2. Stakeholders must accept that resolving pest parrot and cockatoo issues will require considerable time and incur significant costs before any obvious reduction in damage and/or associated costs is achieved.
3. There must be strong ownership and commitment from all stakeholders, a willingness to actively share knowledge and resources, and to coordinate management activities.
4. Partnerships between landholders (both private and government), industry, and not-for-profit organisations must be developed to encourage identification and ownership of the problem, adoption of long-term planning and facilitation of effective communication.
5. All landholders must adopt approved control techniques and apply them using the highest animal welfare standards.
6. There must be a better understanding of the economic, environmental, social and cultural impacts of pest parrots and cockatoos to enable informed decision making and prioritisation of control activities on a benefit-cost basis along with evaluation of management activities.

Control techniques

Techniques used to manage pest parrots and cockatoos will vary according to species distribution, population size, objective, skills and competency of operators, location, terrain and habitat type, extent of damage, season and climatic conditions, land tenure, available budget and the level of social acceptability of specific techniques and regulatory requirements[^]. Management techniques should be sustainable, pose negligible risks to the operators, non-target animals or other assets, and uphold animal welfare considerations. Effective management of pest parrots and cockatoos should integrate as many relevant methods as are appropriate and often requires coordination between many landholders and stakeholders.

Table 11: Pest parrot and cockatoo control techniques for use in WA

Technique	Description	Effectiveness and considerations
Environmental manipulation or use of barriers		
Environmental and site management	Involves modifying the environment at problem sites to make them less attractive, or preferably unattractive to pest birds.	<ul style="list-style-type: none"> • Generally achieved by removing, reducing and/or replacing, resources that pest birds require, such as water, food, or roost trees. • Only recommended or suitable in specific locations. • Overall practicality of this method is questionable and may impact other bird species and/or amenity of the site.
Decoy food sources and sacrificial sites	Use of decoy or sacrificial crops, bait stations or feeding stations to redirect pest birds to reduce, or avoid, damage caused by these birds at high value sites.	<ul style="list-style-type: none"> • Typically involves sacrificing some quantity of crops to protect a larger quantity of crops from being damaged or consumed. • Can also involve planting of alternate food plants or installation of feeding stations. • May be useful in orchards. • Requires ongoing/continual maintenance or replenishing of feed stations. • Alternate plantings may only offer seasonal distraction/food source. • Sustains inflated abundance of pest birds in local area.

Technique	Description	Effectiveness and considerations
Netting	Netting provides a physical barrier to prevent access to an area by pest birds. Includes temporary netting of food crops as well as permanent netting of entire crops i.e. orchards.	<ul style="list-style-type: none"> • Netting can provide complete exclusion of pest birds and/or prevent access to specific food sources or locations. • Cost associated with purchase of netting and installation can be significant. • Ongoing maintenance of netting is required. • Netting may influence the microenvironment surrounding crops, such as solar radiation, humidity and moisture. • Netting can provide protection from hail damage. • Highly recommended and widely used in orchards.
Visual screening	Some pest birds prefer to forage and drink in open areas with good visibility of their surroundings. Placement of visual screens around these sites can reduce their attractiveness or use by some pest birds.	<ul style="list-style-type: none"> • Can be useful for some pest birds, e.g. corellas, that prefer to forage and drink in open areas. • Likely to have limited practicability in medium to large scale situations. • Not effective or likely to be useful for all pest birds.
Scaring methods and deterrents		
Laser or light beams	Randomised patterns of laser beams or high intensity lights broadcast across a site at differing times of the day to disrupt or scare birds away.	<ul style="list-style-type: none"> • Relatively new technology and has been shown to be effective in certain situations. • Like other scaring techniques, typically shifts the problem to another site. • Effectiveness likely to decrease over broad scale application. • Lights and laser beams may impact on neighbours and may be prohibited for use near airports.

Technique	Description	Effectiveness and considerations
Noisemakers and scaring sounds	Noise deterrents which typically make loud and sudden noises that are above the pain threshold for birds (>130 dB) or include bioacoustic sounds, such as alarm or distress calls of conspecifics or predator calls, to frighten pest birds away.	<ul style="list-style-type: none"> • Effectiveness of scaring techniques depends upon several factors, including the persistence of the scaring method, use of a variety of scaring methods to reduce risk of birds becoming habituated to the scaring device, and timing of the scaring strategy. • Require frequent use which also increases risk of birds becoming habituated to scaring technique. • Typically, of short-term value as pest birds commonly become habituated to prolonged use of one scaring method. • Noises can also negatively impact on neighbouring properties. • Scaring typically shifts the problem to another site.
Visual deterrents	Includes reflective or holographic tape, predatory bird replicas, balloons or images with large pronounced 'eyes', and scarecrows used to deter or exclude pest birds from specific sites.	<ul style="list-style-type: none"> • Efficacy of visual deterrents can be enhanced by making them move. • Relatively inexpensive to install. • Tend to be ineffective in the long term as pest birds quickly become habituated to them.
Physical deterrents	Installation of physical deterrents or barriers to discourage pest birds from perching on buildings and infrastructure, including sharp edges, wires and prongs, or rollers that physically prevent birds from landing or perching at specific sites.	<ul style="list-style-type: none"> • Can be useful in protecting specific pieces of infrastructure e.g. rollers on powerlines can help prevent damage to insulators and power disruptions. • Can provide long term deterrence of pest birds from sites with minimal or no ongoing maintenance required. • Typically, suitable only for artificial infrastructure not natural environments. • Cost of installation of devices may be significant.

Technique	Description	Effectiveness and considerations
Tactile deterrents	Non-sticky polybutene gels can be applied to perches as it is a soft material that birds do not like to perch on, and it discourages them from using those perches.	<ul style="list-style-type: none"> • Likely to be impracticable for large scale application. • Use of these gels is problematic as small birds can become stuck, creating animal welfare issues. • May be considered a prohibited method under Schedule 2 of the BC Regs.
^Lethal control		
Shooting	Culling pest birds directly is usually a common approach to resolving the damage they cause. Shooting of birds is a common method to both cull pest birds and as part of a scaring program.	<ul style="list-style-type: none"> • Shooting can be a useful control method for small numbers of pest birds in specific locations and to achieve specific outcomes. • Target species specific and useful for short-term culling of pest bird populations. • Delivers immediate response to address damage or stakeholder concerns. • Can be expensive and time consuming. • Animal welfare issues need to be considered, especially with respect for recovery or follow up of wounded birds. • Public safety considerations need to be adequately addressed when using firearms, particularly in proximity to dwellings or urban/peri-urban areas. • Any use of firearms needs to adhere to relevant WA firearms legislation.

Technique	Description	Effectiveness and considerations
Trapping and euthanasia	Trapping of pest birds with cage or net traps and subsequent euthanasia can be effective in reducing numbers of birds locally or at specific sites.	<ul style="list-style-type: none"> • Labour intensive technique due typically to free feeding phase to get birds accustomed to traps/feed sites. • Typically targets only a proportion of the flock or population and depending on species, repeat trapping of the same flock or population may not be possible due to learned avoidance. • Animal welfare considerations and public perception need to be addressed, particularly if trapping is conducted within townsites or public spaces. • Has been used regularly (e.g. corellas) for short-term culling of pest bird populations.
Destruction of eggs	Involves the identification and monitoring of nest sites of pest birds for the removal and destruction of eggs to reduce recruitment within the pest bird population.	<ul style="list-style-type: none"> • Target species specific provided appropriate monitoring and species identification is achievable. • Labour intensive technique due to the need to monitor and access nest sites. • Not practical at larger landscape scales for population control, particularly for species that breed over large areas at many locations. • Compensatory laying can occur to replace destroyed eggs.

Technique	Description	Effectiveness and considerations
^Chemical control		
Bird deterrent chemicals	Bird deterrent chemicals typically rely on being applied to a food source that is ingested and causes repellence due to an unpleasant taste or smell. Secondary repellence occurs from birds associating illness or nausea with the food source.	<ul style="list-style-type: none"> • Effectiveness of bird deterrents can vary depending on the specific situation and the species of birds involved. • Repellents are designed to be non-toxic to pest birds. However, they may still have undesirable impacts on people and the environment. • Deterrent chemicals are subject to the same general registration requirements as traditional agricultural chemicals. • Practicalities of use and animal welfare issues need to be considered. • May be subject to consideration in regard to Schedule 2 – Prohibited methods under the BC Regs.
Ingested poisons	Avicides are specialised chemicals designed to control or reduce populations of pest birds by targeting specific physiological or behavioural traits, often through ingestion or contact.	<ul style="list-style-type: none"> • Avicides can provide effective pest bird control when used appropriately and in conjunction with integrated pest management strategies, including exclusion and non-lethal techniques. • Effectiveness can depend on the target species, application method, environmental conditions, and compliance with regulatory requirements. • Multiple chemicals are used as avicides globally, but many may not be registered for use in the control of pest birds in WA; users need to check the APVMA PubCRIS portal. • Proper application methods and adherence to guidelines are essential to address animal welfare, non-target and human health issues while achieving the desired control of pest birds. • Subject to consideration of Schedule 2 – Prohibited methods under the BC Regs.

Technique	Description	Effectiveness and considerations
Fertility control	Nicarbazin is a registered compound chemical that interferes with the hatchability of avian eggs.	<ul style="list-style-type: none"> • Highly effective and safe method of reducing reproduction in pest birds. Nicarbazin is not toxic, has a wide safety margin and near zero risk of any secondary effect in birds of prey. • At recommended doses, birds will continue to lay eggs, although the eggs will not hatch. Once the target species stops consuming nicarbazin, they will return to 100% fertility within 3 to 7 days. • To maintain a contraceptive blood level, the appropriate dose of nicarbazin must be consumed daily. • While all avian species are considered sensitive to nicarbazin, different doses are required to achieve optimal contraceptive effect. Care should be taken to avoid exposure to non-target bird species. • Fertility control is typically considered a highly desirable pest bird control method by multiple stakeholders. • Use of nicarbazin manages the population growth of pest birds but does not reduce the existing population or their current impacts.

^Application of lethal control techniques for the management of Australian or indigenous to WA birds, needs to be in accordance with the Biodiversity Conservation Regulations 2018, particularly Schedule 2 – Prohibited methods, and Schedule 4 – Managed Fauna, Division 1 – Birds. If the species is managed fauna, a licence is not required to take them with a firearm or disturb them with noise or light. However, if the method to take or disturb is anything other than this, a licence is required, even for Managed Fauna.

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