

**PESTS**SMART

**Indicative 10 Project  
National Resource Material**  
Canada Goose  
*(Branta canadensis)*

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2017**

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*An Invasive Animals CRC Project*





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## Summary

Species on VPC List 2007?	Yes
Species on the live import list (EPBC Act 1999)?	No
Risk of establishment:	Extreme (Bomford 2008)
Pathway:	Unintentional

## Key Messages

**Range** - Total migration distance travelled - 4020 km, distance between stopovers - 400 km (Giles et al. 2013). Can fly at speeds >50 km for extended periods (Mowbray 2002), e.g. 2800 km at 58km/h for 48 h (Gill 1996).

**Introduction pathway** - Escape of birds kept in aviculture; natural movement from NZ.

**Impacts** - On agriculture production, the environment, society and community

**Identification Issues** - Different in appearance to Australian native water fowl species such as Magpie Goose and Cape Barren Goose, so shouldn't be an issue to identify birds in the field.

**Eradication measures** - Control programs at airports, urban parklands and on farms have included habitat modification, scaring with sound, lights or movement, chemical repellents, hunting and reproductive control. Compensation payments have also been made to farmers in the United States and the Netherlands for damage of crops by the Canada goose.

## Classification

*Branta canadensis* (Linnaeus, 1758)

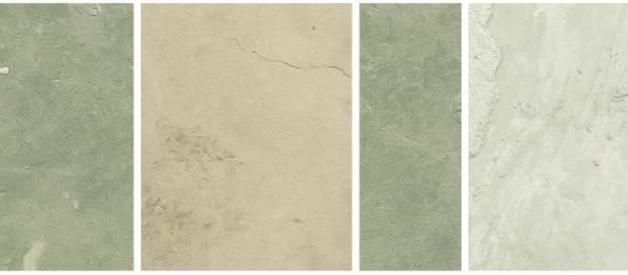
Class:	Aves
Order:	Anseriformes
Family:	Anatidae
Genus:	Branta
Species:	<i>canadensis</i>



## Common names

Canada Goose

Figure 1. Canada goose (*Branta canadensis*).  
Photo Fyn Kynd (CC BY 2.0)



## Biology and Ecology

### Identification

The form of Canada goose found in Australia and New Zealand is a moderate to large bird 0.5 to 1 m in length (body and tail), with a wingspan of 1.2 to 1.8 m, and weighing 3 to 6 kg. It is brown and white with a conspicuous white patch on the cheeks and chin and a long black neck and head. The bill, tail, legs and feet are also black. Male, female and immature birds are similar although immature plumage is more greyish and the white face-patches are often tinted brown.



Figure 2. Canada goose (*Branta canadensis*). Photo Shawn Nystrand (CC BY-SA 2.0)

### Behaviour and Traits

The Canada goose swims with its neck held upright. It flies in groups in striking V-formation with neck outstretched and often with loud honking. It is easily identified from below by its black neck, white face-patch, pale belly and dark underwings. It also has a white V-shaped mark on the rump, visible from above and when the bird is taking off.

Within its natural range, the majority of Canada goose populations migrate to warmer areas before the onset of winter. Some introduced populations also migrate, such as those in the United Kingdom and Scandinavia. In late summer adults become flightless for about a month during the post-breeding moult.

In the wild, a Canada goose can live for up to 30 years.



Figure 3. Flock of Canada goose (*Branta canadensis*). Photo: Robb Hannawacker (CC0 1.0)

## Food and Foraging

The Canada goose eats a wide variety of vegetation, grazing on roots, grasses, stems, leaves, fruits, aquatic plants and sedges as well as agricultural crops and pasture. It sometimes feeds by dabbling (dipping its head under water) and in urban environments in the United Kingdom it readily takes food handouts and this could occur elsewhere.

## Reproduction and Lifecycle

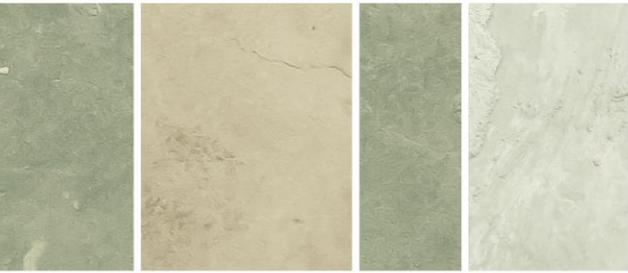
The geese mate for life and begin breeding at two to three years of age. The nest is a large mass of vegetation lined with down, usually built on the ground near water but occasionally they may be located off the ground. Four to seven white eggs are laid. The Canada goose can be aggressive towards people and pets if disturbed when breeding.

## Habitat

The Canada goose is found in a large range of habitats, both open and wooded areas as well as coastal areas and semi-desert. Urban and agricultural lands are also used as well as parklands, golf courses and areas of extensive lawn. All types of wetlands are utilised from ornamental lakes to mudflats and estuaries.

## Global Range

Native to North America (Canada and the United States of America, including Alaska, the Aleutian Islands and Hawaii), the Bahamas and Greenland. In winter, some populations migrate south to warmer areas (some as far as Mexico), and to other countries including



Bermuda, Japan and Russia (Kamchatka Peninsula). In the US where it has established in previous non-breeding areas the goose is non-migratory.

Introduced populations occur in Iceland, Austria, Belgium, Denmark, Estonia, Finland, Germany, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Sweden, the United Kingdom and western Russia. These introductions are a result of deliberate and accidental release of kept geese.

In addition to natural populations occasionally migrating from North America, some introduced populations in Europe also migrate and captive birds escape or are released. These factors result in the occasional presence of the species in other countries including Bulgaria, Czech Republic, France, Liechtenstein, Luxembourg, Portugal, Slovakia, Slovenia, Spain, the Ukraine and in Beijing, China.

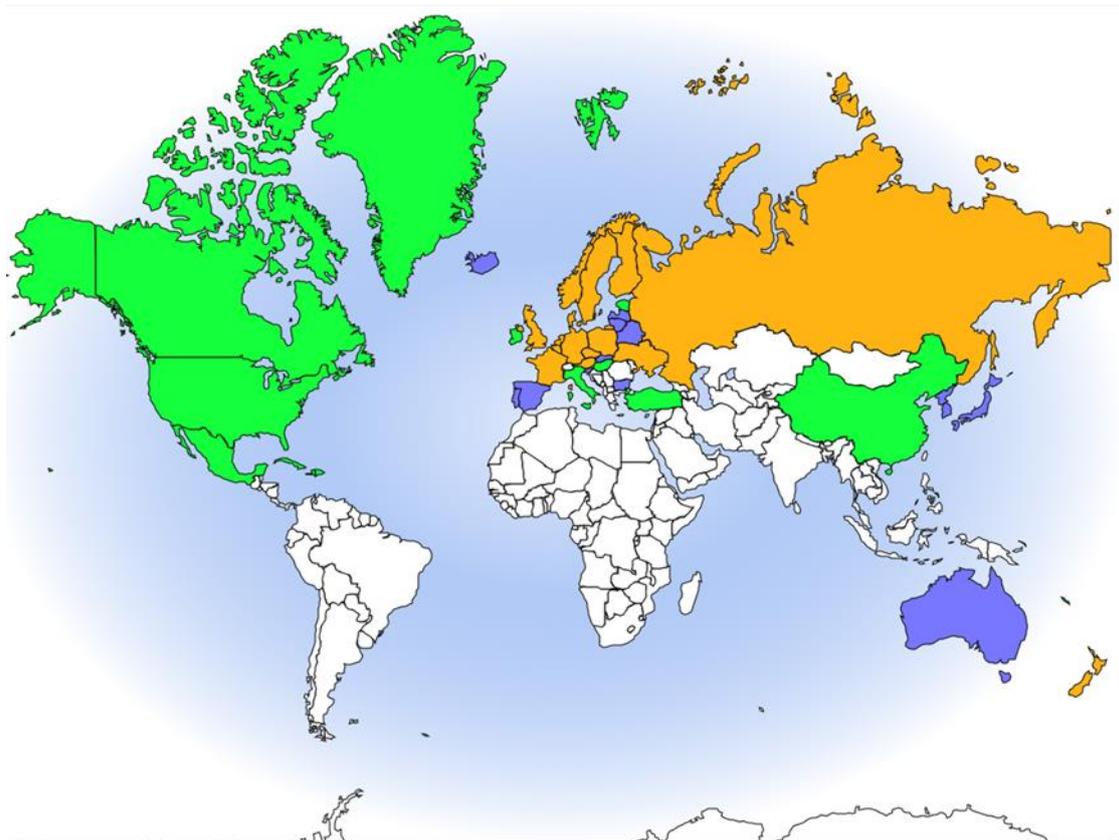


Figure 4. Map showing general range of Canada goose (*Branta canadensis*). Colours indicate range: green = native or nesting, orange = introduced, yellow = reintroduced, purple = rare/occasional vagrant. Image taken from Oiseaux.net. July 2017.



## Potential for Introduction

Scientific risk assessments, endorsed nationally by Invasive Plants and Animals Committee (IPAC), determined that *Branta canadensis* pose an extreme threat (the highest of four categories) to Australia with an extreme risk of establishment (Kirkpatrick 20013). Climate matching was estimated to be 6.7 % (Bomford 2008).

Despite this evaluation no wild populations have yet established in Australia although it has been found at large (Clayton et al. 2006; Long 1981). It was unsuccessfully introduced to Western Australia in 1913 and Victoria in the 1920s, and two geese reported in Tasmania in 1927 were believed to have originated from the released Victorian birds. In the 1970s, one bird was recorded on Lord Howe Island, and since 2002 four small incursions have been recorded on the east coast of mainland Australia.

It is kept as an exotic waterfowl species in Australia and captive birds have occasionally been found at large.

In the early 1900s the goose was successfully introduced to New Zealand and is now a widespread pest there. Wild geese from New Zealand have flown unaided to coastal New South Wales on at least two occasions. The most recent was in 2008 when four birds were removed from wetlands 120 km south of Sydney.

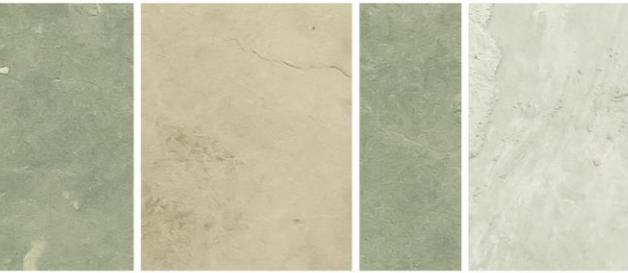
- **Vagrant from New Zealand:** likely
- **Hitchhiker passenger on ships:** unlikely
- **Escaped sailor's pet:** unlikely

## Potential for Eradication

Population growth of introduced populations is most rapid in urban areas when mortality levels are low due to no lethal control work (Global Invasive Species Database 2017). Restrictions on hunting and provision of artificial water and food resources facilitate rapid population growth.

Canada goose incursions can be controlled using a variety of different methods depending on their life stage. For example, adults are often shot, fledglings removed from the nest, eggs coated with mineral oil to prevent hatching, interference to daily activity by fencing foraging and landing sites, and deterrence of geese at facilities like airports (Allan et al. 1995; Heinrich and Craven 1992; ISSG 2017; Smith et al. 2000; Ward et al. 1999). However, none of these techniques, even when applied together, has demonstrated to be effective in eradicating invasive geese populations, although they do facilitate the reduction in population size. Although control techniques have not been ineffective at removing established populations, they have been effective in Australia where the species is not yet established but arrives as a rare vagrant.

The most effective control method is likely to be lethal control by shooting. Australia is somewhat accepting of lethal control of invasive species (Johnston and Marks 1997; Saunders et al. 2010; Sharp 2012a, b; Tracey et al. 2007). However, shooting native waterfowl in Australia is still controversial. This objection may impact successful eradication in the event of an incursion.



On a positive note, none of the native species of waterfowl in Australia are similar to Canada geese and therefore identification of the species should be relatively quick. Given it is easily identifiable the species should be easy to detect even at low densities.

## Impacts

### Economic

- Economic and social impact: Canada geese flocks have been implied in significant crop losses in almost every place in their exotic range (Allan et al. 1995; Conover 1988; Heinrich and Craven 1992; ISSG 2017; Smith et al. 2000). It is a moderate pest of agriculture, damaging crops such as broccoli, cabbage, cereals, corn, lucerne, pea, rye, soybean and turnip. The goose competes with livestock by feeding on pasture and fouling it with droppings, and may pose a risk of
- transmit diseases to livestock.
- In flocks, the Canada goose prefers to graze in open grassy areas, such as airports, posing a serious bird-strike risk to aircraft.
- The presence of flocks on or around airports pose a threat to air safety from collisions with aircrafts flying, taking off and landing, putting the lives of passenger at risk and causing significant damage to property (Blackwell and Bernhardt 2004; Marra et al. 2009).

### Environmental

- Competes with indigenous waterfowl for food and nesting sites.
- Can spread parasites and diseases to other species including stock
- In large flocks, the Canada goose fouls ponds and lakes with its droppings. The resulting increased algal growth reduces water oxygen levels which harms some aquatic animals.

### Social

- Canada geese damage gardens, landscaping, pathways, golf courses, lawns and other grassed areas. The damage is caused by the goose grazing, fouling areas with droppings and by erosion from trampling.
- Accumulation of droppings can cause pathways and grassed areas to become slippery, making them unpleasant for people to use and increasing the risk of falls.
- Accumulations of their droppings pollute water sources used for human consumption and parklands (Castelli and Sleggs 2000; Smith et al. 2000). The droppings are a source of harmful bacteria that can pose a significant health threat to humans.
- Can transmit pathogens in their droppings to humans and waterways (Alderisio and DeLuca 1999; Bönner et al. 2004; Hussong et al. 1979). One of those pathogens is the influenza A virus that can be transmitted from geese to poultry (Bönner et al. 2004; Harris et al. 2010).

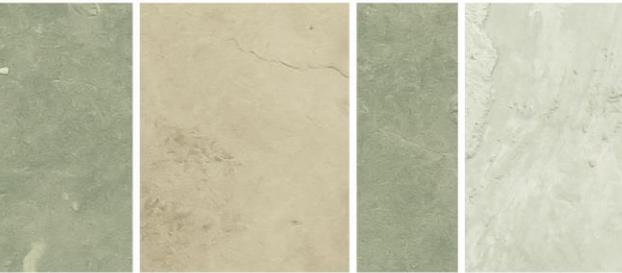


## Legislation

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

Table 2: Current status of the Canada goose 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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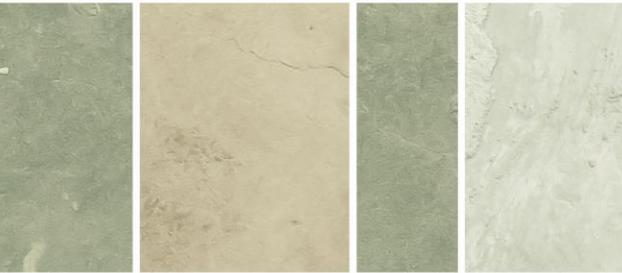
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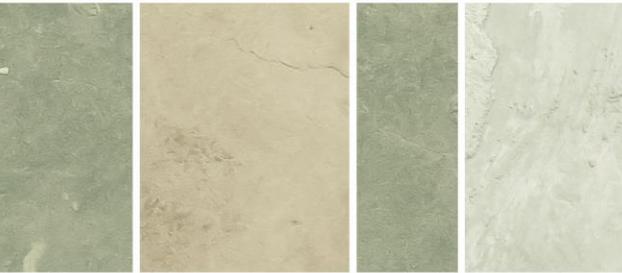
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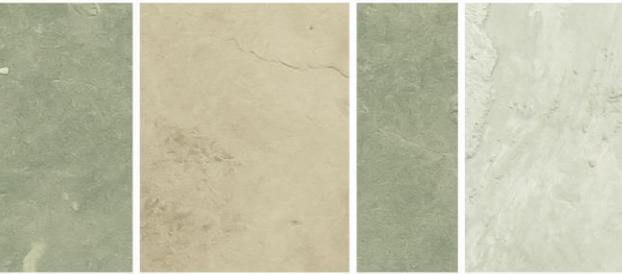
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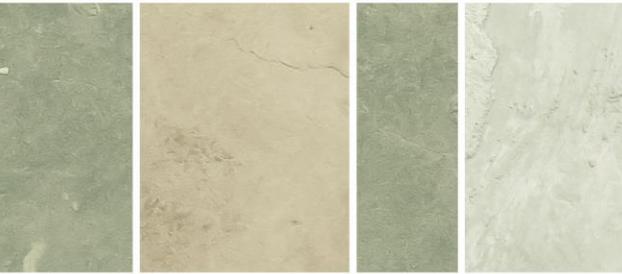


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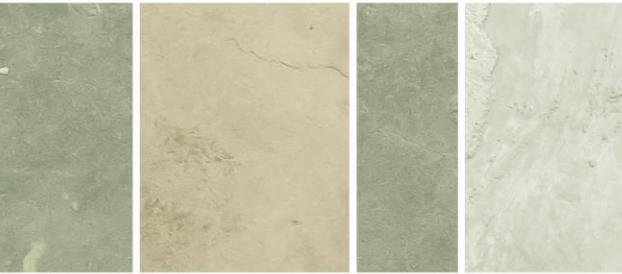
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