



Image courtesy of Liz Gallie

Southern Cassowary,
Casuarius casuarius johnsonii

Cassowary Summit proceedings

8 - 9 September 2009



Introductory message

Thank you to everyone who participated in the 2009 Cassowary Summit. It was fantastic to see such a diverse community committed to the conservation of this endangered species. It gives a lot of hope for the cassowary's future when farmers, scientists, Traditional Owners, zoo curators, tourist operators and infrastructure agencies are so willing to work together and share information.

The summit represents two things that the Wet Tropics Management Authority think very important.

First, our belief is success in protection of the Wet Tropics World Heritage Area and its surrounding landscape depends on strong connections between the rainforests and regional communities. The cassowary is a stunning symbol of the Wet Tropics rainforests. It captures our imagination so helps us achieve that connection.

Second, we believe that effective conservation programs require contributions from scientists, from policy makers and from community organisations all working in close collaboration.

These proceedings are a record of the summit, including a public forum and a scientific workshop. Many important issues were raised during the summit and perhaps these were aptly summarised by children from Trinity Anglican School in their delightful play, *Plight of the Cassowary*. The intimate connection between rainforest habitat and cassowary conservation was highlighted during the play:

*Protecting the rainforest must be our aim,
for the cassowary to live happily again.*

Everyone at the summit agreed on the need for urgent action. The Authority will be working with the Cassowary Recovery Team to seek long term funding and community support for cassowary conservation and research.

The summit and these proceedings provide a useful stepping stone to promote further investment in planting cassowary corridors, decreasing deaths from traffic and dogs, and promoting further research into cassowary populations and threats to their survival.



Andrew Maclean

WTMA Executive Director

Chair, Cassowary Recovery Team

Contents



Introductory message	2
Contents	3
Poem: <i>Plight of the Cassowary</i>	5
Key messages from the summit	7
Keynote address: Cassowaries in the Papua New Guinea rainforests	8
Overview of presentations: What we know about cassowaries, who values cassowaries and how the community contributes to cassowary management?	12
Highlights of the Q&A Public Forum	25
Communiqué from the Research Workshop	30
Additional readings	32
Abbreviations and acronyms	35

Selected passages of this document may be reproduced for such purposes including study, research, news reporting, criticism or review provided acknowledgement of the source is included. Selections must be used in their entirety with no alterations.

Published by the Wet Tropics Management Authority. PO Box 2050 Cairns, Queensland, Australia 4870. This publication should be cited as: Wet Tropics Management Authority (WTMA) 2010. *Cassowary Summit Proceedings*, WTMA, Cairns.



Opinions expressed in the Cassowary Summit proceedings are not necessarily those of the Authority, Australian and Queensland Governments. The Authority can not accept responsibility for any errors and omissions.

This publication including full presentations can be downloaded from the website at:

www.wettropics.gov.au/wwc/wwc_cassummit.html



Images © WTMA and Liz Gallie

Acknowledgements and thanks

The 2009 Cassowary Summit, held at the Tanks Art Centre on 8 September 2009 was organised by the Wet Tropics Management Authority and the Cassowary Recovery Team and with support from the Reef and Rainforest Research Centre (RRRC) and the Cairns Regional Council.

Thank you to everyone who attended the summit and to the numerous supporters.

The WTMA steering committee for the summit included Ellen Weber, Stacey Henry, Lana Lopatich, Julia Cooper and M'Lis Flynn.



The Plight of the Cassowary



(written by Dianne Daniels and Year 4 and 5 students, Trinity Anglican School, Kewarra Beach, Cairns)

The cassowary is an interesting bird
with a casque on its head it looks quite absurd
It has small wings but cannot fly
and is usually taller than you or I

There are two wattles on its neck
which is quite blue with a bright pink fleck
it has two strong legs and three long toes
one of its nails just grows and grows

The male cassowary looks after the chicks
protecting them and teaching them tricks
of how to survive and look for food
until they are ready to start their own brood

Now cassowaries like the rainforest where they walk about
eat fruit and then have a rest
they've lived there for hundreds of years
bringing up their young without any fears

Eating fruit from the trees
spreading the rainforest with ease
but times have changed and things are not nice
for the cassowary who lives in a tropical paradise

Humans have come and invaded their home
their rainforest habitat where once they did roam
trees are being cut down every day
making it hard for the cassowary to stay

Hidden away and out of sight
free from harm day and night
roads and houses now cross their tracks
bringing cars and dogs and this all impacts

On the cassowaries life which was full of delight
but now is in a terrible plight
their numbers are dwindling at an alarming rate
will they become extinct? Is that their fate?



The rainforest will suffer when they are gone
when there's no seeds scattered will the trees still live on?
and the other animals who depend on those trees
will they become extinct? With the same sort of ease

The possums, snakes, birds and frogs
who need the trees and rotting logs
the butterflies, moths, musky rat kangaroos
these are the animals it would be sad to loose

So who will save them what can we do
does anybody care about the few
cassowaries that are left upon this land
is anybody willing to lend a hand?

To protect this icon from its inevitable fate
lets get together before its too late
protecting the rainforest must be our aim
for the cassowary to live happily again

No more building amongst the trees
or clearing for roads if you please
take care when driving to and fro
along the roads where cassowaries go

Do not take dogs into a cassowary's habitat
for if you do there's no chance
of coming back
for a cassowary in a dog attack

And last but not least let's plant more trees
that bear the fruit that we know will please
the beautiful cassowary so strong and tall
an important icon known to one and all.



Key messages



The Authority, in collaboration with the Cassowary Recovery Team, hosted a Cassowary Summit on 8 September 2009. Over 250 individuals representing science, tourism, conservation, education, Indigenous, community and government interests attended. The summit activities included a conference, a Q&A forum and a community festival.

The summit provided an opportunity celebrate cassowary country and to raise community awareness about the importance of protecting cassowaries. At the Q&A forum participants were invited to discuss and share views on how best to protect the cassowary; to share knowledge regarding social, environmental and cultural values of the cassowary and to show individuals how they can contribute to cassowary conservation.

The summit conveyed a number of strong messages by participants which included:

1. It is not known if the Wet Tropics and Cape York Peninsula cassowary populations are stable, increasing or decreasing
2. Little is known about the life history of the cassowary, even though it is an iconic species with World Heritage values in the Wet Tropics
3. Traditional Owners of the Wet Tropics have strong connections to the cassowary and the species is very important to their well-being and culture. Traditional Owners want to be involved in decision-making relating to the cassowary and to participate in cassowary research
4. The regional community values the cassowary and it is important to involve them in cassowary conservation to ensure their continued support and to capitalise on their energy and knowledge
5. The tourism industry regards the cassowary as a wildlife icon for the Wet Tropics. Seeing a cassowary in the wild (which is usually next to a road) enhances the experience of visitors to the region while cassowaries presented in zoos provide educational and interpretive opportunities
6. Cassowaries need habitat. However, current Commonwealth and State Planning instruments do not adequately protect cassowary habitat from clearing or fragmentation
7. Captive breeding is not a high priority for cassowary conservation at the present time, although captive cassowary exhibits in zoos may contribute to community awareness of the *in-situ* conservation needs of the species

On the day following the summit, the Authority convened an expert workshop for an exchange of perspectives regarding cassowary monitoring, science and research priorities. A group of 25 scientists, land managers and cassowary conservation advocates were invited to discuss the issue of what population and habitat indicators should we monitor for tracking Cassowary recovery? The group prepared a communiqué identifying priority actions for decision makers (see page 30). The group also discussed broader conservation approaches and actions to mobilise support for the government and the community to explore pathways to plan a future for the cassowary. These align with the Cassowary Recovery Plan. The group stressed the need for Commonwealth and State government commitment to implementing the recovery plan and congratulated the Authority in their support for facilitating the re-establishing the Cassowary Recovery Team to implement the Recovery Plan.

Keynote Address

Cassowaries in the Papua New Guinea rainforests

Dr Andy Mack and Dr Debra Wright

Carnegie Museum of Natural History, Powdermill Nature Reserve, Pennsylvania, USA.

Andrew Mack has studied cassowaries for twenty years in Papua New Guinea, particularly the dwarf cassowary and its role as a seed dispersal agent. He has worked for Conservation International and the Wildlife Conservation Society building conservation programs in Papua New Guinea. His research has spanned rainforest ecology, plant-animal interactions, biogeography, avian systematics and conservation biology in more than 45 publications. His PhD is from the University of Miami (1995). He was Collections Manager of birds at the Academy of Natural Sciences in Philadelphia prior to his studies of cassowaries and worked extensively in the neotropics.

Debra Wright worked for 20 years in Papua New Guinea (PNG) first as an independent researcher studying cassowaries and rainforest ecology and organizing and conducting biodiversity surveys, and then as co-Director of the Wildlife Conservation Society's PNG Program. The latter work included fund raising, logistics, accounting and reporting, and mentoring and training of graduate students working on various research projects. She has experience teaching professionals and university students project design, field techniques for mammals, birds and plants, data analysis, technical and proposal writing, and oral presentations. She is a co-founder and board member of the PNG Institute of Biological Research, which focuses on research and the training of PNG national biologists.

Cassowaries are enigmas of the rainforest. They can slip away unseen, often their footprints and scats are the only sign that they are about. Cassowaries are the largest birds in the rainforest, the third largest bird in the world and it is a specialist frugivore. This is a very large animal to eat only fruit. We know there are good robust populations in PNG and it has been a great opportunity to be able to study them in this environment.

Humans have long been fascinated with cassowaries. Even in the early 1700s cassowary illustrations from this part of the world were recorded. It wasn't until the late 1800s when ships started bringing live cassowaries back to Europe that people began to get a real idea of their colours or postures. Early illustrators could capture these details well in their works, but the animals were depicted in open country, like where you would expect to see an emu or an ostrich. It wasn't understood that they were rainforest specialists.

Cassowaries are a key feature of cultural lore, diet and traditional dress in PNG. Cassowary feathers are commonly used for adornment and for special celebrations. There are around 800 separate language groups and each one of those groups has its own sort of core sets of beliefs and traditions and stories, dances and songs. Cassowaries figure very strongly in almost all language groups except for some of the smaller islands that naturally don't have cassowaries.

There are three different species in New Guinea. The single-wattled cassowary (*Casuarius unappendiculatus*) is found in the northern lowlands and their distribution is not well known. The southern or double-wattled cassowary (*Casuarius casuarius*) lives in the lowlands of southern New Guinea and its distribution may overlap with the single-wattled in the Vogelkop. The southern cassowary is the largest of the three species reaching 50kg and it is the best studied because it has been studied in Australia where some populations have been habituated to human observers. It has the largest casque. Although being well-studied, much remains elusive about cassowaries, and despite their size, they slip into shadows and disappear upon the approach of a clumsy ornithologist.

The southern cassowary is found in the Wet Tropics and Cape York Peninsula. Its distribution is much more



widespread in PNG which regarded as the robust core of the population. Some of the threats that are in PNG are quite different to the threats in Australia, so comprehensive management and conservation for this species needs to be considered differently in each country.

The smallest of the three species, the dwarf cassowary (*Casuarius bennetti*), occurs mainly in the central montane ranges in New Guinea above 300m elevation. Though the smallest, it is still a fairly hefty bird at around 25kg. Unlike the other two species it lacks a wattle and its casque is the smallest of the three species.

The cassowary casque is very interesting. It is not used to bash through the forest with and they are not digging leaf litter with them. I suggest it may have something to do with sound reception. On the museum specimens I have observed, the inside of the casque is spongy, and it connects to the ear canals. It may be possible the casque assists in sound reception of low frequency cassowary vocalisations.

In Australia some individual birds have become habituated towards humans. In PNG, as soon as a cassowary sees a person then they flee and it is difficult to get direct observations. More studies are needed to learn about their habitats and their resource needs as fruit availability changes, where they go, for example, during a cyclone and where do they move to find food.

Much of our research in PNG has dealt with studying seed dispersal. Our research showed that cassowaries are keystone species and are solely responsible for dispersal of roughly 12% of tree species in our study area. Seed dispersal by cassowaries imparts significant fitness advantages relative to un-dispersed seeds. Loss of cassowaries will lead to substantial floristic changes through time. Cassowary diet changes over the course of a year and among years, tracking fruit availability. Cassowaries are true obligate frugivores with a diet of over 98% fruit pulp. There are lean periods of food availability even under ever wet, aseasonal conditions. In lean periods birds survive either by fasting or emigrating to elevations with greater fruit availability.

Cassowaries have an amazingly fast gut transit rate and there are some really interesting things to learn about digestive physiology in these birds. This may be due to high sugar content in the fruits that they are eating and they don't need to absorb all that sugar. They have a mechanism for extracting amino acids and proteins that are much harder to get so they need to process a lot of fruit. The benefit of this is that minimal damage occurs to the seeds going through the bird. If you compare seed viability in a fresh fruit and then feed them to a cassowary and they come out, you obtain identical germination rates. Previous research suggested that passage through an animal would enhance germination or survivorship in seeds, but doesn't really happen like that. There may be some effect by removing pulp from a seed that there be fewer fungal elements that will attack that seed so there might be a slight advantage to the plant but in terms of what plants are gaining by feeding cassowaries it isn't that gut transit improves the survivorship of their seeds. There is something else going on.

One of the questions I was interested in was how far seeds were being moved. This is a key issue for forest regeneration and forest ecology. We see a bird eat a seed, they leave, where do they go? Where do they drop that seed? Were do they regurgitate it or defecate it? Using some novel techniques with temperature data loggers we measured exactly how long food remains inside the gut of a bird and how far the food is moved. We found that while passage through the gut was fast, some scats were being re-ingested by birds at night. The birds completely clear the gut out when they set up their nest for the night, and then they may pick some things out of its first scat and put them through the gut again and it will come out the second time.

Another trial we conducted included marking seeds under fallen trees and measuring distance move. In one species, seeds were being dispersed between 400m-1km from the parent tree. So that gives you an idea of the movements of the bird on a daily basis, time of gut transit, which certainly can be longer than the 45 minutes. We estimate that dwarf cassowaries were staying within a home area radius of a half a kilometre. They can swim so rivers aren't necessarily barriers to movements of their genes or their seed dispersal.

Cassowaries do not randomly move seeds around in the landscape. We observed that all the birds in our study area moved seeds uphill. This makes sense when you consider their nesting behaviour in the evenings, where they move up the drier parts of the ridge and settle for the night. Remember, that's also where they are clearing their guts. We had already recorded droppings near their nests, whereas during the day where they defecate is scattered around various places. We think this is very important in the long term ecology of forests. It is not one that people think about often in conservation.

We reported higher levels of survivorship in the seeds dispersed uphill. This is an important point, and does not just apply for cassowaries, but for any plant in mountainous terrain that is dependant on frugivores for dispersal. A lot of things are wind dispersed and so move uphill or downhill, almost every plant has some mechanism for dispersal whether its wind or mammals, bats or birds. I think that a big part of that is that you have gravity everywhere as well; seeds have got to get moved back uphill.

Cassowaries need to eat everyday. They consume a broad suite of fruit and this has implications for management and conservation. Other work on fruit availability showed that in lean seasons, birds would leave the area to find fruit elsewhere. Our scat research shows that between 92-95% of their diet is fruit. We recorded 192 species of fruit in 855 scats. In one study, seven plant families comprised 50% of their diet. Because they are big, they can eat any fruit in the forest and they disperse lots of seeds. Of the species in our area, about 12% are too large for anything else to disperse.

Cassowary droppings on transects changes from month to month, so we found that absolute counts of cassowary droppings is not a measure of estimated population. Depending on fruit availability you may find up to a doubling in the number of droppings your finding. However, bird numbers did not change. It is just that there was more fruit available; birds are eating more and they are defecating more.

How we census cassowary populations is a big issue. This is very hard to find out, given that counting scats isn't a reliable method. It's also hard to find and monitor cassowaries visually. We have trialed a number of methods, including camera traps, but in dense rainforest it is difficult to obtain good images.

In evolutionary terms, the sisters of cassowaries are emus. We sequenced DNA from a number of cassowary specimens around the world and were surprised at how little differentiation there is in all the populations. The first evolutionary trees were all unresolved, suggesting one big pan-mictic population. It is important to conduct research to determine is their population sizes, and to measure how far genes are moving around the landscape. Data from mitochondrial DNA shows two fairly distinct clades of *C. casuarius* in New Guinea, but Australian birds do not seem to be very distinct genetically. Given the fairly recent connection across the Torres Straits, one might not expect strong differentiation between Australian and New Guinean populations. Some evidence suggests hybridization between the species. More data, particularly from nuclear genes, are needed.



Through my work I have realized that conservation of species requires scientists to work with many different people. We may work at one level to get the legislators to compel people through legislation to do something differently or voluntarily. I believe conservation means that we work with people towards changing behaviours. I can continue to do my science and collect more statistical data, but until someone changes what they are doing you don't have conservation. Science is not enough.

As in Australia, cassowaries are important cultural icons. But unlike Australia, cassowaries are heavily hunted by many people as a food staple. Many cassowaries are hunted in PNG as an important protein resource. In one of our studies we measured 700 skulls. We found that many small birds are eaten and that cassowaries accounted for about a quarter of the meat eaten. I suggest that this is above what you would estimate as a sustainable yield in our study area and they are under a threat from hunting and consumption.

Logging presents a threat in New Guinea, but roads and fragmentation are less significant threats than in Queensland. Cassowaries can be secretive and difficult to study in PNG because they are so heavily hunted. New developments in bio-monitoring technologies might help.



Dr Debra Wright, Member for Barron River Steve Wettenhall MP, WTMA Board Director Dr Alastair Birtles and Dr Andy Mack.

Presentation abstracts

Cassowaries in Australia – what we know and what we need to know

Dr David Westcott

Commonwealth Scientific Industry Research Organisation (CSIRO)

David Westcott is a tropical ecologist whose research focuses on frugivorous (fruit-eating) birds and mammals. His research has included the evolution of mating systems and communication systems in birds, describing seed dispersal by tropical frugivores, and the application of this knowledge to weed management. A long-term interest has been the development of the ecological understanding and methodologies needed to manage rainforest frugivores, particularly the spectacled flying-fox and the southern cassowary.

Cassowaries have been the focus of conservation concern and of conservation effort for decades. Over this time we have seen them listed as endangered and two Recovery Plans have been produced to guide their management. As a consequence, it might be expected that we have a good understanding of the species and its ecology. Even more importantly, it might be expected that we have a good handle on population sizes, trends and the species management needs. In this talk I briefly review our knowledge of the cassowary in Australia and consider the state of our understanding, particularly in the context of the species management needs. I identify priority needs and consider the context in which cassowary management should be conducted.



Cassowary researcher, Dr David Westcott and Djiru Traditional Owner, Leonard Andy.



Cassowary diseases and other threats encountered by a cassowary veterinarian

Dr Graham Lauridsen

Innisfail/Tully Vet Surgery

Graham Lauridsen was born and raised at Bellenden Ker in Tropical North Queensland through to his High School years, Graham spent just enough time in the south of the state to gain his Degree in Veterinary Science. He moved to Tully in January 1996. He has since enjoyed the great and varied caseload of both small and large domestic animals as well as a plethora of sick and injured native species – including the fascinating cassowary.

Graham has treated over 100 individual cassowaries throughout North Queensland. He is keen to increase and share his knowledge base of cassowary medicine, surgery and care, with anybody of like mind.

Cassowaries in the wet tropics face a number of threats to their survival. Some are as a result of human interaction while disease, parasites and other problems can also have an influence on cassowary health.

This discussion will centre on the threats encountered over the last 13 years by our veterinarians in the southern Wet Tropics area. Vehicle strikes and dog attacks are the two main reasons that we are called on to treat cassowaries. I will discuss some of the main points encountered in these cases and how we may be able to address some of these issues going forward.

Natural disease amongst cassowaries is also a point of concern. Diseases most frequently encountered include avian tuberculosis and gastro-intestinal parasites. Accidents and misadventure are also encountered and this will be discussed briefly as well. Lessons have been learnt regarding the treatment of fractures, bacterial disease, parasites and the care and management of sick or injured cassowaries. These will be shared with the audience.

Some thoughts on how we as veterinarians may be able to help these threatened species into the future are also discussed.

Indigenous values of cassowary

Mr Claude Beeron, Mr Ernie Raymont, Pastor John Andy and Mr Leonard Andy

Girramay Traditional Owner, Ngadon Traditional Owner and Djiru Traditional Owners

Claude Beeron is an elder and Traditional Owner of the Girramay people. Claude's strong connection to the southern cassowary dates back to times he spent on country with his father learning Girramay culture and in particular about the feeding habits, seasons, behaviours and environments of cassowaries.

Pastor John Andy has been the chairperson of the Giringun Aboriginal Corporation for five years and for many more years has had a strong profile across both the Aboriginal and religious communities. As a Djiru Traditional Owner from the Mission Beach area, John has grave concerns for the future of the cassowary and for the aspirations of the Djiru people.

Leonard Andy is a well known Djiru man who lives in the heart of his traditional country at Mission Beach. Leonard has strong love of and traditional connection to the cassowary and is well known for his artworks featuring the cassowary. Leonard has remained committed to educating others about the importance of cassowaries to the living landscape of the Wet Tropics and its peoples and is a vital member on C4 and the Mission Beach Habitat Network Plan committee.

With extensive experience working in the rainforests of the Wet Tropics as a community liaison officer, ranger and tour guide, Ngadjon Traditional Owner Ernie Raymont is passionate about the future of the cassowary. Over the years he has lived and worked on the Tablelands, Ernie has seen first hand the impact of urbanisation and forest fragmentation on species such as the cassowary. Ernie continues to educate others about Ngadjon culture and important Wet Tropics plants and animals through his tour guiding on Ngadjon country.

Traditional Owners of the Wet Tropics and some regions in Cape York have for time immemorial understood the cassowary to be an integral and necessary part of their traditional living landscape. The cassowary is at the heart of many Wet Tropics Aboriginal stories, it forms part of ceremonies and dances, and it was an important food source for some groups. Of the more than 18 tribal groups of the Wet Tropics and Cape York regions, many consider the cassowary as a key stone species which enables the Wet Tropics to remain in balance.

Traditional Owners have witnessed the impact of decreasing cassowary numbers, and reduced cassowary habitat evident in decreased plant diversity, changes in cassowary behaviour patterns and the onset of unusual health conditions for the cassowary. At the 2009 Cassowary Summit Traditional Owners who are presenting, hope to instill in participants the absolute importance of the cassowary to all Aboriginal people of this region and to offer several strong recommendations requiring action.



Traditional Owners Mr Claude Beeron, Mr Ernie Raymont, Pastor John Andy and Mr Leonard Andy



Mobilizing community effort to secure cassowaries and biodiversity

Dr Allan Dale

Terrain NRM

Allan Dale is CEO for the community-based Regional Natural Resource Management (NRM) Body for Queensland's Wet Tropics. He grew up in the northern section of the Wet Tropics, and has returned home with his young family after some 15 years tied up in senior research and policy roles that involve the protection of biodiversity. Allan believes we all value biodiversity, but that we now all need to wear those values on our sleeves. If we do so, society can finally decide upon a common direction and the priority actions needed. Only then can we mobilise the efforts needed of everyone if our region's biodiversity is to be secured. Ultimately, he believes economic reform is the key, and that such reform is now more possible than ever before in history.

Terrain NRM is the regional NRM body of the Wet Tropics. In Queensland these bodies are community-based not for profits with a very wide membership base. Part of their role is to secure regional wide consensus about the targets needed to secure critical natural assets such as biodiversity. Their key role, however, is to help mobilize regional, state, national and international effort towards the achievement of those targets. As facilitators of the region's NRM Plan, we can clearly state that biodiversity values are continuing to decline in the Wet Tropics region, despite high levels of regulated landscape protection. Cassowaries in particular face a raft of new pressures in key locations. To halt this decline, national scale economic reforms are required, as much as local scale planning and the mobilization of community effort. This talk discusses Terrain's efforts to secure the region's biodiversity and at both of these scales.

Cassowary recovery or extinction

Ms Liz Gallie

Community for Coastal and Cassowary Conservation (C4)

Artist Liz Gallie has been resident at Mission Beach for 35 years and lives in a house beneath the canopy of the rainforest at Bingil Bay. Here she has been able to observe the behavior of the individual cassowaries that forage through her block. She has watched the special values at Mission Beach being eroded with each development boom. The current growth is resulting in large amounts of essential cassowary habitat being destroyed for residential development. Liz works with the local group the Community for Coastal and Cassowary Conservation (C4) and has turned her artistic talent away from the unique jewellery she is known for, to photography and graphics in an effort to raise awareness of the dire situation facing the endangered cassowary at Mission Beach.

Everyone knows Lot 66 at Mission Beach is a really important block of land and that currently there is a new development application in for it. There have been countless plans done over the last 20 years and hundreds of thousands of dollars spent in the name of the cassowary in that time. There are more plans and more money being spent right now and even though a lot of work is being done the threats to cassowaries continue to increase. 40% of habitat at Mission Beach is unprotected. Current planning scheme allows for 18,000 people at Mission Beach. If that happens, there will be no cassowaries. We are concerned that the responsible agencies have done little to slow traffic down. By the time any plan is in place, it will be too late, we need action now. We need funds for voluntary buyback and planning scheme amendments that protect cassowary habitat (or backzoning and compensation). We need substantial funds for voluntary conservation agreement.

Will we be hanging our heads in shame knowing we are the generation that allowed the cassowary to slip into extinction?



Mr Greg Watson from Cairns Tropical Zoo promotes their environmental activities..



Exploring the relationship between the cassowary and the tourism industry

Mr Terry Carmicheal

Rainforest Habitat

Terry Carmichael has worked as a professional zoo curator for 29 years in Brisbane, Sydney Cairns and Port Douglas. Terry is interested in all aspects of natural history and has a passion for bushwalking which has taken him into some remote wilderness areas of Australia. He has bushwalked extensively through the Wet Tropics. His interest in environmental interpretation saw him teach part of the tourism guiding course at Mossman TAFE for four years. Terry sat on the Cassowary Advisory Group for four years and has been a member of the WTMA's Tourism Industry Liaison Group for over ten years. He was also been actively involved in the zoo industry and sat as vice president for the states zoo industry association for five years.

This presentation explores the relationship between the tourism industry and the cassowary. It will try and answer some questions like: What does the cassowary mean to the Far North's Tourism Industry? Why do visitors have such a fascination for the cassowary? Does the cassowary bring visitors into Far North Queensland? Why do tourist operators use the cassowary image so extensively to sell their products? Are national and international tourists aware of the cassowary before visiting FNQ?

Most importantly the paper discusses the responsibilities of the Tourism Industry in disseminating current, accurate and relevant information about cassowaries. Through this advocacy for the cassowary the Tourism Industry can help visitors make informed decisions on playing an active role to help conserve the cassowary by displaying appropriate behaviour in cassowary habitat.

This includes driving responsibly and controlling pets when visiting cassowary habitat. It also includes not feeding cassowaries and what to do if a cassowary approaches you when visiting a cassowary "hot spot". Most importantly the Tourism Industry can inform visitors how they can help and support Government Departments and Non Government Organizations in managing sick, orphaned or injured cassowaries and how best to manage cassowary habitat and how they can assist in rehabilitating damaged cassowary habitat.



Mr Peter Wood with Michelle from the Rainforest Habitat with Jungle Girl

Cassowary conservation and the role of zoological institutions

Mr Clay Mitchell

Australasian Regional Association of Zoological Parks and Aquaria QLD (ARAZPAQ)

Clay Mitchell represents the Australasian Regional Association of Zoological Parks and Aquaria - Queensland Branch as a member of the Cassowary Recovery Team. Clay is presently employed at Hartleys Crocodile Adventures, studying at James Cook University and has a great deal of experience working with cassowaries, crocodiles and other native fauna.

Cassowary conservation and the role of zoological institutions throughout Australia educate and provide first hand experience to people here and overseas. Every year in Queensland, over 4 million people pass through the doors of our wildlife parks and enjoy some of the finest facilities and people, within the zoological industry. Wildlife Parks have evolved considerably from cement floors and cages - today being represented by carefully constructed and researched enclosures replicating the natural environment.

Key role of zoological parks are:

- Dispelling fact from fiction, providing concise information and place what is widely thought into context;
- Stimulate the community to the social, environmental and cultural significance of the cassowary, and how they can help
- Identifying what the future holds for the cassowary within wildlife institutions
- Nurture educated opinion towards conservation, and what this means to the individual
- Encourage local communities to participate in research and monitoring
- Further educate the younger generation to the importance of protecting cassowaries and the environment
- Maintain genetic diversity of captive populations, and to support the development of captive husbandry techniques

Although high profile conservation has had an impact, it cannot be forgotten that conservation starts with you and me. Zoo-keeping today plays a pivotal role in creating awareness, engaging with the public and hopefully inspiring the next generation to carry the voice of the environment into the future.



Cassowary farmer

Mr Peter Salleras

Chair, Community for Coastal and Cassowary Conservation (C4)

Peter Salleras has farmed tropical tree fruits and small crops on an 87 ha property in the Mission Beach hinterland for 25 years. With two thirds of the farm forested and adjoining the Wet Tropics World Heritage Area (WTWHA), close interaction with the Area's incredible biodiversity has been both rewarding and challenging. Coal face management of the largest natives and ferals (cassowaries and pigs) led to extensive stints with C4 as rural/agricultural working group coordinator. This service period was garnished with terms on the WTMA Community Consultative Committee and Neighbours Liaison Group as well as paper presentations on rural/cassowary subjects in Brisbane, Alice Springs and Hobart. Whilst some management issues have been resolved, Peter believes there is still plenty of room for smarter sustainable management and is currently chairman of C4.

Most Australian farmers have no contact whatsoever with cassowaries. Those neighbouring protected lands in cassowary country are sometimes tagged as cassowary farmers due to their interaction, and in most cases co-existence with the iconic birds. In the Mission Beach area cassowary farmers own substantial tracts of freehold cassowary habitat (mostly adjoining the WTWHA) and are clearly the main active land managers.

Feral pigs thrive in the same habitats as cassowaries in the largely unmanaged, protected lands, and are a major pest when they overflow onto rural lands, while cassowaries are rarely a problem to fruit growers and aren't normally bothered by cattle fences. Probably the biggest undocumented risk to cassowaries however, is being caught in the crossfire of the still active boar war.

Cheese and chalk differences still exist in the human dimensions of cassowary management. With plenty of planning and research, but "real world" rewards and incentives for good stewardship by cassowary farmers remaining as elusive as live thylacines. Some promising new pathways are beginning to emerge however.

Cassowary matters to the Commonwealth

Mr Martin Paull

Department of the Environment, Water, Heritage and the Arts

Martin has worked for the Australian Government Environment Department for the past 15 years. He has been involved in impact assessment under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) since it became operational in 2000. Prior to that, Martin worked on Regional Forest Agreements in Victoria and Western Australia. Martin has worked in areas as diverse as Australia's international cetacean policy and administration of the Environment Protection (Sea Dumping) Act 1981.

The draft Significant Impact Guidelines for the endangered southern cassowary (*Casuarius casuarius johnsonii*) - Wet Tropics Population - EPBC Act policy statement 3.15 (the Guidelines) have been developed to provide guidance to the public and decision makers on the practical application of *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* regarding the cassowary.

The guidelines explain the thresholds above which a significant impact on the cassowary is likely and when a referral should be submitted under the EPBC Act. They seek to provide practical advice to help people planning to build or develop in or near cassowary habitat to avoid impacting on areas important to the cassowary's survival. They provide a framework for consistent, transparent and robust decision making under the EPBC Act.

Public consultation on the guidelines has just closed (28 August 2009). The Department will consider all comments received and decide on what action to take regarding each comment. The guidelines are expected to be completed by the end of the year.



Cassowary – threatened species policy and wildlife management issues

Mr Wolf Sievers

Regional Manager, Wet Tropics, Queensland Parks and Wildlife Service

Wolf has 10 years experience with QPWS in parks and wildlife management, as manager of the Wet Tropics for the past 12 months, and previously as Director and Manager of Parks Services in the southern region based in Toowoomba. He has managed delivery of habitat protection through resource assessment and planning services and has extensive experience in presenting the estate and engaging with the tourism industry. Wolf was previously involved in parks and wildlife operations in the Northern Territory, over 16 years delivering park management and presentation in Katherine and Alice Springs, and wildlife management and Indigenous engagement in Nhulunbuy. He has also worked in NSW in soil conservation and in land development in Papua New Guinea.

The Department of Environment and Natural Resource Management (DERM) continues to be an active participant in ongoing cassowary management. The majority of cassowary habitat exists on the protected estate and QPWS management is crucial to maintaining a place for cassowaries to continue to roam. Cassowary habitat mapping is undertaken by DERM as a tool to evaluate appropriate development proposals and mitigate adverse impacts. QPWS also undertakes incident response for injured birds and rehabilitation of those birds where required and maintains a register of populations and sightings. QPWS will participate in the revived Cassowary Recovery Team, representing the whole of DERM, including the Threatened Species and Planning Units.



Ngadjon Traditional Owner Warren Canendo with QPWS staff Laura Werth and Mark Connell with Cavel Cora

Planning tools for cassowary management

Mr Adam Millar

Environmental Defenders Office North Queensland

Adam Millar was born and raised in Cairns and all of his immediate family are local far north Queenslanders. He is passionate about the unique and priceless natural environments in both north Queensland and throughout Australia, and sees his position with the EDO-NQ as an excellent opportunity to use his skills and passion to help protect those environments, educate the community about environmental protection and work toward increasing the standing and relevance that the environment has for the community and governments.

The endangered southern cassowary is an iconic species in north Queensland and recognised as being critical for the continued biodiversity of our tropical rainforests. Commonwealth environment legislation lists the species as endangered, and Queensland legislation lists the Wet Tropics population as endangered and Cape York populations as vulnerable. Despite such recognition and those threatened species listings, we are told that the species is still under threat from habitat clearing, fragmentation, degradation and road kills.

We have to ask, what protection does the law really give the endangered southern cassowary against these threats and can the law do more?



Cassowary road sign at Mission Beach



How did the Cassowary cross the road

Ms Susan Scott

Queensland Transport and Main Roads (QTMR)

Susan Scott is also involved in a number of environmental technical governance projects for the Department of Transport and Main Roads (QTMR). Prior to working for QTMR, she worked as an ecological consultant in Queensland and New South Wales and has volunteered with numerous terrestrial and marine zoological projects across the east coast of Australia.

It is recognised by QTMR that it is important that planning for fauna sensitive road design occurs early within a road project. This requires:

- the early involvement of environmental professionals to identify ecological impacts
- desktop background research to evaluate measures implemented in similar circumstances, provision of ecological information, understanding of land use (both current and future) and legislative requirements
- implementation of adequate ecological baseline studies to enhance effectiveness of fauna impact mitigation measures
- undertaking other environmental assessments, such as Review of Environmental Factors and Environmental Management Plans
- thorough consultation to ensure effective discussion of issues.

Why do we need to consider cassowaries when building roads and why should we implement fauna sensitive road design strategies or fauna impact mitigation measures in areas of known cassowary habitat or home range areas? Firstly, road kill is considered one of the main threatening processes for cassowaries. A number of publications provide information on the mortality risk that roads present cassowary populations in north Queensland, with the National Recovery Plan for the southern cassowary indicates that collision with vehicles is the number one cause of mortality for cassowaries in the Mission Beach area. Secondly, general edge effects caused by roads impact on fauna in a number of ways and can cause avoidance of the road corridor and areas impacted by road noise and vibration, for example, leading to both loss of habitat and greater barrier effects.

The Department has considered (and still considers) the importance of implementing mitigation measures that address the cassowary road kill issues. Some of the reasons for implementing mitigation measures by the Department include the:

- desire to reduce cassowary vehicle strikes/road kill
- the increasing volume of traffic in Mission Beach area and the corresponding increase in local and tourist populations
- likelihood of cassowaries becoming locally extinct in the Mission Beach area in absence of intervention
- road death is likely to influence the cassowary population's dynamics and reproductive fitness
- the accessibility to important habitat features in the broader landscape.

Cyclones and cassowaries: Be Cass-o-wary

Ms Shayne Allanson

Facilitator at Garners Beach Cassowary Rehabilitation Facility, 2001-2005

Shayne Allanson gained practical experience in working with cassowaries as a QPWS Facilitator at Garners Beach Cassowary Rehabilitation Facility between 2001 and 2005. Her responsibilities included: dealing with problematic cassowaries, responding to sick injured and orphaned cassowaries and responding to road strike and dog attacks on cassowaries.

Shayne lived for five years in a community with her young family and was accepted by locals as a key resource for promoting on the ground management of cassowary issues. Community engagement and public education were key activities which enabled her to identify and address public concerns about cassowaries.

The Garner Beach Rehabilitation Centre, run by QPWS from 2001-2005, was the key facility in dealing with problematic and rehabilitated cassowaries. This presentation will explore how the team responded to sick, injured and orphaned cassowaries, how they implemented the *Be Cass-o-wary program*, the community concerns regarding cassowary management post Cyclone Larry, cassowary translocation, community and government engagement and ask to what is being done now?



Public Forum panel members: from left Dr Debra Wright, Mr Wolf Sievers, Ms Jax Bergerson, Mr Claude Beeron, Mr Warren Entsch, Ms Natalia Gomez, Dr David Wescott, Cr Bill Shannon, Dr Andy Mack and Mr Andrew Maclean (facilitator)

Public Forum highlights



The cassowary Q&A public forum was an opportunity to:

- provide a form of summing up for the more formal presentations during the day
- provide an opportunity for people to air issues of concern
- allow a constructive exchange of views
- establish some broad signposts for progressing cassowary conservation.

Panel members included:

Ms Natalia Gomez works at the Cairns and Far North Environment Centre (CAFNEC) on NRM liaison and is also involved in the JCU student environment group. She is passionate about the natural world.

Ms Jax Bergerson is involved with practical 'hands on' cassowary conservation including revegetation projects, raising issues of pigs and weeds.

Mr Warren Entsch is the former Member for Leichardt in the House of Representatives. He is the current Chair of the Australian Rainforest Foundation which is focused on international recovery of cassowaries.

Cr Bill Shannon is the Mayor of Cassowary Coast Regional Council which includes Mission Beach. This is a known cassowary hot spot area where traffic, dogs and subdivisions are issues.

Dr David Westcott is a senior research scientist at CSIRO. He is conducting cassowary DNA scat analysis to determine cassowary numbers and population structure in the wet tropics and Cape York Peninsula.

Mr Wolf Sievers is the Regional Manager of QPWS, Wet Tropics Region. DERM has legal responsibility for cassowary under the *Nature Conservation Act 1992* and for producing cassowary mapping for the *Vegetation Management Act 1999*.

Mr Claude Beeron is an Aboriginal elder from Girramay who brings an indigenous perspective to cassowary issues.

Dr Andy Mack has studied cassowaries for twenty years in PNG, particularly the dwarf cassowary and its role as a seed dispersal agent.

Dr Debra Wright has worked for 20 years in PNG as an independent researcher studying cassowaries and rainforest ecology as well as biodiversity surveys.

The facilitator for the session was WTMA Executive Director, **Mr Andrew Maclean**.

Excerpts from the Public Forum

The following excerpts are comments made by panel members during the Q&A Public Forum

Cassowary got culture

Claude Beeron - "the cassowary means a lot to me and my family. We believe in the cassowary story still today and it will be handed down from generation to generation".

Cassowaries are iconic species

Bill Shannon - "I live at Mission Beach which has reportedly got the highest concentration of cassowaries in Australia. As Mayor of the Cassowary Coast Regional Council, I represent a region where it is as icon. There is probably no more important NRM issue in my region than the preservation of cassowaries".

Differences between the sexes

Jax Bergerson - "I have a question. How do you tell the difference between a male and female cassowary?"

David Westcott - "If it looks like a reasonable size bird, bigger than about 40kg, well 45kg it's probably a female. Males tend to have a longer tail as well".

Cassowary population trends

David Westcott - "There is a way of working out the population, but we actually don't have enough data to provide answers. If you have a long-lived bird that is breeding at very slow rates, with very little replacement within the population then there is ultimately going to need to be a much larger number of individuals. Differences in the number of offspring that individuals have can influence the size of the population. How sub-divided the population is has similar effects. The more subdivided it is the more birds needed to maintain stability. There are a lot of assumptions. Some population models allow us to do these calculations making various assumptions. Different models will give different answers and the quality of information that goes into those models is really important for determining the quality of the prediction. At this stage of the game with cassowaries, we really don't have enough information to parameterise those models, we know the sorts of information we would like to get but we are just not there yet".

The need to protect habitat

Bill Shannon - "Habitat protection is extremely important, there is no doubt about that, as is the local Government issue of dog control. I would put dog control as the number one pressing issue that's relatively easily fixed. The buy back of land blocks, especially as corridors is the second most important issue. The third thing is planning controls, including speed and traffic management. I have a final comment. If you own land you are entitled to put a house on it and when you take away those rights, there are compensation issues. The best solution to that goes back to the previous point I mentioned which is land buy backs. We have done it. There is a history of it. The Daintree is a very good example and for cassowaries it is certainly ought to be on the agenda".

Warren Entsch - "I would question the wisdom of wholesale land buy backs because you only have to see what happened in the Daintree in relation to the division within the community"

Bill Shannon - "It worked well though, it worked very well".

Warren Entsch - "I would suggest there are other ways rather than forcefully evicting people from their land. We need to establish connectivity from Cardwell through to Cooktown; this includes significant tracts of land that are owned by individual farmers. By identifying key areas for corridors, I believe there is an opportunity to talk to farmers



about where they would be happy with some support to establish these corridors by planting the necessary cover to allow the birds to disperse naturally. We know where the corridors are and they are not necessarily in high productive areas within their own farm. That means farmers can continue to operate their farm and do it in a way that is cassowary friendly. They should also receive some level of remuneration for those areas of land that they are prepared to willingly sacrifice to allow the corridors to be developed and they can be part of maintaining those corridors in the longer term. I think this is a far more practical way. In other situations, say on larger farming blocks, there is no reason why some parts of a block cannot be excised from the rest of the farm. The farmer can retain ownership and play a role in the future redevelopment or establishment of the corridor on the balance of the land that is being used for this purpose. I think we can create a huge amount of discord within the community if we start to decide to kick everybody off the land. I think we will find that a lot of that land that is necessary for those corridors will be done in a way that gives the community a much greater sense of ownership and long term stewardship of those areas. This would give a sense of recognition to the land holders, give them incentives, give them support and I think you will find there will be a lot of people would be more than happy to be part of the solution rather than to be seen as the villains and the cause of the problem".

Bill Shannon - "I endorse those remarks, there is certainly one way to achieve it using the softer approach".

Jax Bergerson - "It takes a very strong politician to actually make unpopular decisions, whatever you say, 50% of the people are going to be against you and 50% for you. Not enough of us to make a difference. The environment has been compromised so far that it is time to turn around and say no! It's the environments turn".

Translocating cassowaries to Hinchinbrook Island

Bill Shannon - "If there are threats to existing cassowary populations, where the science that tells us how many birds are needed in a certain area? Is the concept of creating a cassowary habitat on Hinchinbrook Island possible? Can we see if the right fruiting trees are there? What range of habitats do cassowaries require? Can there be initially, arguably a captive population, put on an island to breed up numbers for a reserve. I am not saying to do it, but I am saying to the scientists and others, should examine it sensibly".

David Westcott - "The suggestion that we should be introducing cassowaries to Hinchinbrook Island is not a scientific question. To start off with, it's possibly more of an ethical question. Should we be introducing birds to areas we know that they can get to by themselves that we know they have got to by themselves but in which they haven't persisted? There is probably a good reason why there aren't birds on Hinchinbrook Island. There actually is not a huge amount of good cassowary habitat over there. There is probably not an adequate year round supply of food. None of this has been investigated but that fact that we have recorded cassowaries on the island in the past and that they have not persisted suggests that the habitat there is simply not up to it. Cassowaries occur in pretty much every part of the Wet Tropics. Historically speaking, they occur pretty much everywhere we would have expected them to occur and if they were going to make it onto Hinchinbrook Island, they would be there today. The one exception to that is Mount Windsor Tableland, and we can't explain that. I think researchers Dr. Francis Crome and Mr. Les Moore speculated that the Daintree Gorge was too big of a barrier for them to get across, it was guess on their part, and it is a reasonable guess".

Wolf Sievers - "As I listen to that I am reminded of a conversation I had many years ago with expert about Fraser Island. I asked the question, were there ever koalas on Fraser Island?. I was assured with a lot of sincerity that there in fact were but the dingoes ate them out. And sometime later, I got a scientific answer that discovered that koalas were never on Fraser Island in the first place because the diet wasn't there to sustain them. I personally agree with

David, I think if they were meant to be there they would be there”.

Providing incentives to landholders

Warren Entsch - “I think it depend on the area within the farm that is required to be set aside for those environmental purposes. One of the things that farmers do well is they grow things... so whether they are going to grow cane or cassowary corridor trees is irrelevant. They get paid to do that and then they get paid to manage that area and they are getting a return for that area. Now it may not be as great as a return for bananas or cane, but I tell you what it is as good as you will get when the prices are on an average so, and most farmers are happy to do that. If they get the recognition for doing it, they are prepared to invest some of their own time as well. I think it is important to give farmers rate relief because many of these corridor areas are marginal in relation to farm production, and if it were excised from rates by local government, that would be another cost-saving incentive, but it needs to be done on a farm by farm basis”.

Bill Shannon - “I think administering rates relief is one part of the problem, and the other side is if you are going to give someone rate relief, you are going to increase someone else’s rate burden unless other money comes into the system. With the present state of local government finances, I just don’t see that being readily achieved. There is also the issue of whenever those sorts of systems come in, it does create a huge equity issue because people, there will be a whole raft of farmers will want to be putting down their headlands down as habitat. Farmers and landowners generally have a huge obligation to the preservation of biodiversity and most of them do take that obligation very seriously”.

Captive breeding

Graham Harrington (Birds Australia) from the audience - “My comment is inspired by the suggestion that because we might get three massive cyclones off the Wet tropics coast and wipe out all the rainforest, and the cassowaries with it, that we need captive breeding. Given the very restricted resources available for cassowary conservation, captive breeding is not a conservation strategy at all, and that the resources should be devoted to improving the resilience of the entire habitat by the green corridor scheme and also into getting the fundamental data we need to explore and explain the population dynamics of cassowaries through the DNA project?”

David Westcott - “I think captive breeding has a place, but the question is really in the context of cassowary conservation, have we got to the point where this is the route we have to be going down? And I would suggest that we aren’t actually at that place because if you look at IUCN guidelines, one of the things that they recommend is that first off you ascertain that it is really necessary to conduct a captive breeding program before you do that and I don’t think we are at that stage that we know that we need a captive breeding program to support animals in the wild. There are potentially arguments for why you would, if you were going to maintain captive stock in zoos which is going to happen, you might want to maintain those stocks in as healthy a genetic state as you possibly can but I think that’s a completely separate issue at this stage of the game. So I don’t think it is necessary yet and I think we should maybe down the track one day if we really mess things up we will need it, but at this stage of the game I don’t think that’s the case”

Warren Entsch - “I agree with David in relation to the need for captive breeding programs. I think that when you get a natural disaster event like Tropical Cyclone Larry, and while QPWS do a good job in the area that they have, they are not skilled in keeping birds in a captive situation”.



Cyclone Larry impacts on cassowaries

Wolf Sievers - "The birds that were released following cyclone Larry were translocated to sites that were assessed at that particular time to be suitable habitat. We don't have any information that suggests that any of the released birds died as a result of being translocated. We found some collars but with no birds attached so the evidence would suggest that the exercise worked".

Bill Shannon - "Feeding stations took some time to establish. Some birds were extremely stressed by the time the program got up and running. As a result some birds became habituated to quite close contact with the human beings".

Working together to protect cassowaries

Wolf Sievers - "I think that we are right here right now talking about cassowaries is a great thing. I applaud your effort because I know what you put in and WTMA generally to revive cassowaries and get it back on the agenda. I think the result of today is that we know there is lots of enthusiasm and support. I think that the revival of the Cassowary Recovery Team, getting it focused to coordinate the resources that we have got right now is really important".

David Westcott - "In terms of NRM delivery we all tend to operate in little groups and we drive organisational agendas. I think that where there is a real need particularly across issues like cassowaries, mahogany gliders and water and all of those things that we like to talk in a friendly fashion about, is that we get people from all sides of the debate to find that common ground so that there is a common front that can be presented. It is possible to do. Even though people sit in diametrically opposed camps, the actual issue and some of the solutions that the different camps are coming up with are pretty similar and there is room to get together and work on that".

Warren Entsch - "Government has got to invest in the research. I think that's absolutely critical so that as work is being done, it can be targeted and we can have some real positive outcomes based on informed scientific positions. Feral animal control, including feral dogs is absolutely essential. We can assist the education of private landholders. I don't think we should underestimate the contribution from within the private sector because there are a lot of people out there that are also not part of the bureaucracy but are very much keen to be involved in the conservation and are more than happy to put their hands in their pockets if they know what they are going to do, what they are going to invest in is actually going to achieve some significant outcomes".

Claude Beeron - "People, even the farmers, ask Traditional Owners for advice. I know all the trees on my country and have a language name for that tree. My people know what time of the season the cassowary will eat particular fruit. You know, this is my plan; I would like to help the council out on cassowary matters. Cassowary is important to Indigenous people. I would like to help out. Council can visit me and have a chat with me at Murray Upper. That's where I live. I see that someone planted quandong trees around my country. They fruit at different times of the year, but there are other types of quandongs that fruit at different times of the year, maybe eight or nine different species. No one has ever approached me. I put this to the floor today so someone you know might pass it on somewhere down the road... thank you".

Research workshop



10 September 2009
Communiqué

Background

Following the Cassowary Summit on 9 September, a Cassowary Research Workshop was convened. A group of 25 scientists, policy makers and cassowary advocates were invited to discuss what population and habitat indicators should we monitor for tracking Cassowary recovery? Although the purpose of the meeting was focused on this question, additional discussion on the day included lessons learnt from the Cassowary Summit and a broader conversation about actions for ensuring cassowary recovery.

The following individuals participated on the day: Mr Leonard Andy, Mrs Shayne Allanson, Dr Alastair Birtles, Mr Peter Buosi, Mr Max Chappell, Ms Liesl Codrington, Mr Adam Cowell, Dr Miriam Goosem, Dr Steve Goosem, Prof Iain Gordon, Dr Denise Hardesty, Dr Graham Harrington, Dr Elaine Harding, Ms Mellissa Jess, Mr Bruce Jennison, Dr Graham Laurisden, Mr Peter Latch, Dr Andy Mack, Mr Andrew Millerd, Mr Tony O'Malley, Mr Martin Paull, Mr Alan Sheather, Mr Daryn Storch, Ms Ellen Weber, Dr David Westcott, Dr Deb Wright and Dr Peter Young.

Key messages

After small group discussions focused on the primary question, workshop participants came together to identify key issues, research and information needs which could support cassowary recovery. Here are the key issues identified:

Monitoring population trends of cassowaries at key strategic sites is critical:

- there is a need to develop standardised monitoring using a consistent and agreed methodology
- scat-DNA is likely to be an important tool for calibrating population estimates regardless of the monitoring method employed
- other complementary and innovative methods such as cameras, micro-chipping, feather snag-trapping and bio-acoustics should also be investigated.

Design and implement a monitoring program over the cassowaries' range which operates at a range of scales - continental, regional and local:

- a broad-scale survey (possibly every 10 years) to confirm the species' distribution (i.e., presence/absence)
- regular monitoring of core populations, possibly at shorter intervals
- intensive population studies need to be conducted to allow estimation of population parameters (e.g. age specific mortality, recruitment and survival), documentation of habitat use and preferences, and response to management. With sufficient resources work at two or more locations would provide insights into effects of landscape context, fragmented versus continuous or lowland versus upland.

Effective use of existing data on cassowary ecology and management is important:

- develop a central repository for data storage and retrieval by all users
- consider the creation of a State of the Cassowary report card
- ensure that the Cassowary Recovery Team is well informed and supported to carry the research agenda forward.



Partnerships with Traditional Owners and the local community are critical for success in the program. We need to incorporate their knowledge and skills in developing and implementing the research agenda:

- the critical roles and rights of Traditional Owners are recognised and their knowledge incorporated into the design of monitoring programs.
- the community is an asset. We should use their skills to assist with research and in providing information back into local communities.

Enhanced partnerships with international cassowary experts and agencies:

- link cassowary conservation across continents (e.g. IUCN ratite specialist groups).
- investigate alternate/new and existing methods for monitoring similarly cryptic species.

There is a need to clarify relationships between management actions to address threats/pressures and landscape-scale population responses:

- ideally the 'intensively-studied' populations should include comparisons between sites with threats/no-threats or management actions/no actions if possible.
- utilise and integrate existing data already available to increase knowledge, i.e., dead animals, captive birds, and cassowary sightings by community

There needs to be a commitment to funding.

- a committed funding stream should be established. International funding sources and joint funding arrangements should be explored.

We need to start work now

To develop these research issues into a clear set of steps, with a budget and detailed research agenda, the group request that the Cassowary Recovery Team:

- review these recommendations and convene a subgroup to develop a full proposal (this may include members of the research workshop who are not on the Cassowary Recovery Team)
- liaise with the Department of Environment and Natural Resources (DERM) and the Department of the Environment, Heritage, Water and the Arts (DEWHA) in developing an approach that complements the Recovery Plan and emphasises the need for landscape-scale issues.

Additional readings

Bentrupperbäumer, J. M. 1992. Cassowary monitoring program for the whole of Cardwell and part of Johnstone Shires, North Queensland. Report for Parks and Wildlife Service Grant Scheme for research on rare and threatened species. Wildlife Preservation Society of Queensland.

Bentrupperbäumer, J. M. 1998. Reciprocal ecosystem impact and behavioural interactions between cassowaries, *Casuarius casuarius* and humans, *Homo sapiens* exploring the natural human environment interface and its implications for endangered species recovery in north Queensland, Australia. Unpubl. PhD thesis. James Cook University of North Queensland, Townsville. QLD.

Biotropica 2005. A framework to establish lowland habitat linkage for the southern cassowary *Casuarius casuarius* from Cairns to Cardwell, Report to the Australian Rainforest Foundation.

Crome, F.H.J. 1975. Some observations on the biology of the Cassowary in northern Queensland. *Emu* 76 : 8-14.

Crome, F.H.J. 1993. A catalogue of important Cassowary populations in the Wet Tropics. Unpublished report to the Wet Tropics Management Authority.

Crome, F.H.J. and Bentrupperbäumer, J. M. 1991. Management of Cassowaries in the fragmented rainforests of north Queensland. Unpublished report to the Endangered Species Programme of the Australian National Parks and Wildlife Service.

Crome, F.H.J. and Moore, L.A. 1988. The Southern Cassowary in North Queensland—a pilot study. Vol I-IV. Unpublished report prepared for the Queensland National Parks and Wildlife Service and the Australian National Parks and Wildlife Service.

Crome, F.H.J. and Moore, L. A. 1990. Cassowaries in north-eastern Queensland: report of a survey and a review and assessment of their status and conservation and management needs. *Australian Wildlife Research* 17 : 369–86.

Crome, F.H.J. and Moore, L.A. 1993. Cassowary populations and their conservation between the Daintree River and Cape Tribulation. II. Background, Survey Results and Analysis. Unpublished report to the Douglas Shire Council.

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2009. The Significant Impact Guidelines for the endangered southern cassowary (*Casuarius casuarius johnsonii*)-Wet Tropics Population- EPBC Act policy statement 3.15 (the Guidelines), Canberra, Australia.

Garnett, S. and Crowley, G. 2000. *The Action Plan for Australian Birds 2000*. Environment Australia, Canberra.

Gaylor, M. 2007. Exit strategy for the post-Cyclone Larry: cassowary supplementary feeding program. Report to the Queensland Park and Wildlife Service, Cairns.

Keeley, B. 2009. The Strangest bird in the forest. *BBC Wildlife magazine*, January: 79-83.



- Kofron, C. P. 1999. Attacks to humans and domestic animals by the Southern cassowary (*Casuarius casuarius johnsonii*) in Queensland, Australia. *Journal of Zoology* 249 : 375–81.
- Kofron, C. P. and Chapman, A. 2006. Causes of mortality to the endangered southern cassowary *Casuarius casuarius johnsonii* in Queensland, Australia. *Pacific Conservation Biology* 12 : 175-179.
- Kutt, A.S., King, S., Garnett, S.T. and Latch, P. 2004. Distribution of cassowary habitat in the Wet Tropics bioregion, Queensland. Technical Report, Environmental Protection Agency, Brisbane.
- Latch, P. 2007. National Recovery Plan for the southern cassowary *Casuarius casuarius johnsonii* Report to Department of the Environment, Water, Heritage and the Arts, Canberra. Environmental Protection Agency.
- Mack, A. 1995. Distance and non-randomness of seed dispersal by the dwarf cassowary *Casuarius bennettii*. *Ecography* 18 : 286-295.
- Marchant, S. and Higgins, P.J. (eds) 1990. *The Handbook of Australian, New Zealand and Antarctic Birds*, Part A and B, Ratities to Ducks, Oxford University Press, Melbourne.
- Meston, A. 1894. On the Australian Cassowary. *Proceedings of the Royal Society of Queensland* 10: 59-64.
- Moore, L. A. 2003. Ecology and population variability analysis of the southern cassowary *Casuarius casuarius johnsonii* Mission Beach North Queensland. Masters Thesis, School of Tropical Biology, James Cook University, North Queensland.
- Moore, L. A. 2007. Population ecology of the southern cassowary *Casuarius casuarius johnsonii* Mission Beach, North Queensland. *Journal of Ornithology* 148 : 357-366.
- Moore, L.A. 2009. Mission Beach Cassowary Road management. Stage 1 research project, James Cook University, Cairns.
- Moore, L. A. and Moore, N. J. Pty. Ltd. 1999a. Cassowary Management Plan I. Daintree. Report to the Wet Tropics Management Authority.
- Moore, L. A. and Moore, N. J. Pty. Ltd. 1999b. Cassowary Conservation Roads. A Cassowary management strategy and road upgrade assessment for El Arish and Tully–Mission Beach Roads, Mission Beach. Unpublished Report to Department of Transport, Queensland.
- Moore, L.A. and Moore, N. J. Pty. Ltd. 1999c. Regional Cassowary Management Plans. II Kuranda. Wet Tropics Management Authority Cassowary Management Project.
- Moore, L.A. and Moore, N. J. Pty. Ltd. 1999d. Cassowary Management Plan III. Innisfail. Report to the Wet Tropics Management Authority.
- Moore, L.A. and Moore, N. J. Pty. Ltd. 1999e. Preliminary assessment of Cassowary habitat: Cairns foothills. Report to the Wet Tropics Management Authority.
- Moore, L.A. and Moore, N. J. Pty. Ltd. 1999f. Preliminary assessment of Cassowary habitat at Mount Spec (Townsville). Report to the Wet Tropics Management Authority.

Moore, L.A. and Moore, N. J. Pty. Ltd. 2001. The Cassowaries of Mission Beach. Report to the Wet Tropics Management Authority.

Queensland Department of Main Roads (DMR) 2001. Cassowary Management Strategy Tully– Mission Beach Road. QDMR, Townsville.

Queensland Parks and Wildlife Service (QPWS) 2002. Recovery Plan for the Southern Cassowary *Casuarius casuarius johnsonii* 2001–05. Environmental Protection Agency, Brisbane.

Queensland Parks and Wildlife Service (QPWS) 2003. The status of cassowaries on Cape York Peninsula. Unpublished Report to Cape York NHT, Department of Environment and Heritage.

Romer, L. 1997. Cassowary Husbandry Manual, *Proceedings of February 1996 Workshop*. Currumbin Sanctuary, Currumbin.

Setter, M., Bradford, M., Dorney, B., Lynes, B., Mitchell, J., Setter, S. and Westcott, D. 2002. Pond apple – are the endangered cassowary and feral pig helping this weed to invade Queensland's Wet Tropics? 13th Australian Weeds Conference Papers and Proceedings, Fremantle, Perth. Plant Protection Society of WA.

Somerville, J. D. 1950. Australian Cassowary: corrigenda, *Emu* 49 : 214-218.

Stocker, G.C. and Irvine, A.K. 1983. Seed dispersal by cassowaries (*Casuarius casuarius*) in north Queensland rainforests. *Biotropica* 15 : 170–76.

Thomson, D.F. 1935. Birds of Cape York Peninsula. H.J. Green, Government Printer, Melbourne.

Webber, B.L. and Woodrow, I.E. 2004 Cassowary frugivory, seed defleshing and fruit fly infestation influence the transition from seed to seedling in the rare Australian rainforest tree, *Ryparosa* sp. nov. 1 (*Achariaceae*). *Functional Plant Biology* 31: 505–16.

Westcott, D. A. 1999. Counting cassowaries what does Cassowary sign reveal about their abundance? *Wildlife Research* 26 : 61-68.

Westcott, D. A. , Bentrupperbäumer, J. M, Bradford, M. G. and McKeown, A. 2005. Incorporating patterns of disperser behaviour into models of seed dispersal and its effects on estimated dispersal curves. *Oecologia* 146 : 57-67.

Westcott, D.A. and Reid, K. 2002. Use of medetomidine for capture and restraint of cassowaries (*Casuarius casuarius*). *Australian Veterinary Journal* 80 :150–3.

Wet Tropics Management Authority (WTMA) 2004. The Wet Tropics Conservation Strategy: the conservation, rehabilitation and transmission to future generations of the Wet Tropics World Heritage Area. WTMA, Cairns.



Abbreviations and acronyms

ARAZPA - Australian Regional Association of Zoological Parks and Aquaria (Qld)

C4 - Community for Coastal and Cassowary Conservation

CRP - Cassowary Recovery Plan/National Recovery Plan for the Southern Cassowary

CSIRO - Commonwealth Scientific Industry and Research Organisation

DERM - Department of Environment and Resource Management

DEWHA - Department of Environment, Heritage, Water and Arts

EPBC - *Environmental Protection and Biodiversity Act 1999*

IUCN - International Union for Conservation of Nature

NRM - Natural Resource Management

PNG - Papua New Guinea

QPWS - Queensland Parks and Wildlife Service

USA - United States of America

WTMA - Wet Tropics Management Authority

WTWHA - Wet Tropics World Heritage Area



Community festival held in conjunction with the Cassowary Summit

Be cass-o-wary



Photo: Liz Gallie

If you live in or visit cassowary habitat, please follow this advice:

- **Never feed cassowaries**
It is illegal and dangerous, especially on the side of the road where they might get hit by passing cars.
- **Let cassowaries find their own food**
If you feed them, they could come to depend on you, their health will suffer and they may starve when you go away or move elsewhere. When cassowaries become used to people, they are far more likely to be killed by cars and dogs. It is also possible that they then may become aggressive to other people.
- **Plant native cassowary food plants**
If you have a rural property why not protect and replant native vegetation on your property, especially in gullies and alongside creeks, as natural feeding grounds and corridors for cassowaries.
- **Discard of your food scraps carefully**
Always dispose of food scraps in closed bins and ensure compost bins have secure lids. Never leave food, fish scraps or bait at campsites or picnic areas in cassowary habitat (not even in bins – please take scraps home).
- **Never approach cassowaries**
Cassowaries easily feel threatened. They are very protective and will defend their chicks. Never come between a male and his offspring.
- **Keep domestic pets under control**
If you are in a cassowary habitat area keep dogs behind fences or on a leash and cats inside.
- **Be careful when driving**
Slow down to avoid hitting animals, but don't stop to watch them.

What to do when you see a cassowary:

- **If you are driving and see a cassowary on the road**
Slow down and carefully drive around it, do not get out of your car. Hand signal only to alert oncoming traffic.
- **If you encounter a cassowary in the wild**
Do not run and do not turn your back on the cassowary. Facing it hold a rucksack or other item in front of your body and back away calmly and slowly. Try to get behind a tree if possible.

***To report an injured cassowary:* DERM hotline: 1300 130 372**