Open With Care: Monitoring of Fauna in Tourism Areas

Global Eco 2013

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Wildlife Tourism Australia
Throughout Australia national parks are being opened up to ecotourism.
Throughout Australia national parks are being 'opened up' to 'ecotourism'
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What do we mean by “open up”?

What do we mean by “ecotourism”?  

How do we prepare for innovation that remains truly eco?
Tourism: good for the economy
Ecotourism: good for the environment
Ecotourism: good for the environment

If it isn't, it's not Ecotourism
Ecotourism: good for the environment: including good interpretation

If it isn't, it's not Ecotourism
Ecotourism: good for the local economy

If it isn't, it's not Ecotourism
Ecotourism: good for the local economy

If it isn't, it's not Ecotourism
Ecotourism: good for operators' income

If it isn't, the operator can't continue
Ecotourism: good for operators' income

If it isn't, the operator can't continue
Ecotourism: good for operators' income

If it isn't, the operator can't continue
What is Ecotourism?

Ecotourism has been defined as "responsible travel to natural areas that conserves the environment and improves the well-being of local people." (TIES, 1990)
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What is Ecotourism?

“Environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples”. IUCN
What is Ecotourism?

“Environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples.” IUCN
Ecotourism Australia's definition

"Ecotourism is ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation".
"Ecotourism is ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation".
“We are part of the environment!”

This talk focuses on biodiversity conservation - an essential component of sustainability.
If these disappear...

... we will soon notice
These could disappear ...

... before we even know they are there!
These could disappear

before we even know they are there
Which animals should we protect?
Which animals should we protect?

Koalas and kangaroos top the list for tourist popularity.
Which animals should we protect?

Many others are already very popular
Which animals should we protect?

Many others could become more famous
Which animals should we protect?

Many others could become more famous
Which animals should we protect?

Many birds are already sought after by birders, even if not well-known to non-birders.
Which animals should we protect?

And what about the others?
Which animals should we protect?

True “Ecotourism” should protect ALL native fauna & flora populations
Which animals should we protect?

and recognise and protect the many ecological links and processes
Potential impacts

Habitat loss, habitat alteration, inappropriate feeding, erosion, trampling, roadkill, introduction of weeds, scaring animals from feeding, nesting and resting areas etc.
Not all impacts will be bad

e.g. Horses may be ok if:

• Free of weeds (hooves and manure)

• Not used on easily-eroded areas

• Using a short section of carefully controlled track through a conservation area to connect 2 sections of riding trail

• On private/leasehold land adjacent to rather than within conservation areas

• Impacts are monitored (otherwise we may never know!)
There are many effects that most don't see

e.g. Too many 4WDs can cause serious compaction of sand
... affecting burrowing invertebrates, ,,,
... and birds that eat them
Potential impacts

There are many potential effects, and not always obvious: see Green and Higginbottom's report for the Sustainable Tourism CRC.
Please note:
I am not affiliated with any political party and nor is Wildlife Tourism Australia, just commenting from an ecotourism and ecological perspective, and a concern for both biodiversity conservation and economic sustainability of ecotourism and wildlife tourism enterprises.
Please note:
I am also a keen horse-rider, enjoy cross-country 4WD, boating, rock-climbing and other such activities
Please note:

… and am not opposed to allowing activities and facilities into conservation areas where it can be shown to truly have minimal impact
Please note:

… e.g. the proposal to develop accommodation at the wool-shed in Currawinya NP seems sound
Nature Conservation and Other Legislation Amendment Bill (No. 2) 2013

However:
WTA concurs with the comment in a dissenting report by 3 MPs:

“While it may be appropriate for educational, recreational, cultural and even commercial activities to take place within protected areas it must always be recognised that these are secondary activities and not the primary purpose of protected area management”
We concur also with EDO’s following concerns:

- “The changes in the Bill will allow for uses which aren’t ‘ecologically sustainable’ in protected areas. Given that national parks are less than 5% of Queensland this unacceptably threatens biodiversity; and

- The Bill removes key opportunities for public participation in the management of our protected areas. This reduces transparency and accountability in the management of our protected areas”
In WTA's brief submission we wrote:

“[W]e fully support responsible tourism, including a major expansion of wildlife tourism throughout Australia, but this must not be at the expense of our biodiversity, and the proposed changes will weaken the commitment of government, managers and developers to afford adequate protection”.
Similar legislation is being made or promoted in other parts of Australia

From Protect the Bush Alliance

Vegetation Management Framework Amendment Bill 2013 (14th May 2013)

Vegetation Management Framework Amendment Bill 2013 (About the Bill. Many have expressed concern that so little time was given for the public to comment on this change)

Queensland vegetation protection laws: Environmental Defenders Office  Massive clearing of high value regrowth vegetation will now be possible
http://concernedqldscientists.wordpress.com/  Response by scientists to the proposed change to Qld legislation on vegetation clearing 2013

Permits for hunting in national parks and other conservation areas are becoming easier to obtain in several states

On 13 March 2013 a Bill was introduced into the House of Representatives to amend the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) so as to include ‘water resources’ as a new matter of national environmental significance for large coal mining and coal seam gas projects.

Updates on the Environment Protection and Biodiversity Act

Proposal to hand environmental decisions to the states and territories

Proposed changes in Victoria could endanger tall forests in Victoria, habitat for Leadbeater’s possum and many others
http://uqecology.files.wordpress.com/2010/07/final-brigalow-declaration.pdf and
Similar legislation is being made or promoted in other parts of Australia

... and many conservationists are worried!
(National Parks Association, Victoria)
Similar legislation is being made or promoted in other parts of Australia.

… and many conservationists are worried! (a WTA member is included here)
How to minimize biodiversity loss

• Find out what is there

Photo: Araucaria Ecotours
How to minimize biodiversity loss

Find out what is there

Who can assist?

- Ecologists
- Conservation managers
- Students
- Naturalists
- Volunteers
- Tourist and tour operators – see http://www.wildliferesearchnetwork.org/

... at various levels
How to minimize biodiversity loss

Find out what is there

Finding mammals

• Monotremes
  Platypus – dawn&dusk searches in creeks, look for burrow entrance
  Echidna – search for echidnas and their tracks, scratching, droppings

Not always easy!
How to minimize biodiversity loss

Find out what is there

*Finding mammals*

- Monotremes
- Marsupials – herbivorous

Seek kangaroos, most wallabies dawn and dusk

Seek bettongs, potoroos, possums, gliders etc. at night with spotlights or motion-sensing cameras or traps or hair-traps
How to minimize biodiversity loss

Find out what is there

Finding mammals

- Monotremes
- Marsupials – omnivorous/insectivorous/carnivorous

Seek larger ones at night with spotlights or motion-sensing cameras, smaller ones with traps
How to minimize biodiversity loss

- Find out what is there
- Finding mammals
- Monotremes
- Marsupials
- Native rodents (~25% of our fauna species) trapping
How to minimize biodiversity loss

Find out what is there

*Finding mammals*

- Monotremes
- Marsupials – herbivorous and others
- Native rodents (~25% of our fauna species)
- Bats (~25% of our fauna species) (fruitbats - visually)
How to minimize biodiversity loss

Find out what is there

Finding mammals

- Monotremes
- Marsupials – herbivorous and others
- Native rodents (~25% of our fauna species)
- Bats (~25% of our fauna species)
  microbats – anavbat or trapping
How to minimize biodiversity loss

Find out what is there

Finding mammals

- Monotremes
- Marsupials – herbivorous and others
- Native rodents (~25% of our fauna species)
- Bats (~25% of our fauna species)
- Sea mammals - visually
How to minimize biodiversity loss

Find out what is there

*Finding mammals*

- Monotremes
- Marsupials – herbivorous and others
- Native rodents (~25% of our fauna species)
- Bats (~25% of our fauna species)
- Sea mammals
How to minimize biodiversity loss

Find out what is there

Finding birds

- Diurnal – obvious
How to minimize biodiversity loss

Find out what is there
Finding birds

• Diurnal – obvious
How to minimize biodiversity loss

Find out what is there
Finding birds
• Diurnal – obvious
• Diurnal – cryptic/rare
How to minimize biodiversity loss

Find out what is there

Finding birds

- Diurnal – obvious
- Diurnal – cryptic/rare
  (patience! calls, mistnets)
How to minimize biodiversity loss

Find out what is there

Finding birds

- Diurnal – obvious
- Diurnal – cryptic/rare
- Diurnal – nomadic/migratory
How to minimize biodiversity loss

Find out what is there

**Finding birds**

- Diurnal – obvious
- Diurnal – cryptic/rare
- Diurnal – nomadic/migratory
How to minimize biodiversity loss

Find out what is there

*Finding birds*

- Diurnal – obvious
- Diurnal – cryptic/rare
- Diurnal – nomadic/migratory
- Nocturnal – terrestrial
How to minimize biodiversity loss

Find out what is there

*Finding birds*

- Diurnal – obvious
- Diurnal – cryptic/rare
- Diurnal – nomadic/migratory
- Nocturnal – terrestrial
- Nocturnal – aquatic (can be very difficult)
How to minimize biodiversity loss

Find out what is there

Finding birds

- Diurnal – obvious
- Diurnal – cryptic/rare
- Diurnal – nomadic/migratory
- Nocturnal – terrestrial
- Nocturnal - aquatic
How to minimize biodiversity loss

Find out what is there

Finding reptiles

- Lizards and snakes: diurnal – obvious
- Lizards and snakes: diurnal – cryptic/rare
- Lizards and snakes: nocturnal
- Turtles – freshwater
- Turtles – marine
- Crocodiles
How to minimize biodiversity loss

Find out what is there

*Finding frogs*

- Common, summer
- Common, winter
- Appearing/calling only after heavy rains
- Rare/endangered
How to minimize biodiversity loss

Find out what is there

Finding frogs

- Some we can find easily by calls
- Some we find occasionally by calls
- Some we find by trapping – at the right times
How to minimize biodiversity loss

Find out what is there

*Finding frogs*

- Some we can find easily by calls
- Some we find occasionally by calls
- Some we find by trapping – at the right times

If a survey finds only a few frogs (or none) but was conducted only in winter or only on dry nights
How to minimize biodiversity loss

Find out what is there

Finding frogs

- Some we can find easily by calls
- Some we find occasionally by calls
- Some we find by trapping – at the right times

If a survey finds few frogs but was conducted only in winter or only on dry nights the conclusion is virtually useless
How to minimize biodiversity loss

Find out what is there

Finding fish

- Marine, common
- Marine, rare/endangered
- Freshwater, common
- Freshwater, rare/endangered
How to minimize biodiversity loss

Find out what is there

Finding invertebrates

- Can't find them all!
- What should we look for?
How to minimize biodiversity loss

- Tourism interest
- Potential interest
- Ecological roles
- Endangered
How to minimize biodiversity loss

- Tourism interest
- Potential interest
- Ecological roles
- endangered
How to minimize biodiversity loss

- Tourism interest
- Potential interest
- Ecological roles
- Endangered
A new way of finding species:

Biodiversity soup: metabarcoding of arthropods for rapid biodiversity assessment and biomonitoring

Douglas W. Yu (Chinese Acadamy of Sciences, Kunming) et al

“...extraction of ecological, taxonomic and phylogenetic information from bulk samples of arthropods”

A new way of finding species:

Biodiversity soup: metabarcoding of arthropods for rapid biodiversity assessment and biomonitoring

Douglas W. Yu (Chinese Academy of Sciences, Kunming) et al

“...we have detected several vertebrate species in our insect malaise trap samples (bats, frogs, birds and ungulates) that are known to exist in the trapping area (authors’ unpublished data). We suspect that we are amplifying DNA from vertebrate blood that is borne by mosquitoes, and this suggests that terrestrial vertebrate diversity might be measurable with mass mosquito or leech collections.”
A new way of finding species:

Biodiversity soup: metabarcoding of arthropods for rapid biodiversity assessment and biomonitoring

Douglas W. Yu (Chinese Academy of Sciences, Kunming) et al

Methods in Ecology and Evolution. 2012. 3:613-623

Can Australia help pioneer this ground-breaking method of relatively cheap, rapid fauna surveys based on DNA of invertebrates plus DNA of vertebrates in blood-sucking invertebrates?
How to minimize biodiversity loss

Understand ecological requirements and interactions

Dispersal of micchorhizae spores by pororoos and bettongs aids forest trees
How to minimize biodiversity loss

Understand ecological requirements and interactions

Seed dispersal is essential in native forests, and many plants depend on animals. Dispersers are not always interchangeable, and they have their own needs.
How to minimise biodiversity loss

Understand ecological requirements and interactions

Pollination is also essential. Different plants have different pollinators.
How to minimise biodiversity loss

Understand ecological requirements and interactions

Forest clearing for facilities can increase edge effects, favouring some species at the expense of others (noisy miner are not 'bad birds', but they do tend to take over in edge habitats)
How to minimise biodiversity loss

Understand ecological requirements and interactions

It is possible even with a small amount of clearing to jeopardise wildlife, if it includes a food tree that is needed in lean season, hollow trees for nests, etc.
How to minimise biodiversity loss

Understand ecological requirements and interactions

And chains of dependency can be broken – e.g. birdwing caterpillar needs vine which needs gnat which needs mountain streams
How to minimize biodiversity loss

Understand potential external threats (e.g. climate change, habitat fragmentation etc.)
How to minimize biodiversity loss

Understand potential external threats (e.g. climate change, habitat fragmentation, etc.) so we can avoid making these threats worse, & maybe help mitigate/reverse some of them.
How to minimize biodiversity loss

• Understand potential impacts of proposal
How to minimize biodiversity loss

Develop sound management plan including adequate monitoring
How to minimize biodiversity loss

- Find out what is there
- Understand ecological requirements and interactions
- Understand potential external threats (e.g. climate change, habitat fragmentation)
- Understand potential impacts of proposal
- Develop sound management plan including adequate monitoring
We do have a natural advantage
We do have a natural advantage

Let's make sure we protect it
We do have a natural advantage

Let's make sure we protect it – ALL of it!
We do have a natural advantage

Let's make sure we protect it – ALL of it!

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