



General Certificate of Education
Advanced Subsidiary Examination
January 2011

Critical Thinking

CRIT1

Unit 1 Critical Thinking Foundation Unit

Source Material

This source material is to be read in conjunction with the questions in Unit CRIT1.

Document A

Australian crocs hit by cane toad 'wave of death'

Pit a cane toad against a freshwater crocodile and who wins? Although the croc eats the oversized amphibian, it seems the toad has the final laugh.

Dead freshwater crocodiles in Australia's Northern Territory were once a rare sight. But since 2005, locals have witnessed mass die-offs in some semi-arid regions of the territory. Researchers now say the toxic and invasive cane toad is to blame. The toads secrete a milky-white toxin which is lethal to many predators from glands behind their eyes and on their backs.



A last supper? Freshwater crocodiles have been seen eating the toxic cane toads

Mike Letnic of the University of Sydney and his team say a massive 77% of some populations of freshwater crocodiles – or “freshies” – have died since 2005. The numbers are particularly worrying, says Letnic, because removing top predators like freshwater crocodiles can boost the number of their prey; this, as he explains, can trigger a cascade of ecosystem changes that are difficult to predict. “It was a disaster waiting to happen,” says Letnic. “If it had been whales or some species with big brown eyes everyone would have been up in arms,” he adds.

Cane toads were introduced to Queensland in northeast Australia in 1935 to combat the cane beetle, a sugar cane pest, and have been steadily marching westward across the continent since. They are now considered invasive pests in their own right: they have decimated populations of Australian monitor lizards and certain species of snakes.

The researchers say in the long term, the high death rate may naturally select for crocodiles that have a higher tolerance to the toad toxin. This has been seen to happen in some blacksnake populations that have also been hit hard by the cane toads. In the meantime, however, the toxin appears more lethal to younger crocs, suggesting that the reproductive rate of the populations could take a big plunge.

Source: article adapted from RACHEL NOVAK, www.newscientist.com, 27 June 2008
image from MIKE LETNIK, University of Sydney

Document B

The following is based on an **online forum discussion** in response to **Document A**

Paul Posts: 1,175 Joined: Mar 2003	Let evolution take its course! Maybe the “freshies” will evolve.
Zack Posts: 10,923 Joined: Dec 2003	Good point! This could be an excellent experiment in evolution. Let’s wait and see what happens.
Dilan Posts: 51 Joined: Jan 2004	Evolution happens to species within their natural environment. You can’t release a creature elsewhere and hope it will evolve. It’s like throwing yourself in the sea hoping you’ll evolve into a fish and start swimming.
Reena Posts: 16 Joined: Jul 2010	It’s not such a big worry that people have gone and introduced these toads. Similar things happen naturally. Species travel of their own accord, often by obscure methods such as clinging to a palm leaf in the ocean for a few weeks. It won’t be the first time a species has had to adapt to the arrival of a new species.
Mehmet Posts: 3,647 Joined: Jan 2007	That doesn’t mean that you can just go around introducing species wherever you want, Reena!
Zack Posts: 10,924 Joined: Dec 2003	You’re not being fair to Reena’s argument, Mehmet. Reena wasn’t saying that.
Mehmet Posts: 3,648 Joined: Jan 2007	But her argument implied it. Besides, the toad <i>didn’t</i> travel naturally! It was introduced, deliberately, by humans. So either way his points are irrelevant.
Paul Posts: 1,176 Joined: Mar 2003	I think you’ll find it’s not the first time a species has been introduced to a new environment by humans.
Mahmet Posts: 3,649 Joined: Jan 2007	Oh, so that makes it OK on this occasion does it?
Reena Posts: 17 Joined: Jul 2010	Whether or not it was man that introduced the pest is irrelevant: species invade and the existing ones must cope or die.
Dilan Posts: 52 Joined: Jan 2004	You have absolutely no idea what you are suggesting. Imagine we decide to import the great tiger into our own environment. Would your theory stand up then? Should we be forced to decide whether to cope or die? Clearly the real solution would be to avoid the introduction of the predator in the first place.
Reena Posts: 18 Joined: Jul 2010	I believe my theory would stand up. Introduce the great tiger into our environment, and it would not last very long. That’s not to say it wouldn’t take a few of us with it, but in the end, humans would most definitely prevail. Let’s see - gun, tiger... I’m betting on the gun.
Steffi Posts: 688 Joined: Feb 2008	You’re all missing the point. It’s not our job to play God and decide which species can and can’t survive. We should just let nature take its course.

Turn over ►

Document C

Stone the crows — and the damage is undone Let's celebrate killing a few birds

This column is normally in favour of keeping birds alive, but just for a change, let's celebrate killing them. The house crow has just been eradicated from the Socotra archipelago in Yemen — hurrah! No more crows; all gone, defunct, wiped out. Hurray for all those dead birds!

It's all the fault of an officer of the Bombay Infantry who, for reasons best known to himself, decided to release a few house crows in the Yemen port city of Aden. (Perhaps he liked them. Perhaps he just fancied being God.) The birds became hardened ship travellers, have hitched lifts all over the place, and then thrived once they got there.

They reached Socotra in 1996, and started eating their way through the extraordinary creatures that have developed on the archipelago, and which are found nowhere else in the world. There are 18 species of gecko found here, of which 15 are found nowhere else. There is a tiny species of shrew, reckoned by some to be the world's smallest mammal. There are 192 species of birds, and six of these are endemics*: the Socotra sparrow, sunbird, warbler, starling, cisticola and bunting.

The house crow population reached ten pairs; enough to constitute a significant threat to the rare Socotra species. Attempts to trap the crows consistently failed; crows are smart. So the Socotra Archipelago Conservation and Development Programme, backed by Birdlife International, came up with a brainwave: get the children to do it. They offered a reward to any child bringing in a crow's nest full of young. It worked and the last few birds have just been shot.

The rare Socotra species can carry on living their unique and isolated lives. A small bit of damage has been undone. A small reverse for a crow: a great leap forward for the Socotra cisticola.

Source: adapted from SIMON BARNES, *The Times*, 11 July 2009

*In ecology: native to or confined to a certain region

RESPONSE TO THE ARTICLE

Once again another article assuming that crows are evil. Perhaps it's because of their appearance (black) and associations (eating carrion¹), but for some reason the crow is always seen as the villain. Yet anyone who loves birds ought to celebrate the crow – not discriminate against it. Crows are highly intelligent, adaptive, resourceful; while other bird species struggle with a changing environment, crows are thriving in the modern world: crow populations in both cities and countryside are on the rise. Simon Barnes calls himself a bird lover. If this is the case, then he should not have written this article. In going along with the popular image of the crow as baddie, he is demonising it. What's more, in giving the native Socotran species rights that he is denying the crow, he is guilty of speciesism².

Source: LAWRENCE FISHER, Wild life blogger

¹ Dead, often rotting, animal bodies

² **Speciesism** is discrimination on the grounds of species – in the same way that racism does on the grounds of race, or sexism on the grounds of gender.

Appendix**(i) Red kite, UK**

Reintroduction of the red kite to England and Scotland has been one of the major conservation success stories of recent times



Red kites were widespread in the Middle Ages, particularly in towns and cities, where they played an important role as a scavenger, cleaning up dead and decaying animals. By the 16th century however they were classed as vermin and their decline began. By the 1870s they were confined to Wales and by the beginning of the 1900s only a few pairs survived there. Wardening by committed volunteers, including those from the Hawk and Owl Trust, prevented complete extinction.

With protection a slow recovery began. As their spread was very slow, a reintroduction project using young birds from Sweden began in the Chilterns in 1989. This was so successful that this population provided young birds for further re-introductions both elsewhere in England and in Scotland. The bird is now widespread in Britain and is beginning to be seen in Northern Ireland.

Source: adapted from Hawk and Owl Trust

(ii) Rabbits, Australia

Rabbits were first introduced to Australia by European settlers in 1788. With mild winters, rabbits were able to breed the entire year, and within ten years the population had exploded into the millions. It was the fastest spread ever recorded of any mammal anywhere in the world. The effects on agriculture were devastating.

In 1950, to combat this, the disease Myxomatosis was deliberately released into the rabbit population, causing it to drop from an estimated 600 million to around 100 million. The disease typically results in a slow and unpleasant death. Symptoms commonly include lung infections and blindness. Death takes on average 14 days.

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