

## **Saving the Southern Cassowary** ***Casuarius casuarius johnsonii***

A Case Study for student use prepared by Linda Venn (Paluma Environmental Education Centre, 2013)  
using information from the *Recovery Plan for the southern cassowary* by Peter Latch (2007) and  
*Cassowaries*, a Tropical Topics newsletter (2012)





## Introduction

The southern cassowary *Casuarius casuarius johnsonii* is a large flightless bird found in north Queensland rainforests and associated vegetation types. The name “cassowary” comes from two Papuan words, **kasu** which means **horned**, and **weri** which means **head**. There is only one species of cassowary in Australia.

## Description

The cassowary is the largest native vertebrate in Australian rainforests. An adult cassowary can reach 1.8 metres to 2 metres in height, although most are about 1.5 metres. Females are bigger than males. The largest female cassowary on record weighed 85kg, making it Australia’s largest land animal. Weights of 60kg are not unusual for females with males weighing up to 55kg.

The casque or “helmet” is made up of a tough “skin” over a firm, foam-like material (similar in structure to styrofoam). The shape and markings of every casque are unique and help cassowaries (and their human observers) to recognise individuals. It was once thought that the casque served as a crash helmet when cassowaries were fighting, or running through the forest, but recent research shows that it assists cassowaries in “hearing” the sounds made by other cassowaries.

As well as being able to communicate with sound, the part of the cassowary’s brain that processes smell is very large (as in kiwis) giving them a much keener sense of smell than most modern birds. This probably helps them to locate food more easily in leaf litter and the dense forest. Many birds, including cassowaries, are also able to see ultraviolet light, which is not visible to the human eye. This may help cassowaries to find food in the forest, as many fruits, flowers, and seeds stand out more clearly from their camouflaged background in ultraviolet light.

To protect itself, the cassowary’s foot has three toes, with the inside toe bearing a large dagger-shaped claw. The cassowary’s foot can be up to 18 centimetres long with the middle toe reaching 12 centimetres in length. When threatened, the bird can use its toes as a weapon, jumping up and kicking forward with both feet at once (like a rooster fighting).

## Conservation Status

Cassowary numbers in Australia have declined and scientists fear that the cassowary is a **candidate for extinction**. The Paluma /Mt Spec area is a Priority Cassowary Management Area, identified as having extreme current or potential threats to its cassowary population.

## Role of the Cassowary in the Rainforest ecosystem

Cassowaries are one of only a few **frugivores** (predominantly fruit eaters) that can disperse **large rainforest fruits**. Cassowaries have been recorded as eating over 238 species of plants. Cassowary droppings are a large pile of compost full of seeds. The smell from the pile apparently protects the seeds from other animals such as the Giant white-tailed rat, while keeping the seeds moist. In this way the cassowaries are “rainforest gardeners”, dispersing only those seeds which are useful to them.

## Indigenous peoples and their relationship with cassowaries

Cassowaries were a traditional food for Australian Aborigines. Explorers with the Kennedy expedition of 1848 shot one for food and “the flesh was eaten and found to be delicious; a single leg afforded more substantial food than 10 or 12 hungry men could dispose of at a single meal.”

## Food

Studies have shown some trees provide a lot of fruit but these fruits are low in nutrients. On the other hand, other plants provide much more nutritious fruits but in smaller numbers. The fruit of Lawyer vine (Wait A While) can be vital in times of food shortage. Cassowaries need a variety of plants which fruit at different times of the year. Although they prefer to eat fallen fruit on the ground, cassowaries also eat small vertebrates (like birds, lizards and mice), invertebrates (like snails and insects), fungi, flowers and some dead animals (carrion).

Cassowaries are good swimmers and can cross deep rivers. It is also possible that cassowaries enter the water to go fishing. There is a report of this happening at Mission Beach after Cyclone Winifred. After swimming in the ocean, the cassowary came back to the beach and shook small fish out of its feathers which it then ate. It is quite possible that the cassowary's feathers resemble water weed in which the fish normally hide.

Cassowaries forage for food for about one-third of the day, mainly early morning and late afternoon. Although only a small part of their diet, any protein supplements like small animals may be important additions to the low-nutrient fruits. At times of food shortages some birds eat soil — presumably the soil is a source of minerals. Another theory is that the clay in the soil helps the cassowary's gut process otherwise toxic fruits.



### **Nests and Chicks**

Clutches usually consist of three to five eggs. Each large, pale green egg is laid on the forest floor by the female which then departs, leaving the male cassowary to incubate the eggs for about 50 days, seldom leaving the nest except to drink. The newly hatched chicks are striped black and cream. The male cassowary is very protective of his chicks, and in times of danger the chicks hide under his plumage. The male raises the chicks for a further nine months. Young birds must then seek their own territory, but with limited habitat available, the juvenile mortality (death) rate is probably high.

### **Habitat and distribution**

Cassowaries live mainly in rainforest but many will move into other habitats like woodland, swamp and disturbed habitats at certain times of the year if they contain important sources of food, to ensure a year-round supply of fleshy fruits. Cassowaries prefer the safe cover of a weedy scrub. A mosaic pattern of different vegetation types may provide the ideal habitat for cassowaries.

Historically, cassowaries in the Wet Tropics forests were found between Cooktown in the north, south to Townsville and west to the edge of the rainforest, including the entire rainforest parts of the Atherton Tableland.

- In 1988 the Wet Tropics cassowary population in North Queensland was estimated at between 2500—4000 adult birds
- By 2001, it was estimated at less than 1500

Generally adult cassowaries live in isolation. However, cassowaries will congregate together in times of food shortages, such as in the aftermath of cyclones. Food shortages occur locally in most years, depending on weather patterns, but severe weather events such as cyclones disrupt this pattern. Cassowaries also need to drink frequently and in areas of recent clearing they will cross open paddocks to reach water.

### **Threats to the Cassowary's survival in the Wet Tropics**

1. **Clearing of the forest causing habitat loss and habitat fragmentation.** The biggest threat of extinction comes from loss of habitat and isolation of the cassowary in small fragments of forest. Human activity like farming and housing has had its greatest impact on cassowaries by isolating them in forest "islands".
2. **The invasion of the forest by feral plants and animals and the changed use of fire causing habitat degradation.** Logging and disturbance to rainforest degrades habitat by decreasing shelter, breeding sites and food sources. Feral pigs are a major Wet Tropics pest and destroy nests and eggs but their worst effect is as food competitors. Pigs also degrade water quality by wallowing and rooting around watercourses.
3. **Road kill** Roads cut through cassowary habitat making it necessary for the birds to travel across the road looking for food.
4. **Dog attacks:** An adult cassowary can usually get the better of a single dog but young cassowaries are especially at risk and even older birds can be beaten by packs of dogs. Dogs also chase the birds away from potential food sources.

5. **People feeding cassowaries:** Feeding cassowaries brings them closer to traffic and dogs. Hand-feeding of cassowaries is a risk to both birds and humans but despite being illegal people still feed them. The Queensland Parks and Wildlife Service has established protocols (rules) for people wishing to feed cassowaries legally after extreme weather events like cyclones.
6. **Natural predators** of cassowaries include crocodiles, pythons, dingos, and quolls, however, these predators have a small impact when compared with threats introduced over the last two hundred years.
7. **Diseases:** There are growing concerns that diseases are being spread to cassowaries from domestic animals. Much research is needed to provide scientific information on this new threat.
8. **Natural catastrophic events e.g. cyclones. Cyclone damage brings together many of the other threats to cassowary survival.** Cassowary road deaths increased dramatically after cyclones *Larry* (2006) and *Yasi* (2011) as cassowaries moved around more in search of food. Cyclones destroy food trees and fallen timber makes it very difficult for cassowaries to move through the forest, often forcing them to walk down roads. Disturbed areas of forest are more susceptible to fires and weed invasion, potentially placing habitat at further risk of degradation.

### A Summary of the Recovery Plan for the Southern Cassowary (2007)

A "recovery plan" has been written for the Southern Cassowary, and was updated after Cyclone *Larry*.

The overall objective of this recovery plan is to protect cassowaries, their habitats and corridors from threats. The following recovery actions have been identified, but not all have been fully funded.

- Map essential cassowary habitat and identify areas to protect. Revegetation projects can assist restoration by creating "wildlife corridors" of forest, allowing the cassowary to travel between fragments of forest.
- Develop Cassowary Conservation Plans as part of local town planning for new suburbs in cassowary habitat.
- Minimise cassowary road deaths e.g. at Mission Beach, road deaths were reduced through the efforts of the local community and conservation groups. Strategies included reduced speed limits, media releases asking motorists to reduce their speeds and road signs warning of recent cassowary road crossings.
- Control feral pig numbers in the Wet Tropics rainforest.
- Control roaming dogs near residential areas and educate the community on responsible pet ownership.
- Implement a cassowary relocation plan as part of rescue and rehabilitation, especially after cyclones.
- Research cassowary population numbers and their genetic structure (DNA).
- Involve the community in cassowary conservation.



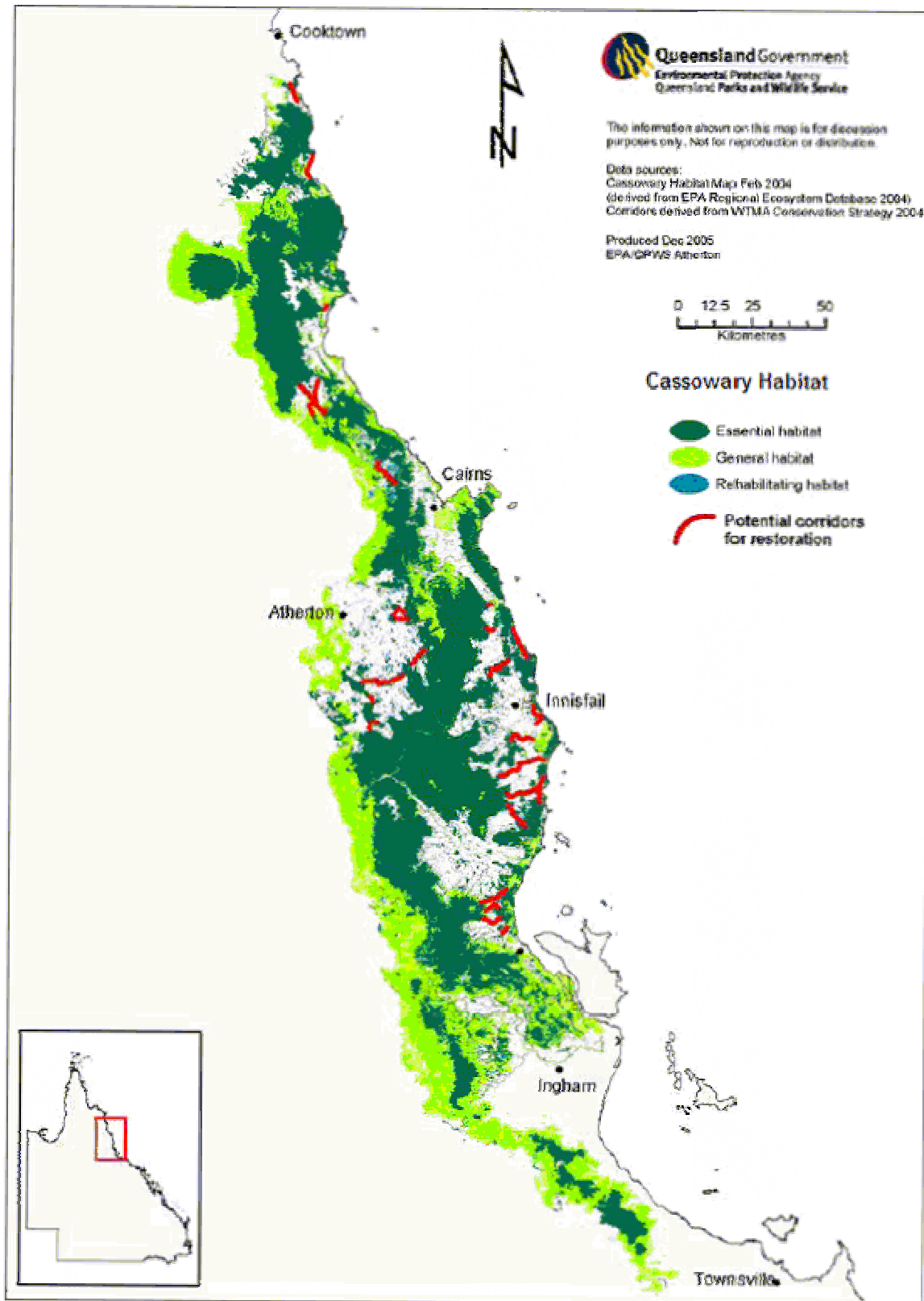


Figure 2: Distribution of cassowary habitat in the Wet Tropics