

Tales of Toad Terror and Tenacity: What Cane Critters Can Teach Us

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Through shafts of half-light, an underwater shot frames drifting detritus. Shrouded in mist, mud bubbles with micro-organisms. A cacophony of cicadas and screeching parrots saturates the scene until a cockroach scuttles across the exposed tree-roots of a mangrove swamp: 'South America, 15 million years ago', says the inter-title. The camera pans through dense blue-grey foliage, as though searching for something, and then back to the swamp where a pair of beady reptilian eyes emerges briefly before retreating. Then an enormous toad, full-frontal, engulfs the frame, staring straight at the camera. Water drips rhythmically on the critter's motionless head for what feels like eons. Without warning, he launches himself at the viewer.

THE OPENING OF MARK LEWIS'S *CANE TOADS: THE CONQUEST* (2010), described above, is playfully more akin to that of an eco-horror film than a natural history documentary. This primordial origins-of-life sequence conjures up a dark and fetid world where Darwin's 'survival of the fittest' reigns supreme. But it could equally be a scene from the future—a post-human world where toad, jellyfish and cockroach dominate. Historian Nigel Turvey's recent description of the toad's tenacious evolution conjures up a similar vision of toad terror that, by comparison, makes humanity's existence seem fleeting and fragile. The tadpole, he explains, is 'a small-mouthed water dwelling larvae ... [that] within 10-20 days ... changes into a land-dwelling, air-breathing carnivore ... a relic of the adaptive transition from sea to land, unchanged, frozen in time' (3-4). Turvey goes on to claim:

Around 65 million years ago an asteroid hit the earth. Dust encircled the sun and caused mass mortality ... the toad hopped on ... another mass extinction occurred just 10,000 years ago, just yesterday for geologists. Its cause more sinister—the spread of man and dramatic changes in climate. Many species disappeared. The toad hopped on... (4)

Cane toads have ‘hopped on’ and ended up as failed agents of biological control in regions as far flung as Florida, Bermuda, Hawai’i, Fiji, Guam, the Phillipines and Japan (Turvey xii). In Australia, the story is well known. The cane toad was imported from Hawaii to Queensland in the 1930s to save cane crops from devastation by the greyback beetle. But the differing life-cycles of the grub and the toad meant that the two rarely came into contact. The cane toad rapidly multiplied and has had a catastrophic impact on many native species, particularly large predators. 102 toads were introduced in 1935 and some estimates now put their population at over 2 billion (Khoury). I argue that the brazen success of *bufo marinus* in Australia¹— the way it has assimilated, hybridized and utterly thrived—undermines the notion of human supremacy over nature and forces us to re-think long-held views about evolution in the age of the Anthropocene; an age named, to quote Deborah Bird Rose and Thom Van Dooren, to acknowledge the ‘pervasive impact of human agency’ (2011). This paper discusses the cultural, social and scientific innovation that both the flesh and blood amphibian, and the toad as symbolic creature, have provoked and inspired.

The toad instils both terror and humour, sometimes simultaneously. In Australian feature film texts, eco-horror has become a staple commercial sub-genre of Australian cinema (Ryan; Stadler; Simpson 2010). While Mark Lewis’s classic films, *Cane Toads: An Unnatural History* (1988) and its sequel, *Cane Toads: The Conquest* (2010), are not fiction features, they are in dialogue with the eco-horror genre as well as the quirky comedies and Australian road movies. I argue that Lewis’s films, most particularly the first, have had a wide-ranging cultural impact through their often humorous framing of the dominant discourse on cane toads in Australia. As well as considering the broader discussions around the toad in the scientific literature and the media, this paper contextualises Lewis’s films through the lens of recent writing in the environmental humanities and is inspired by my experience of teaching these films to science undergraduates as exemplary tools of (science) engagement. Lewis’s films, as Morgan Richards has argued, ‘perform science as a product of culture’ (157), something that often sits at odds with the teaching of science in our universities.² Furthermore I argue that

¹ Or *Rhinella marina*, as the toad has been officially known since 2008 (Turvey 4).

² If science was taught as a product of culture there would be no need for science communication courses. I drafted this article while piloting a Science Communication programme at Macquarie University (2010-2012) with Tim Flannery. As a researcher in

the approach adopted by Lewis to illustrate the problem of the cane toad—bringing together the social, narrative, environmental, cultural, and scientific elements and not privileging one aspect over another—provides not just a model for eco-documentary (Richards 150), but also a model for how most scientific issues should be approached. The films' strategic use of humour is, as Randy Olson argues, a key element in translating and communicating science to broader audiences.

In order to reflect the inclusive 'multispecies' tone of Lewis's films, I adopt Donna Haraway's term 'critter' to emphasise the intimate in-folding of the toad with humans, non-humans and the environment which complicates the narrow definition of the cane toad as simply a 'pest' or 'vermin'. In *When Species Meet*, Haraway prefers to use the term 'critter', rather than 'animal', to better articulate the relationship with 'companion species' like her dog. 'Animal' is a term which sits firmly on the 'nature' side of the nature/culture duality, something that Haraway views as redundant and even harmful because 'we dwell today among interpenetrating naturecultures' (Haraway qtd in Garrard 152) or, as Stephen Muecke has claimed, 'humans and non-humans are always in it together, strange or not so strange collectivities of things in the world'. Lewis's films, like much recent work in the environmental humanities, highlight 'the fantasy of human exceptionalism' (Haraway 11), and provoke a re-thinking of human-animal encounters and evolution. This emanates not just through the films' narratives but also through innovation and experimentation with film style, form and genre. *An Unnatural History* signaled an evolution in the natural history documentary genre, but also, 'a shift in the way Australia saw itself' (Farrelly). Lewis's most recent film, *The Conquest*, is more complex, with its 3D point-of-view shots encouraging an ethical, inter-subjective and at times melancholic infolding of toad with human and non-human others. Finally, given the mounting scientific and anecdotal evidence that the cane toad is neither going to be exterminated nor contained in Australia, and considering the uncertain consequences that biological intervention poses, I ask whether perhaps we should abandon interventionist management and 'let things unfold in their own way' and attempt to 'live *with* [nature] rather than *against* it' (Matthews)?³

Australian cinema, I was shocked that none of my undergraduates had heard of *Cane Toads: An Unnatural History*. Later I realised the generational impact of this film when I mentioned it in passing at a Science Faculty staff meeting and the usually phlegmatic professors erupted with stories, desperate to describe their favourite scenes from the film.

³ 'The invasion is not going to go on, they are not going to stop it they are actually wasting their time', says Bill Freeman in the sequel.

From toxic toad to bufophilia: ambivalent amphibian-human relationships

If ingested [the poison] disrupts the nervous system, causes hallucinations, stops the heart and ends in sudden death. The toad is toxic at all stages of life.

(Lever, qtd in Turvey 6)

Every night, under cover of darkness, an advancing wall of toads, a 'moving carpet', heads west. Instead of winding their way through the bush, they follow the path of least resistance, multiple corridors of Northern Territory roads. Meanwhile gangs of volunteers perch nightly on the Western Australian border ready to catch and bag the arrivals as they march straight down the highway, ignoring the official border signs. They gas the creatures, then measure, weigh and tag them before dumping them into mass graves. These are the efforts of the Kimberley toad busters in the face of the so-called 'unending hordes', 'the invasion front', 'public enemy number 1' or just plain old 'vermin'.

Re-wind 25 years to 1987 to a scene you may remember. A Queensland Combi driver weaves purposefully all over the road, his van leaving squashed animals in its wake. 'Pop' goes each toad as tyre strikes flesh while Vincent, the driver, describes his hate for this amphibian and his love of native wildlife. 'I line them up with the driver's side front wheel', explains Vincent. 'I know that I've made a good clean kill if the animal is facing the vehicle head-on. Then the air that's inside the toad is trapped within the head and blown out towards the back end and the toad really goes off like a balloon' (Farrelly).

Cane toads are a quintessential example of what James Lovelock once provocatively described as 'exotic outlaw species, evolving into rampantly criminal syndicates' (Lovelock qtd in Flannery, *Weather Makers* 17). Dubbed the 'godzilla of the animal world' (Khoury), cane toads and what they do to Australian wildlife inspire an atavistic fear and hatred that is palpable in both films. Another memorable scene from the original film portrays a youthful Dr Mike Archer, then mammalian specialist at the Queensland Museum (now Professor Archer and former Dean of Science at UNSW). Archer, depicted in extreme close-up, describes the tortured death his pet native cat, a quoll, endures after feasting on *bufo marinus*. In an anguished performance made dramatically humorous through Lewis's framing, Archer forecasts that most native populations, especially big carnivores, would be wiped out. These dire predictions, particularly of the toad creating a monoculture, have not materialized. Nevertheless Queensland still prides itself on annual 'environmental' events, such as 'Toad day out' where school children are encouraged to catch live toads, which are then 'humanely destroyed ... with

prizes awarded for children who find the heaviest toads. ... Most end up being turned into fertilizer' (Wikipedia).

As Thom Van Dooren notes, 'within the context of contemporary ecologies' and invasive "pests", some lives are seen as legitimate, while the deaths of "pests" are not only condoned (as they often are in legislation), but also in an important sense demanded for the sake of any genuine conservation' (Van Dooren). While being critical of toad killing on the one hand, on the other it's also problematic to dismiss the environmental impact that the toad wreaks when it advances through a region for the first time. Tim Flannery, in *Here on Earth*, describes his friend who was camping beside a river and became distracted by a nauseating smell that emanated from a 'logjam of dead crocodiles, their bodies lying so thickly that they clogged the stream' (76). He goes on to say:

In northern Australia it's easy to know when you are ahead of the toads. You see crocodiles, goannas, frill-necked lizards, birds of prey and countless other native Australian creatures every day, all around you. But if you visit the region behind the moving frontier (which in 2010 lay near the Western Australian border), all is silence and devastation. Unless you were there when the first toads arrived, it's hard to fathom what happened. (76)

Flannery articulates here a sense of what philosopher Glenn Albrecht describes as 'solastalgia', a form of psychic distress produced from environmental change. He defines it as 'the pain experienced when there is recognition that the place where one resides and that one loves is under immediate assault ... a form of homesickness one gets when one is still at "home"' (Albrecht qtd in Smith). While Albrecht refers to human responses to mining and drought, the ecosystem devastation caused by the toad that Flannery alludes to here also seems to induce a sense of solastalgia.

'Perhaps the most cullable animal of all is the cane toad', claims Adrian Franklin. 'Surely this animal has no backers? ... It poisons a broad swathe of wildlife and its arrival in Darwin marked another sad chapter in the toad's unstoppable spread across tropical and subtropical Australia' (160). On the one hand, the deep-seated hatred targeted at these creatures reveals an eco-nationalist logic in our attitudes towards 'natives' and 'non-natives', an issue I discuss in the final part of this paper. On the other hand, stories of human-toad harmony indicate an unfolding ecological understanding, or what biologist Tim Low calls, the 'new nature': an emerging ethic that foregrounds the complex and dynamic interrelationships between animals and humans (3). Lewis's films revel in this 'new nature' and *bufo's* homophilia is foregrounded while the toad's quirky demeanour seems to drive some equally quirky zoomorphic human responses. *An Unnatural History* depicts a resident of Gordonvale, David Sondergard, who

loves to listen to the critter croaking at night, while in another sequence (that is repeated in the sequel) scientist Glen Ingram enthusiastically mimics *bufo*'s mating call. A landmark scene in the first film, that also graces the film poster, is the depiction of 4-year old Monica Kraus, dressing up and tickling the tummy of her real live 'teddy bear', a giant toad called Dairy Queen. Now aged in her late 20s, Kraus features in Lewis's latest film, bemused by her earlier pursuits, but she also nostalgically recounts her feelings of childhood loss when Dairy Queen goes missing, exhibiting a sense of multispecies love. In *When Species Meet*, Donna Haraway claims: 'The history of co-domestication is a multispecies phenomenon. It's not that we domesticated them and turned them into instruments for our ends ... these are co-evolutions of ourselves and other organisms we live with' (Haraway qtd in Williams). While Haraway is talking more specifically about the role of canines, I suggest here that the toad might not be so different, given the many examples of harmonious co-habitation of humans and toads.

This 'multispecies love' takes on a more wistful tone in the sequel, *The Conquest*. Peter Ravenscroft has hung a sign that reads: 'Cane toad inauguration' on the gate of his large rural property in southern Queensland. In a region where playing 'toad golf' or catching and freezing toads is a popular past time, Ravenscroft provides a rare sanctuary for the toads. 'You can't reverse evolution', says Ravenscroft, 'you can bash them with golf clubs 'til you're blue in the face, it's not going to make them go away'. Ravenscroft's ethical response to the toads, allowing the critters to freely wander his property of their own volition, seems to resonate with eco-feminist Freya Matthews' Taoist approach towards nature that tries to 'live *with* it rather than *against* it'. In her paper entitled, 'Let the world do the doing', Matthews attributes a subjectival or agentic dimension to matter which implies that, unlike the claims of many environmentalists, nature does not need human protection or conservation. In the case of the cane toad, what would happen if we allow things to 'unfold in their own way, or run their own course' (Matthews)? The common saying, 'nature knows best', argues Matthews, comes from the notion that 'life has had countless millennia to adjust itself to terrestrial conditions. ... All [species] have evolved in concert with one another, with the consequence that their natures are mutually cross-referencing'. Just as the wildlife in Central and South America have had time to adjust and co-evolve with the toad, perhaps time and patience is the remedy for *bufo* in Australia, as painful as it may be. Recent research indicates that when cane toads become established, many native species begin to recover their numbers (an issue I discuss in the final section of this paper). While not speaking about any species in particular, Matthews asserts,

It might mean that we should forego interventionist 'management' and allow natural processes to reassert themselves, however distressing it might

be to watch native plants and animals disappearing under the onslaught of aggressive invaders. Such stepping back is, according to one reading of the principle, the course that would allow for a true 'return to nature': some of the original species would presumably decline, and new ones would steal their niches, but as soon as competition had stabilized, speciation would begin again *in situ*, because we would no longer be intervening to reverse this trend.

Or alternatively, while not using the cane toad as an example, Matthews pragmatically adds, 'the problem of feral invasions can often be solved by us in the simplest of ways: by eating the ferals'. Lisa-Ann Gershwin also suggests this response to managing the plague proportions of jellyfish in her book, *Stung! On Jellyfish Blooms and the Future of the Ocean*. Barbequed *bufo* may not be as far-fetched as one might think, as cane toad legs are reportedly being served up by chefs in one Darwin restaurant (McCartney).

Cane toad innovation: genre, technology and parody

@caseythea: Eff you James Cameron! I'll take Avatoad (Cane Toads: The Conquest in 3D) over your crappy Avatar anyday!

@mattcornell: Cane Toads in 3D. Like Herzog on steroids.

Tweets from viewers after seeing the film at the LA Film Festival,
19 June 2010. <<https://www.facebook.com/CaneToads/posts/136709013010728>>

Documentary theorist Bill Nichols argues that traditionally, documentary film has a kinship with other non-fictional systems such as religion, politics and education and together they make up the 'discourses of sobriety' (3). *Cane Toads: An Unnatural History* (or the 'unnatural history' film, as Lewis cheekily implies with his title) radically disrupts the conventions of the natural history film, through its novel use of narration, humour and address. Abandoning the usual voice-of-God narration and its accompanying didacticism, *An Unnatural History* intertwines interviews with inter-titles. Without privileging expert opinion over local experiences, a vast array of people are interviewed about their relationship with cane toads: scientific experts, parliamentarians, councilors, rangers and ordinary people from all walks of life. The film toys with audience expectation of what a natural history film *could* be, to the point that many viewers thought the central characters were actors cast in roles and viewers questioned the reliability of the truth claims made by this film. As well as its innovation in the story-telling method used to portray the critters' history in Australia, its biting political satire of former Queensland Premier Joh Bejelke-Petersen and gentle ridicule of Queenslanders, *Unnatural History* resonated with a generation of

viewers and became the highest-grossing Australian documentary of all time, until it was eclipsed by *Bra Boys* in 2008, some 20 years later (Butler 219). Elizabeth Farrelly argues that the film marks a shift in how Australia viewed and portrayed itself:

The original *Cane Toads*, a cult classic, has long sat with Joh and Azaria in my faded Kodachrome album of what it means to be Australian. Something about the mix of steamy nights, unseen evil, short-sleeve politics and a biting nasal strine seemed to capture Australia's everyday surrealism and, quite reasonably, fed my desire to be in it. ... The film marked a shift, if not in the history of the cane toad, at least in the way Australia saw itself. For here was a mind that loved Australianness but could also, without slapstick or condescension, take the piss.

The irreverent tone of *An Unnatural History* makes it arguably the first in a series of what came to be described as 'the quirky comedies' that emerged from the Australian film context in the early 1990s with commercially and critically successful titles such as *Strictly Ballroom* (1992), *Muriel's Wedding* (1994) and *Priscilla: Queen of the Desert* (1994). According to the ABC, *An Unnatural History* was commissioned by the Department of Agriculture and Film Australia and shot on a tiny budget, with the filmmakers' brief being to make a documentary highlighting the problem of *bufo marinus* migrating from northern Queensland and causing environmental chaos (ABC). Well-known Australian cinematographer, Jim Frazier, who had worked with David Attenborough, shot the first film. Frazier was frustrated with the lenses available to him, so developed a lens system with a massive depth of field which enabled something in the foreground to be in focus simultaneously with something in the background, giving the viewer a sense of the toad 'up close' while simultaneously not separating it from its environment (Lewis).⁴ Lewis further explains that

We tried to tell much of the story from the cane toads' point of view, using exceptionally low camera angles—in effect, giving a voice to this animal that couldn't speak for itself yet was at the center of so much controversy. My goal was to create some sympathy for this animal that was so widely reviled. (Lewis)

As well as invoking a sense of viewer empathy, these camera angles encourage the playful juxtapositions that the film is often noted for. For example, the final science fiction scenario depicts the toad hopping all the way from Brisbane to Sydney while Tim Finn croons 'Cane Toads are coming' in the background. The

⁴ The CSIRO refused to back Frazier's invention, so he developed and patented them on his own. Subsequently Hollywood directors such as Steven Spielberg and James Cameron have used them (see 'The cameraman and the piranhas').

final shot shows the toad's point-of-view as he marvels at the Harbour Bridge and both are in focus. While evidently played up for its tongue-in-cheek humour, this scene provokes the viewer into imagining a future where a cane toad in Sydney might not be as implausible as it once seemed in 1988. In another scene, a Hitchcockian parody shot from the toad's point-of-view, a man sings uninhibitedly in the shower while a toad hops in quietly through an open bathroom window. The man draws back the shower curtain and screams at the sight of the toad. Lewis says that the notion of an 'alien invasion' provoked him to play off 'the conventions of the horror movie ... with a shower scene stylistically reminiscent of *Psycho*. That was a result of not just my sense of humour but also of the nature of the media coverage that the cane toad receives. News stories about the cane toad are always couched to provoke anxiety if not terror' (Lewis 22-23). And, as is common in the eco-horror genre, scenes such as these enable the simultaneous provocation of both anxiety and laughter in the audience.

Mark Lewis also pioneered aspects of an emerging mockumentary/docudrama form whereby his subjects' direct-to-camera address, through the ingenious use of his 'mirror box', enables them to tell their wild and wacky cane toad experiences. Morgan Richards argues this was an innovation in documentary technique, an aspect that is written out of many histories of documentary because Lewis is 'a filmmaker working in a marginal industry on the edges of a marginal genre' whose ingenuity deserves much greater recognition (Richards 153). However, rather than creating intimacy with his human subjects, as Richards' asserts, I argue that this technique serves to distance the viewer from the human interview subjects which in turn creates a self-reflexive viewing experience. This direct-address-to-camera technique, which breaks down the fourth wall, unsettles the viewer and in some instances provokes uneasy humour, in others, disbelief.⁵ A similar technique can also be seen at work in the films of well-known US director, Errol Morris, whose *Thin Blue Line* (1988) uses his celebrated interrotron device.⁶ However the interrotron is adopted for a very different dramatic and stylistic purpose in those particular films. For Australian audiences, the mockumentary, direct-address-to-camera sequences in *An Unnatural History* encourages the viewer 'to play anthropologist to their own culture'; something that Tom O'Regan has claimed more generally in relation to the stylistic pre-occupations of Australian film, particularly in the 1990s (239). This direct-address-to-camera interview style can even be seen a few years later in features like the opening scenes of Baz Luhrmann's *Strictly Ballroom* where

⁵ So I'd argue that while the Frazier lens system encourages intimacy with the non-humans, the 'mirror box' seems to have the opposite effect and alienates the viewer from the human.

⁶ More information on this can be found at <<http://www.errolmorris.com/content/eyecontact/interrotron.html>>, while Morgan Richards also discusses this briefly in her essay.

the main character's mother, Shirley, distressfully recounts Scott's determination to 'dance his own steps' at the Pan-Pacific Grand Prix Dancing Championship. As in the interviews with the human characters in the original *Cane Toads* film described above, the technique distances the viewer from Shirley, and in the process enables the audience to reflexively laugh at both films' camp parodies.

The Conquest is in many ways a more nuanced and sophisticated film than the first and won rave reviews at the Sundance Film Festival (Hyland). However, up until this point, it has not achieved anywhere near the same commercial success. It is Australia's first 3-D film and Lewis describes it as a travelogue. While Queenslanders and Joe Bjelke-Petersen are gently mocked in the first film, Territorians are the butt of jokes in the sequel. The light-hearted quirky humour that made the first film a 'cult classic' is still evident, but it is often replaced by a much darker and more melancholic tone that provokes a sense of solastalgia. At times *The Conquest* exudes the nihilistic and existential quest motifs that characterise the road movie genre. For instance, the film traces the toad's epic journey, from lush Queensland forests to sublime sweeping desert-scapes, as we follow the critter through the Top End and then onto the Kimberley. Along with its slow rhythmic tempo, the sequel reinforces the road movie aesthetic and highlights the idea of human futility in the face of animal agency.

With his innovative use of 3-D technology, Lewis goes one step further in *The Conquest* in attempting to intensify cane toad-human inter-subjectivity. From the moment the film opens, when the critter jumps out of the screen towards us, to some of the closing scenes, we get to glimpse the cane toad at close quarters and have a sense of the world from their subjective point of view: '3-D is no longer about things "comin' at ya!" ... It's about trying to place the audience and the cinemagoer within the picture', argues Mark Lewis. 'You can't use dialogue to give character to an animal. So what really counts is the ability to give an animal personality through Foley and sound effects, and of course, the sounds that they make' (Lewis qtd in Cowie). The inter-subjectivity that Lewis tries to encourage challenges the hyper-separation that eco-philosopher Val Plumwood argues is characteristic of contemporary Western culture:

To the extent that we hyper-separate ourselves from nature and reduce it conceptually in order to justify domination, we not only lose the ability to empathise and see the non-human sphere in ethical terms, but also get a false sense of our own character and location that includes an illusory sense of autonomy. (54)

Cane Toad: The Conquest encourages us to see the toad in ethical terms, and I'd argue that the 3-D technology reduces our ability to hyper-separate ourselves from nature (at least while watching the film). This makes the scenes at the end

of the film far more harrowing, particularly, for instance, when the camera lingers wistfully on a lone cane toad perched on a mound of sand as he watches his brethren being gassed, bagged and dumped by the Kimberley Toad Busters. Through foregrounding the perspective of the toad critter, as opposed to the human actors, this provides a counter to 'the normalization of this death work' (Rose) and in the process de-centres the human.

Toad Warriors: highways, evolution and eco-nationalism

Compared with the gradual process described by Darwin, this is evolution at warp speed. What is really startling, though, is that far from than being exceptional, high-speed evolution is starting to look like the norm. Very few biologists set out to look for evidence of ongoing evolution, but wherever they do, they find it—from weeds and pests to fish to humans. ... It now appears that whenever the environment changes in any way, life evolves. Fast. (Michael Kinnison qtd in Le Page)

'Well, what is going to stop them? I mean, what are they going to be like [when they get to Perth]? They'll be like camels.' (Cathy Singleton in *The Conquest*)

At least outer space may limit the march of *bufo marinus* throughout the universe. (Turvey 8)

The infolding of toad, human and non-human others creates a space in which adaptations can occur. Animals (both native and non-native) are adapting in conjunction with each other rather than being positioned in stark opposition, which has in turn provoked a paradigm-shift in the way scientists view the process and speed of evolution. Within just under 80 years, some species of animals that were close to extinction 30 years ago because of the cane toad, such as larger reptiles like snakes and crocodiles, are now adapting to the cane toad's poison or learning not to eat them and have even replenished their numbers. Professor Rick Shine from Sydney University's Sustainability Centre heads up Team Bufo, a group of researchers looking into toad evolution and behavior. Shine was spurred into looking at toads when the first toad front passed through his research station, located in the Northern Territory. He noticed a lot of his beloved large reptile research subjects such as crocodiles, snakes and goannas were dying. When toads first arrive in an area and start colonizing it, they leave absolute devastation in their wake. Cane toad's logic of life is simple, says Turvey: 'if it's big, avoid it, if it's small eat it, and if it's in between mate with it' (7). But despite all the bad press, as Shine claims, no species have become extinct as a result of cane toads. Bigger native carnivores who eat the toads rapidly die from their toxin, but once exposed to the toad for a period of time, many native

animals eventually learn not to eat the toad. For instance, individual native *planigales*, relatives of the marsupial quoll, will rapidly learn to avoid toads if they recover from their first experience of the cane toad toxin (Brown *et al.*). This observation led scientists to experiment with what they called ‘teacher toads’, where tiny toads are released ahead of the toad front in order to train potential predators not to eat the toads when they arrive. This way the goannas and other natives get sick rather than die on first exposure (Moodie). Anecdotal evidence also suggests that as cane toad infestations persist and become established, many populations of native species begin to recover. For instance, Phillips and Shine claim that populations of black snakes have undergone rapid evolutionary adaptations in behaviour and physiology in response to the presence of cane toads. These observations offer hope for some ecosystems’ at least partial recovery from the toad’s devastation. And perhaps more significantly, they resonate with Freya Matthews’ argument that if we respect the dynamic, agentic dimension of nature and ‘let the world do the doing’ then it often has its own ways and means of recovering and, with a little assistance, speciation would begin again in situ.

Cane toads *themselves* have also shown they have an extraordinary capacity for adaptation and have adjusted to environments far drier, hotter and more hostile than previously imagined. Originally scientists thought that the critter wouldn’t be able to colonise the Northern Territory because it would mean migrating across Australia’s vast river systems and enduring the long dry. But *bufo* is now embedded in WA’s Kimberley region. In an article amusingly entitled, ‘Toad on the Road’ (Brown *et al.*), scientists have observed in recent years that the cane toads move in straight lines down the highways. Like pigeons that were found to exploit the road system in the UK to navigate (Davies), cane toads have made use of man-made urban landforms in order to colonise new areas. The critters follow the path of least resistance, explains Shine, by following the road system and marching down the road in waves like an army, with the swiftest, who have evolved the longest back legs, taking up the frontline:

If you radio track toads around Townsville, they move a bit less than 10m a day, if you do it up around Darwin, they move an average of 100m a day but often a kilometre or even two. ... You’ve got a very, very rapid evolution of a toad that stays on the roads rather than going into the bush because you can go quicker that way. ... (It) runs in straight lines, runs every night the conditions are good, they’ve really evolved into a remarkable dispersal machine. (Rick Shine qtd in Merhab)

In *The Conquest*, Shine calls this the ‘Olympic village effect’ whereby long-legged active individuals mate with one another on the frontline. Shine is quoted as saying, perhaps a little mischievously, “Any gene that’s arisen that says ‘go round

in circles' has stayed in Queensland" (Merhab). Biologist Tim Low argues that 'nature is more opportunistic than we think; that animals aren't always fixed in their ways; that they will exploit the opportunities that we provide' (Low 11). Our land clearing, road building and rapid urbanization have provided a toad paradise.⁷

And what of the non-humans successfully exploiting the toad? In his book, *New Nature: Winners and Losers in Wild Australia*, Tim Low catalogues the way many exotic animals provide food for native predators. Cane critters often provide food for lazy and opportunistic birds: 'Birds flip over exotic cane toads and tear out their stomachs or strip flesh from their thighs. Toads sound like meals of desperation when they're really just a cheap and easy resource, exploited by all and sundry. I have seen 49 dead toads around a small dam with only their tongues removed' (Low 99). Emilia Turzon also reports that the Northern Territory's pygmy crocodiles are 'fighting back against toxic prey' by nibbling at cane toads' back legs, and therefore managing not to ingest the poison in the skin and behind the neck. While not detrimental to the toad, another example of interspecies exploitation, exquisitely portrayed in *The Conquest*, is the story of Dobby the canine crossbreed, who has become addicted to licking toads for their hallucinatory effects. In a section, playfully entitled 'Dobby's Story: A Cautionary Tale', Mark Lewis cinematically creates the 'high' that Dobby presumably experiences, intercut with an interview with veterinarian, Megan Pickering, who comments that:

"This phenomenon of dogs deliberately getting intoxicated is just fascinating. It seems unbelievable that a dog would go back for another try. Nevertheless we do have lots of documented cases of patients who deliberately, on a regular basis, go back and seek out a toad. And they seem to be able to lick the toad in such a way that they get a very small dose" (Megan Pickering in *The Conquest*).

Much like a parent being in denial of the extent of their offspring's addiction, likewise Dobby's owner tries to 'excuse' her behaviour explaining that she doesn't consider it a true definition of addiction because: 'it doesn't seem to affect her on a day-to-day basis. But she certainly enjoys it'.⁸

⁷ The West Australian Kimberley Toad Busters' endeavour to keep their state 'cane toad free' (reminiscent of that state's spectacularly unsuccessful 'rabbit proof fence' in 1901) seems a futile and pathetic enterprise against these Olympic athletes!

⁸ During question time at the Sydney Film Festival screening in July 2011, Mark Lewis played down the film's technological achievements - as Australia's first 3D film - and seemed much prouder that *The Conquest* featured the world's first dog hallucination scene. Even the film's poster carries a warning: 'licking this toad can be hazardous to your health'. It seems that it's not only dogs who enjoy getting high. A few years ago a moose in Sweden was reported to have got so drunk that she attempted to climb up a

This relationship described above between two non-native critters with very different statuses—canines and cane toads—reminds us of the anthropocentric boundaries between animals that are deemed acceptable and those deemed unacceptable. Many of the prevailing attitudes around the cane toad's 'invasion' of Australia stem from the notion of border maintenance and promoting native animals over introduced species. This idea, according to Adrian Franklin, is problematic because it draws on eco-nationalist logic that values some animals and devalues others. In parallel with Australia's assimilation policies (such as the White Australia Policy) to attempt to ensure national purity, the nation also undertook aggressive species cleansing policies to maintain the native flora and fauna, using a very similar logic (Hage qtd in Simpson, 'Australian eco-horror' 46). The threat and fear of outsiders is not just confined to other people and, as Ghassan Hage has argued, 'the ecological fantasy is part and parcel of the nationalist fantasy and vice versa' (Hage 169). Kate Wright, paraphrasing Dinesh Wadiwel, extends this idea, arguing that the state not only manages human life but all life, creating laws 'to regulate and survey particular species, such as kangaroos and dingos; and to extinguish life *en masse*, such as rabbits and cane toads' (Wadiwel qtd in Wright). While Lewis's films reveal empathy with the cane toad, the critter evidently doesn't carry the same cultural value as other 'migrants' such as the brumby or the dingo in the popular Australian imagination. Nevertheless there are many people who take exception to this speciesism.

Taking this eco-nationalist logic to its absurd extreme, we could suggest that cane toads would have made model 1950s assimilationist immigrants in a country indoctrinated through the White Australia Policy. They have been thoroughly 'naturalised' and have readily adapted to their adopted environment, and have prompted the locals (humans and non-humans alike) to adapt to changing conditions. Cane critters weren't voluntary migrants, but rather arrived through a process of forced migration for an instrumental purpose, not of their own making. As conservationist Bill Freeman argues in *The Conquest*, 'It's not the toad's fault that it came to Australia and caused the death of animals. It's our fault we brought the cane toads here ... we're the cause'. *Wired* magazine reported a finding that non-native, invasive species are often 'described in militaristic or even xenophobic terms' in scientific and other literature, while their benefits are often overlooked or disregarded (Keim). In a similar vein, an article in *Nature* entitled, 'Don't judge a species by its origin', Mark Davis *et al.* argue that: 'The public got sold this nativist paradigm: Native species are the

tree to reach some fermenting apples in high branches and got herself stuck in the process ('Drunk Swedish Elk'). One hilarious scene that I haven't mentioned here from the original film is where a man purportedly addicted to smoking cane toad skins for their hallucinogenic properties claims incoherently that they haven't affected him.

good ones, and non-native species are bad. It's a 20th century concept, like wilderness, that doesn't make sense in the 21st century' (Davis *et al.*).⁹

The Conquest's road movie credentials invite analogies with previous Australian road films. Much like the asylum seekers lost in the Kimberley, in the Australian comedy *Lucky Miles* (2007), who had to readily adapt to local conditions and ingeniously modify cars to survive in an arid, desolate landscape, the cane critter too has exploited roads and vehicles opportunistically to navigate and aid the colonisation and conquering of new territories (Simpson, 'Tinkering at the Borders'). In addition to the stories of 'Olympic village effect', there are tales of toads hitching lifts in vehicles during the Queensland floods of 2011 (Merhab) and more recently, riding rafts in the Kimberley floods in Western Australia (McConnon). In this process of rapid evolution and adaptation, they have assimilated and morphed into bigger and better toad-beings than their ancestors, ready for conquest. Precedents of *Lucky Miles'* vehicular modification and adaptation can be glimpsed in George Miller's futuristic *Mad Max* trilogy (1979, 1982, 1986) that featured Mel Gibson playing Max Rockatansky (Simpson, 'Antipodean Automobility'). But the links between the cane toads and *Mad Max* do not stop there. The cane toads, like Max Rockatansky, are offspring of so-called 'new Australians', resilient, tough and adaptable. Max's opportunistic and ingenious ability to move around a hostile land enabled his, and the 'white tribe's', survival in a post-apocalyptic Australia in *Beyond Thunderdome* (1986). However unlike Max and his white tribe, cane toads are doing more than merely surviving...

Conclusion: productive toad futures?

I don't suppose anyone today can predict where the toads will end up tomorrow, or the day after that. Some find that alarming but I find it fascinating and, in a perverse kind of way, inspiring. (Lewis)

The history of the cane toad in Australia is so much more than just a tale of failed biological control. While our capacity for progress seems limitless, says one scientist in *The Conquest*, we still haven't found a way to combat the toad. Nevertheless, as I've argued here, cane toads have provoked scientists to re-think their understanding of many non-humans' evolutionary and adaptive capacities. And on the cultural front, in Mark Lewis's films, the critter has inspired innovation in documentary form, technology and modes of address. Despite

⁹ This is an issue that's not just limited to Australia. In ecology circles there's been a recent push not to vilify species on their origins. A group of ecologists argue that, while some species do have a detrimental effect on environments that they inhabit, more often introduced species have a benevolent or benign impact (Davis *et al.*).

vocal protests among locals upon their arrival in a new area, the amphibian is now firmly entrenched in many parts of the country as well as in the Australian human (and, most probably, non-human) psyche.

Ross Gibson reminds us that: 'myths help us live with contradictions' and often the contradictions they produce compel us to resolve them '*narratively* rather than rationally, so citizens can get on with the business of living' (171). Tales about cane toads highlight the contradiction that in spite of the discourse of scientific progress, we still have not found a way to combat the toad. Perhaps we need cane toads for the same reason that Gibson argues that we need badlands or 'the law needs the outlaw ... for re-assuring citizens that the unruly and the unknown can be named and contained if not annihilated' (178). Like the badlands, the cane toad's 'function is to acknowledge but also deny insufficiencies that are part of everyday social and psychic reality' (178). The toad reminds us of the history of scientific hubris and of regulatory failure. The anxiety about the cane toad is also perhaps much more to do with our settler origins and sense of belonging here in Australia, than with the existence of the toad itself. Toad vilification is a response to the victimhood that pervades many Australian cultural texts, especially in the face of a land that can be neither contained nor controlled, as is often depicted in eco-horror films (Simpson, 'Australian eco-horror'). Mark Lewis's films are a humorous, provocative but at times melancholic plea to re-think our relationship with the much-maligned toad as well as an acknowledgement of its growing place in the cultural and social life of our country. In spite of our colonizing capabilities, *bufo marinus* reminds us of our own fragile existence and is surely a lesson to 'let the world do the doing', or, at least, *most* of the doing, in the age of the Anthropocene. The age of the Anthropocene heralds the sixth mass extinction of species and the twenty-first century may end up being, to quote the prediction of famous socio-biologist E. O. Wilson, 'the age of loneliness' (Wilson qtd in Rose, *Reports* 35). For those of us who remain, we may need to adapt and make do with cockroaches, cane toads and jellyfish as our non-human companions. At the risk of speciesism, I know which particular critter I'd prefer to share my lounge room with.

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