

The preservation and conservation of the Southern Cassowary's habitat

The Southern Cassowary, most commonly found in Northern Queensland, was registered as an endangered species under the Environment Protection and Biodiversity Conservation Act (EPBC) in 1999. Since then, campaigns have been undertaken, namely the Save the Cassowary Campaign led by Rainforest Rescue, to preserve the cassowary's vital role in the tropical rainforest ecosystem. It is a 'keystone' species of the Daintree rainforest and if no action was taken, the species would become extinct, degrading the ecosystem with sizable effects. Science as a Human Endeavor (SHE) concepts such as Collaboration and Communication, Influence and Development have been a significant part of the cassowary's ongoing preservation.

The Southern Cassowary (*Casuarius casuarius*) is the third largest existent flightless bird in the world dwelling in the wet tropics (Department of the Environment, 2019). They are primarily frugivorous but have been known to feed on smaller mammals and insects when their general diet might have been affected by a cyclone for example, therefore they do have a diverse food variety. The significant part of the cassowary's position as a 1st order consumer in the food web is the distribution of over 150 species of plant through consumption. The cassowary eats fruit off a plant at one location and can travel up to 150km before defecating at another location, spreading the seeds far and wide throughout its habitat. Furthermore, the cassowary's digestive tract is specialized in such a way that the seeds remain unharmed, germinating some species, preventing fruit fly infestation and increasing the quality of growth for the seedling. See for the complete listing of [Cassowary Food Trees](#) (attached: Kooyman, R.M.) This interconnection in the food web makes the cassowary a 'keystone' species in conservation of the rainforest ecosystem but it is mostly threatened by; habitat loss, vehicle strikes and feral animal attacks. Deforestation is a major concern for the cassowary's habitat along with degradation and fragmentation also becoming issues. Roads are not only directly linked to cassowary fatalities as road kill but also fragment their frail habitat by imposing their common movement patterns. Whilst both feral pigs and dogs attack cassowaries, the former is more detrimental by also eating the eggs and disturbing the frail rainforest habitat ecosystem.



Figure 1 A cassowary caught on camera lured to the site by fake fruit (McLean, 2016)

Wren. R. McClean (2016) conducted a study using what she called the ‘camera trap lure visual technique’ to identify individuals, survey the population size and for a dietary analysis of dung or scat (McClean, 2016). Additionally, half of the 31 study sites were equipped with vivid coloured lures in the shape of fruits. You can see in Figure 1 a cassowary lured to these fake fruits and caught on camera using this technique. The development of this new camera trap technology, which Rainforest Rescue loaned for their experiment, were widely successful and the first time being used to survey the cassowaries. Since cassowaries are solitary and shy creatures, this influenced the technique of the fake fruit lures which was the first time the technology had been used in combination with camera traps. The development of this technique not only reduced the duration of time until the first sighting by approximately 5 days, but also detected twice as many sightings with the cassowaries being twice as likely to stop at the sites with lures (this is in relation to those without the lures). Having each one spend more time at the sites was vital in providing various angles of the cassowary necessary for individual identification. Furthermore, the dietary analysis contained information as to what is most commonly eaten by a cassowary, what its lean and abundant diet contain and the difference between the two. Five specific species were identified as 87.2% of the total biomass of fruit eaten and were to be recommended to seed collectors, rainforest regenerators and native nurseries as requiring special attention. See Table 1 for complete findings of the four Rainforest Rescue reserves.

Table 1 Complete findings at the four Rainforest Rescue reserve sites (McClean, 2016)

Reserve Name	Findings
Rainforest Rescue Nature Reserve at Forest Creek	An adult and two stripy chicks were videoed on one occasion and several scats were found.
Milky Pine Wildlife Refuge	Two courting adults were videoed on numerous occasions along with one independent sub-adult. Scats, footprints and one sighting of this sub-adult were recorded here also.
Baralba Corridor Nature Refuge	Prime cassowary habitat with 2 single adults and one male with accompanying brown chick photographed. Numerous sightings and vocalisations were recorded along with many scats.
Kulki anga Nature Reserve	Only one scat was found here on the edge of the reserve, but the property protects important cassowary habitat that is undoubtedly used throughout the year but a number of resident birds in the area.

Two other small campaigns were run by the Rainforest Rescue with collaboration and communication to raise awareness while also addressing issues. While it was only small, Rainforest Rescue worked in collaboration with BioCup to release a biodegradable coffee cup with cassowary printing (see Figure 2) to generate awareness of Save the Cassowary campaign (Save the Cassowary, 2014). It was successful with 20% of all profit going towards Rainforest Rescue’s scientific research and restoration and conservation of the rainforest habitat. In their work in habitat restoration, Rainforest Rescue encountered two significant problems: dumping of old tyres and illegal vehicle access. These issues influenced the collaboration and communication between Rainforest Rescue and Bridgestone, where a resolution was found. They used new technology to convert old tyres into bollards (see Figure 3) to restrict access into the reserve, both recycling the rubber and preventing entry (Rainforest Rescue, 2017). This was yet another successful program in which the problem was resolved with little impact on the ecosystem or the aesthetics of the environment. Furthermore, an ongoing project run by Rainforest Rescue is the planting of trees through donations, allowing the public to donate to fund the planting of a tree revitalising the cassowary’s habitat. This is very successful strategy as it allows a special personal connection to be formed in contributing to preservation of the Daintree.



Figure 2 The Save the Cassowary BioCup (BioPak, 2014)

Overall, with Rainforest Rescue's ongoing contribution, the cassowary's habitat is being preserved and the population of this keystone species is increasing. Joe Reichl, the Daintree Land Manager, recently celebrated the first cassowary sighting south of the Daintree River in 40 years. He said, "This is proof restoration (planting trees) really works for wildlife!" emphasizing the success of Rainforest Rescue's commitment (Rainforest Rescue, 2018). With this information, it is expected that the Southern cassowary population will only continue to grow as its habitat is restored. Personally, I think the techniques they are putting into place and the amount of effort they put in is enormous and it is a vitally important issue for the entire rainforest ecosystem in the Daintree. With this continued commitment, it would appear from an outside perspective that the cassowary will be saved.



Figure 3 Bollards made from recycled old tyres in the Daintree Rainforest (Bridgestone Tyres, 2017)

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