

**PESTS**SMART

# Indicative 10 Project National Resource Material

House Crow  
(*Corvus splendens*)

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*An Invasive Animals CRC Project*







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## Summary

Summary based on assessments carried out in García-Díaz (2014a)

Species on VPC List 2007?	Yes (classified as extreme)
Species on the live import list (EPBC Act 1999)?	No
Risk of establishment:	Extreme (Bomford 2008)
Pathways:	Unintentional (usually as stowaways)

## Key Messages

Introduction pathway:	Via ships - as accidental hitchhikers; escape of birds kept as ship pets.
Impact to Economy:	Lives in close association with people; damage to property, agriculture production, community.
Impact to Environment:	Major environmental pest, harassment of a wide range of vertebrate species, and displacement of indigenous birds.
Identification:	Although the species have distinct grey necks, they are easily confused with four species of Australian native crows and ravens

## Classification

*Corvus splendens* (Vieillot, 1817)

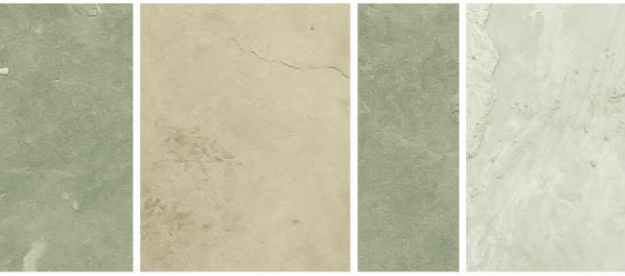
Class:	Aves
Order:	Passeriformes
Family:	Corvidae
Genus:	<i>Corvus</i>
Species:	<i>splendens</i>

## Common names

Indian Crow, Greynecked Crow, Ceylon Crow, Colombo Crow



Figure 1. *Corvus splendens*. Photo Shanthanu Bhardwaj (CC BY-SA 2.0)



## Biology and Ecology

### Identification

The house crow (*Corvus splendens*) has black plumage that appears glossy with a metallic greenish-blue-purple sheen on the forehead, crown, throat, back, wings and tail (Madge and Burn 1994). In contrast, the nape, neck and lower breast are not glossy and are paler grey tones. The bill is black and the upper beak is strongly curved. The forehead is sloped and the eyes are dark brown. Legs and feet are black. Male and female birds look similar, although males are slightly larger. Immature birds have little or no sheen to their plumage (del Hoyo et al. 2009).

The house crow has a body-tail length of 370 to 440 mm (Johnstone and Storr 2004) and weighs about 250-350 g (Csurhes 2010). The species is smaller and more slender than Australian corvids; about 100 mm smaller than the Australian raven (*C. coronoides*) and about 20 mm smaller than the smallest Australian corvid (little crow, *C. bennetti*). The house crow also lacks the raven's long floppy hackles and throat feathers (Kirkpatrick and Massam 2008). Its voice differs from both the little crow and the drawn out call of the raven, having a short, repeated "caw-caw-caw" rather than the raven's "aah-aah-aah-aaaaahhhh" and the little crow's "nark-nark-nark" call (Kirkpatrick and Massam 2008).



Figure 2. *Corvus splendens*. Photo Sergey Yeliseev (CC BY-NC 2.0)



Figure 3. *Corvus splendens*. Photo H. Rachis (CC BY-NC 2.0)

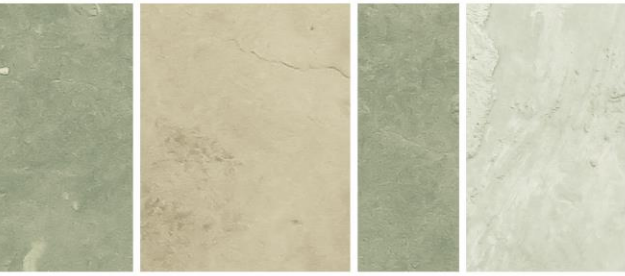
## Behaviours and Traits

This sedentary and gregarious bird has a reputation for intelligence and boldness. Small and large flocks congregate at communal roosts and foraging sites such as rubbish dumps, abattoirs and markets. Roosts of up to several thousand individuals have been recorded (Peh and Sodhi 2002; Saiyad et al. 2017).

House crows live for about six years in the wild (Kirkpatrick and Massam 2008).

## Food and Foraging

*C. splendens* is an omnivorous scavenger, pilfering and eating anything edible. It will eat grains, fruits, nuts, nectar, insects, fish, small animals, eggs and nestlings, food scraps, garbage, offal and carrion (del Hoyo et al. 2009; Long 1981a). The crow will also dive into water to catch stranded fish and forage on insects on the surface (Ryall and Reid 1987). In some countries, the crow has a role as a domestic scavenger (Saiyad et al. 2015). Lim et al. (2003) reported that habitat-abundance relationships suggest that house crows are highly dependent on anthropogenic food.



## Reproduction and Lifecycle

Breeding season varies with location but is usually in the warmer months in most regions (e.g., Allan and Davies 2005; Ryall 1990; Saiyad et al. 2017). Both sexes collect nest material but the female frequently constructs the nest (Ryall 1990). Nests are untidy platforms built of twigs and assorted material, including wire, often collected from refuse (Behrouzi-Rad 2010; Ryall 1990). These structures are located off the ground, usually higher than 3 m in forks of tall trees, but the crow is adaptable and will use ledges on buildings, streetlights or pylons when necessary (Allan and Davies 2005; Peh and Sodhi 2002; Soh et al. 2002). To reduce the distance between the nest and a food resource, nesting is common in more urbanised locations that have high disturbance near bin/food waste and food centres (Soh et al. 2002).

Four eggs are laid on average per clutch. These are incubated for 16-17 days by the female, over a nesting period of between 21 and 28 days, after which chicks are fed by both parents (Allan and Davies 2005; Behrouzi-Rad 2010; del Hoyo et al. 2009).

## Habitat

Throughout its natural and introduced range *C. splendens* occupies urbanised areas and rural habitats and lives in towns, cities, sea ports, farmlands, forest edge, mangroves and shorelines (Saiyad et al. 2015). Its most frequent habitat has become urban areas, as the bird most often lives closely with humans and almost always within or near human habitation (del Hoyo et al. 2009; Sodhi and Sharp 2006). House crows prefer highly disturbed habitats within most types of urban and agricultural landscapes and thrive in small villages, towns and cities. Their abundance is positively related to proximity to the coast (Lim et al. 2003).

## Global Range

Originating in southern Iran the house crow's native distribution includes Bangladesh, Bhutan, China, Hong Kong, India, Maldives, Myanmar, Nepal, Pakistan, Qatar, Singapore, Sri Lanka, Thailand, and the Laccadive and Maldives islands (IUCN 2017).

The house crow has been introduced to new areas, such as east Africa since the late 1800s. These include coastal areas bordering the Indian Ocean, in South Africa, Mozambique, Tanzania, Kenya, Somalia, Ethiopia, Mauritius and the Seychelle islands (Long 1981b). It is found along the Red Sea and the Suez Canal in Sudan, Egypt, Israel, Jordan, Saudi Arabia, Kuwait, the United Arab Emirates, Yemen and Oman (ISSG 2017; IUCN 2017; Ryall 1995; Ryall 2002). It has also established in Malaysia, Singapore, Hong Kong and the Netherlands (Sodhi and Sharp 2006). Vagrants have been detected in the USA in New Jersey and South Carolina (Ryall 1995), United Kingdom, Spain, Japan, Denmark Cambodia, Afghanistan (IUCN 2017) and Australia (Christy and Quinn 2017; Csurhes 2010).

In 2002, house crows were the second most abundant bird (behind Indian mynas) in Singapore, with an estimated 120 birds per square kilometre (Brook et al. 2003; Ryall 2002).



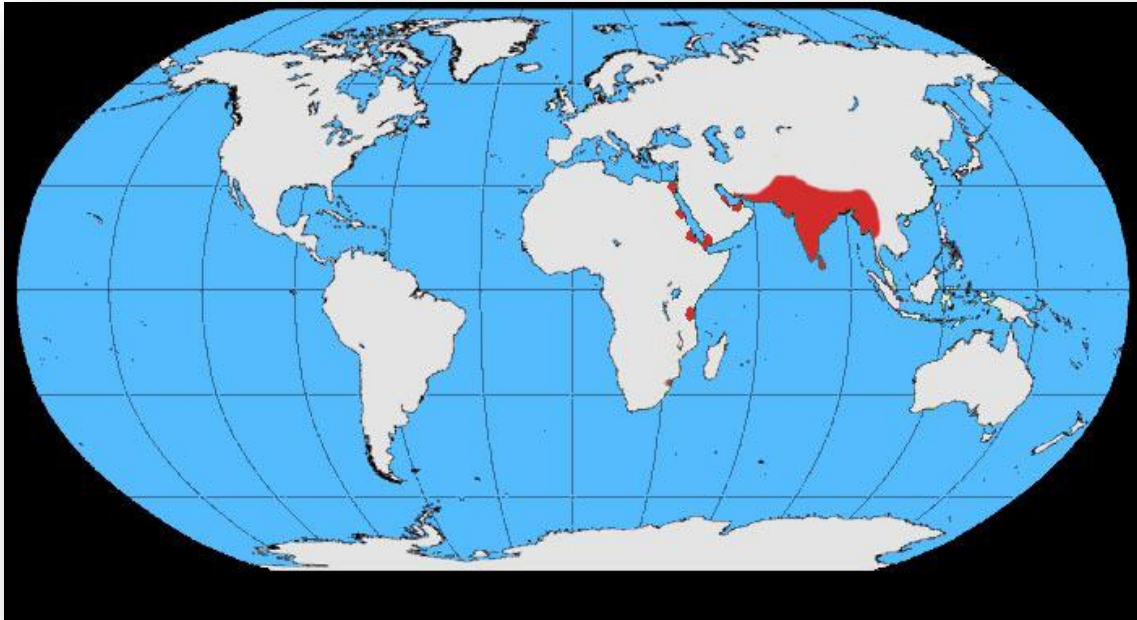


Figure 4. Map showing the distribution of *Corvus splendens*. Image taken from Wikimedia Commons ([https://commons.wikimedia.org/wiki/File:Corvus\\_splendens\\_map.jpg](https://commons.wikimedia.org/wiki/File:Corvus_splendens_map.jpg)). CC BY-SA 3.0 August 2017.

## Pathway for Introduction

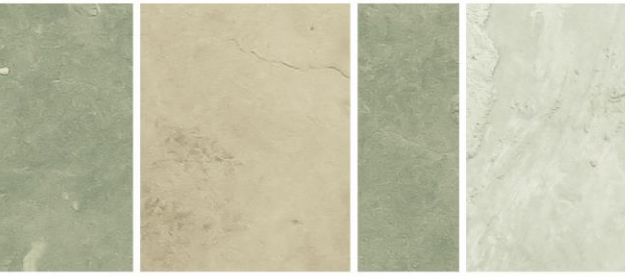
The house crow occurs at ports throughout its native and introduced range and ships from these countries arrive daily in Australian ports (ISSG 2017; Johnstone and Storr 2004; Long 1981b).

The species has primarily been transported unintentionally to Western Australia and Victoria as ship stowaways (Christy and Quinn 2017). There is a likelihood that new incursions will occur in the future (García-Díaz 2014b).

## Potential for Introduction

The species is occasionally transported to Australia on ships. It has been found in Victoria (Christy and Quinn 2017) but more commonly in Western Australia due to the state being close to ports in southern Asia where the crow occurs (Massam et al. 2010). Increasing maritime traffic to Australia could imply a higher incursion risk (Csurhes 2010; García-Díaz 2014c).

Although the house crow is usually sedentary, it is associated with human settlements and can fly 20 km in a day (ISSG 2017; Lim et al. 2003; Soh et al. 2002). There is potential for ship-travelling house crows to fly to port or other landfall even if the vessel does not dock.



## Potential for Eradication

According to García-Díaz (2014c), control and eradication of the house crow has had mixed results. Of the eight control attempts with a known outcome, two were successful in reducing population size (Keitt et al. 2011; Puttoo and Archer 2004), and one resulted in eradication (Suliman et al. 2011)., House crow incursions in Australia to date have been of one or two birds that have been removed either by shooting at the location or by cage trapping (Invasive Species Program 2013). This indicates that eradication is possible for an incipient, non-breeding population (García-Díaz 2014c).

Several control programs for introduced population have been successful and incorporated several methods, particularly poisoning (using Starlicide and/or alpha-chloralose), shooting and trapping, and controlling access to food sources such as rubbish dumps (Csurhes 2010; Feare and Mungroo 1990a; Keitt et al. 2011; Puttoo and Archer 2004; Suliman et al. 2011). The implementation of a suite of methods has typically been more successful than utilizing a single method, but shooting alone was successful in eradicating house crows from Socotra Island, Yemen (Suliman et al. (2011). If establishment of house crows in Australia were to occur, the control techniques would be varied and include baiting, trapping, and shooting (Campbell et al. 2012; Sharp 2012a, b; Tracey et al. 2007). These methods are already commonly used in Australia to control other non-native birds such as starlings and common mynas (Campbell et al. 2012; Mcleod and Saunders 2013; Sharp 2012a, b; Tracey et al. 2007) and could be utilized for house crows.

Since Indian house crow occurrence in Australia is associated with sea vessels, there is a high chance of port, craft and vessel personnel detecting birds (García-Díaz 2014c). Furthermore, given the number of ornithological organisations and researchers, and the relative conspicuousness of the species, detection through citizen science and community engagement mechanisms may be useful for passive surveillance (Hine et al. 2014; NECWG 2013; Szabo et al. 2010).

## Impacts

The scientific risk assessment, endorsed nationally by Invasive Plants and Animals Committee (IPAC), rated the species as a major pest for both environment and primary production, assigning it as extreme pest risk in Australia (Kirkpatrick 2003). The crow is regarded as having high environmental and economic impacts (García-Díaz 2014a).

### Economic

**Disease** - *C. splendens* is implicated as carriers in the spread of pathogens and parasites which pose a threat to human health (Al-Sallami 1991; Cooper 1996). For example, house crows are known to spread *Salmonella* (which causes salmonellosis), *Shigella* (gastroenteritis), *Proteus* (urinary tract infections), *Vibrio* (gastroenteritis, septicemia, and cholera), *Giardia* (giardiasis) and other Enterobacteriae (Al-Sallami 1991; Cooper 1996; Ganapathy et al. 2007).

**Agricultural Crops** - House crows are considered a major agricultural pest as they intensively forage on grain and fruit crops (Long 1981b). They are a serious pest of wheat crops (Toor and Sandhu 1979; Yousuf 1982), also attack maize and sorghum crops and severely damages orchard fruit (Archer 2001; Reddy 1998). In addition, sprouting sunflower (Mahli 2000), sprouting wheat (Dhindsa and Saini 1994), almonds, figs, apples (Bhardwaj 1991), plums,



pears, guava, jujube (Grewal and Kapoor 1986), grapes (Perumal et al. 1972), peaches (Toor and Sandhu 1981), mangoes, pawpaw, cereals and vegetables (Ryall and Reid 1987), chillies and soft fruit (Archer 2001) are all affected by house crow predation.

**Agricultural Livestock** - The house crow not only impacts crops and plant material, but also livestock. The species predated and kills poultry, new born calves and kid goats (Archer 2001; Ryall and Reid 1987). Although usually not killed out rightly, house crows have been observed to harass adult livestock causing injury (Archer 2001).

**Infrastructure** - Harm to property occurs as house crows disperse garbage, damage electrical wiring, pollute with their droppings and block gutters by caching food (Feare and Mungroo 1990b; Ryall and Reid 1987). Perching house crows damage TV aerials and their wire nests cause short circuits and power cuts (Ryall and Reid 1987). The costs of ongoing management could be substantial and comparable to, if not greater than, the costs associated with management of feral pigeons and white ibis (Csurhes 2010).

House crows that reside around airports are a known hazard to the aviation industry in terms of damage and delays to aircraft (Feare and Mungroo 1990b; Howell and Masuya 1993; Ryall and Reid 1987).

## Environmental

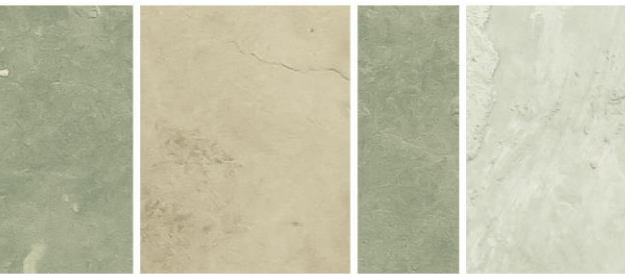
The climate of the house crow's natural and introduced range has a very high match with the climate of Australia (Kirkpatrick and Massam 2003). Areas of climate matching overlap with the distribution of susceptible native species, for example native corvids and the Gouldian finch (*Erythrura gouldiae*); most small passerine birds and mammals would be at risk if the house crow was to establish here (Kirkpatrick 2003).

Where it has been introduced the house crow causes significant declines of native species (Feare and Mungroo 1990a; Lim et al. 2003; Long 1981b). The crow predated on small bird species, particularly colonial nesters, and harasses other larger birds such as raptors (García-Díaz 2014b). In Mauritius, the endemic Mauritian grey white eye (*Zosterops mauritianus*) has been extirpated from places where the house crow has reached high densities (Feare and Mungroo 1990a), and ISSG (2017) suggested that house crows compete with native crows.

As discussed above, house crows are also known to carry a wide number of parasites and pathogens that impact native species such as Enterobacteriae (Al-Sallami 1991; Cooper 1996; Ganapathy et al. 2007), paramyxoviruses (Gokulshankar et al. 2004) and Cryptococcus (Roy et al. 1998).

## Social

In addition to harm to property, the crow creates significant noise pollution, steals food and can be attracted to bright jewellery (Archer 2001; Berruti and Nichols 1991; Feare and Mungroo 1990b; Ryall and Reid 1987). This has led to occasional attacks on people (Kassim 2001; Lee 2001; Ryall and Reid 1987; Yeld 2004).



## Legislation

The high risk and potential pest status of the Indian house crow is recognised throughout Australia, as indicated in Table 2.

Table 2: Current status of the Indian house crow under jurisdictional legislation

Jurisdiction	Legislation	Status
Australia	Biosecurity Act 2015	included
Australia	List of specimens taken to be suitable for live import	not listed
Western Australia	Biosecurity and Agriculture Management Act 2007	prohibited
South Australia	Natural Resources Management Act 2004	prohibited
New South Wales	Non-Indigenous Animals Regulation	No legal status
Queensland	Land Protection (Pest and Stock Route Management) Act 2002	Class 1 declared animal
Victoria	Catchment and Land Protection Act 1994	prohibited



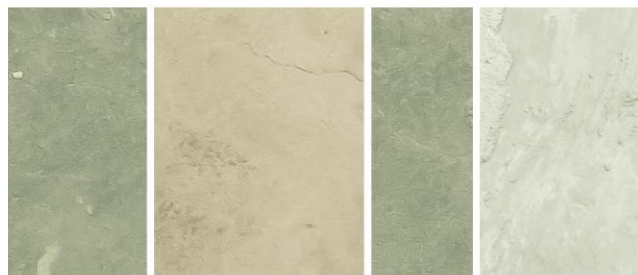
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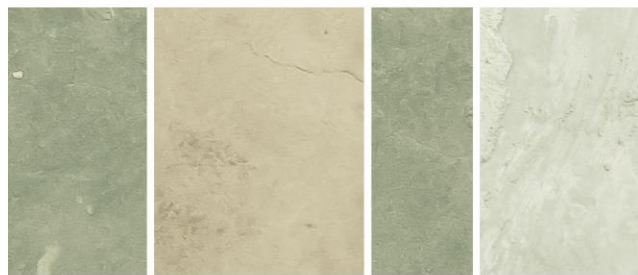
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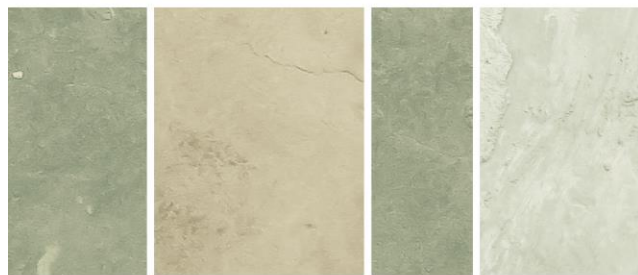


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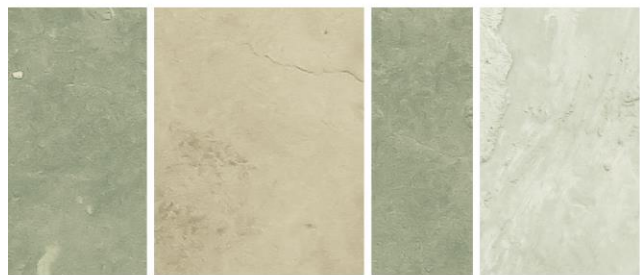
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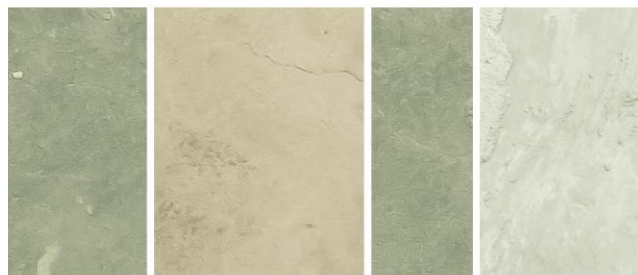
## Image Library - House Crow (*Corvus splendens*)





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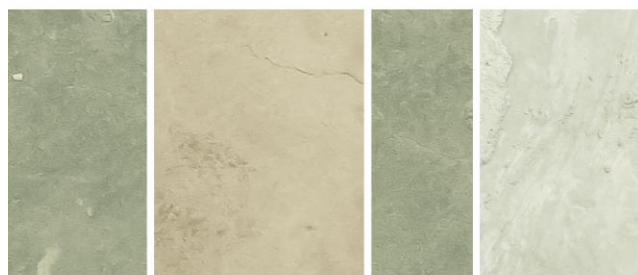


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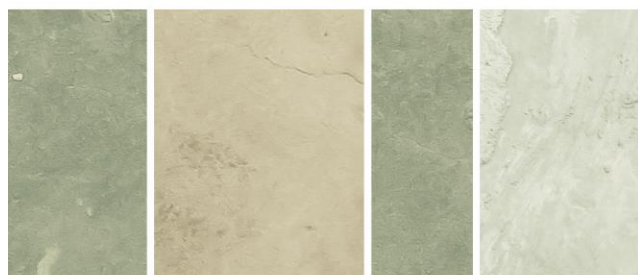


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