

CANE TOADS: THE CONQUEST

About The Production

“Toads are enemy #1.”

■ Dr. Chris Burns, Northern Territory Health Minister

The South American cane toad’s unstoppable journey across the Australian continent has long been the focus of great controversy and bizarre fascination.

The cane toad was introduced to Australia from Hawaii in 1935 in an attempt to control the greyback cane beetle, which at the time was decimating Queensland sugar cane crops. Hailed as a savior, the toad was enthusiastically welcomed. Unfortunately, the toads were disinclined to stay in the cane fields and eat beetles. Instead, they set about doing what cane toads do best - multiplying, migrating and thriving.

75 years later, in a country equipped with unprecedented scientific capabilities and unabated public will to battle the invasion, it seems nothing will stop the march of the toad. Science and genetic mutation have failed, so too has physical aggression. Fences and traps have proved ineffectual, as have natural predators or topographic barriers.

No other species has occupied a nation’s consciousness like the toad, which has achieved both criminal and cult status. Its physical design is ingenious and the sheer tenacity of its nature admirable. Throughout history it has proven itself to be the ultimate survivor in the face of great adversity. It spreads, it grows, it devours.

Cane Toads: The Conquest explores the history, the science, the human conflict and the bizarre culture surrounding this notorious environmental blunder. As we follow the march of the toad across the Australian continent, director Mark Lewis (*Cane Toads: An Unnatural History, The Natural History of the Chicken*) injects his trademark irreverence and humor into a story filled with engaging characters and incredible first hand accounts.

The cast includes the scientists, community groups, politicians and locals who have crossed paths with the toad on its inexorable march across the country. Meet Kevin Ladynski, toad taxidermist, and his 5.5 lb. pet toad Melrose; Monica Kraus remembers her massive childhood friend Dairy Queen; Merinda Sharp explains why she sends toads on ‘trips to Alaska’; Tip Byrne laments the day his father released the toads onto their Cane Farm.

This is a truly poignant environmental cautionary tale on the issue of invasive species and human folly. Some will see this story as a tragedy, some a comedy of errors, and still others a heroic journey across a harsh yet beautiful continent.

Despite its international origin the cane toad has become uniquely Australian - yet its story holds universal relevance. As the world wrestles with the idea that we have irretrievably altered our own ecosystem, these bulbous creatures may be the ultimate metaphor for the inevitable path upon which we have set ourselves.

Participant Media, Discovery Studios, Screen Australia and Radio Pictures present *CANE TOADS: THE CONQUEST*, written, directed and produced by Mark Lewis. The executive producers are Jeff Skoll, Diane Weyermann and Clark Bunting.

Toad Trouble:

Mark Lewis Takes a 3D Journey On The Trail Of A Modern-Day Menace

“The story of the cane toad might be an epic disaster, a comedy of errors or a tale of rousing success – it all depends entirely on your perspective.”
-- Mark Lewis

Ever since cane toads came to Australia, these curious creatures have provoked every conceivable reaction -- from toad terror to toad adoration to toad intoxication.

One of the most inspired reactions of all has come from filmmaker Mark Lewis, who in 1988 made a whimsically off-center comedy-documentary about them. *Cane Toads: An Unnatural History* revealed the amazing true tale, right out of a sci-fi thriller, of how the cane toad was shipped as an alien species to Australia in the 1930s in order to rid the country of the pesky greyback beetle -- only to become an environmental menace of staggering proportions, threatening to overtake the local real estate like no other living thing before it. Having tinkered with the natural environment, Australians were dismayed to find the toad was tinkering back.

The story not only introduced the world to the riddle of the cane toads – *are they a scary, out-of-control scourge or the ultimate gritty survivors?* -- it also introduced many to Lewis’ original style of movie storytelling. His hybrid fusion of playful humor, eye-opening facts and offbeat adventure has been described as a collision between Monty Python and National Geographic. By mixing quirky real-life characters with breathtaking nature footage and tongue-in-cheek re-enactments, Lewis crafted a funny, sometimes freaky, but wholly unique experience – one that entertainingly

exposed the slippery interplay between human cleverness and the natural world, and its consequences for ecological balance.

Cane Toads: An Unnatural History also broke the nature film mold wide open – not only due to its irreverent attitude, but because, unlike most popular documentaries about animals, it was not about a cuddly, endangered species. On the contrary, it was about a feared, reviled, some would even go so far as to say ugly, swamp-dweller run amok – and audiences were riveted by the cane toad’s unlikely power to stymie and flummox humanity at every turn.

The film became an overnight cult classic, and, in the process, Lewis himself became a lifelong follower of the cane toad. Over the last two decades, he has continued to keep up with their accelerating progress, as they have advanced from town to town across Australia, now occupying nearly a third of the country, and continuing to spread and evolve into a bigger, faster, even more robust creature.

One day, it occurred to Lewis that it might be time to revisit the toads for a new generation of filmgoers.

“My first film about the cane toads unexpectedly became this funny little classic,” says Lewis. “And ever since then, even though I’ve made many other films, and for better or for worse, I’ve essentially become known as Mark ‘Cane Toads’ Lewis. The film itself spawned a lot of interest in cane toads. It was like a cane toad revolution. Soon after, there came stuffed cane toads in Australian shops and toad-themed beers in bars. I saw the situation was constantly evolving, both in terms of the ecological impact and the cultural impact of the toads.”

He continues: “That cane toad situation is not static. So, it made sense to me to look at where we – and the cane toads – have gotten to now.

But I wanted to do it in a way that would be fresh and exciting, that would be even more of a comedy, while also still hitting on the themes that are important to me. There's something about the cane toad that will always brings out emotions and ideas that are quintessentially human.”

As Lewis began rethinking a new movie about the cane toad conundrum, he ultimately decided he would take an entirely alternative visual approach – bringing the cane toads, for the first time, to audiences in three, eye-popping dimensions, allowing viewers to get up close and personal with the toads as few have before.

“The history of 3D filmmaking has mostly been relegated to genres of horror and sci-fi. More recently, we've had 3D concert films and James Cameron has worked with 3D, but it's still in its infancy,” admits Lewis. “There was no precedent at all for making the kind of film I like to make in 3D. So that was the challenge: to see if I could adapt it to my own niche, and use 3D as a tool to bring a world of storytelling, comedy, characters and animals to life in a visceral and fun way.”

What Toads Really Want:
Mark Lewis On Why Toads Appeal To Us

CANE TOADS: THE CONQUEST reveals that few human beings who encounter cane toads feel neutral about them. With their propensity to quickly invade the privacy of backyards and neighborhoods, they spark a rather remarkable range of emotions – be it revulsion, vengeance, paranoia, affection, an urge to protection, primal obsession or scientific fascination.

In a sense, the toads have come to serve as a kind of warty-skinned mirror, reflecting back a wide array of human fears and ideals about nature and our place in it.

For Mark Lewis, it is all the vast contradictions of cane toads – the fact they are at once freakish aliens and innocent victims, both notoriously ugly and inexplicably charming, both in conflict with humankind and perhaps a bit too similar to us for comfort – that make them so endlessly intriguing.

“The cane toad and our relationship to these animals says something about all of us,” Lewis offers. “Cane toads really bring out the idea of beauty being in the eye of the beholder. In reality, it is an innocent creature just trying to survive in a new land, but people see it in a bizarre number of different ways.”

Cane toads have also become underdogs of the natural world, defying humanity’s cleverness at every turn, confounding and bamboozling us. Lewis notes, “A whole industry has spawned around trying to destroy these animals. Yet the more money that has been spent on their destruction, the

more science that has been thrown at it, the more the cane toad has evaded all of society's attempts to control it and thumbed its nose at us. There's something about that which is enormously appealing."

Lewis has certainly gotten to know more than his share of toads – indeed, his crew kept hundreds of well cared-for toads in tanks during the film's months of production -- and has built up an unabashedly admiring respect for the toad's determination to survive, despite the havoc they've unwittingly wrought on his home country. "I always have to go back to the idea that the toad is an innocent," he explains. "It's just doing what a cane toad knows to do – eating and reproducing – which is not its fault. It just happens to be a rather out of the ordinary animal that can get dogs stoned, poison crocodiles and as a human aphrodisiac, among other things."

As for its looks, which Lewis notes might have been conjured up in a Hollywood EFX house had nature not gotten there first, Lewis says even the toads have their glamorous side. "There's something about their eyes – when you stare into those black and gold flecks, it takes you into another world," he muses.

But, most of all, Lewis remains drawn to the cane toad because the creature is so inextricably tied up in the story of humankind. "It's hard to resist a creature that is so connected to us," he sums up. "Cane toads are not very emotional, but we are very emotional about them."

Toad People: **About the Film's Characters**

While cane toads are amusing of their own accord, it is their strange encounters with every sort of human being – from artists to scientists to

ordinary lawn lovers -- that bring them to the level of absurdist comedy. To capture the angst and oddness that cane toads seem to provoke, Lewis set out in *CANE TOADS: THE CONQUEST* to include a wide diversity of cane toad opinions and infamous cane toad stories, drawn from interviews and news reports he has collected over the years.

Well connected in the cane toad world, Lewis gives politicians, researchers, ecologists and biological control experts their say. But, more importantly, he captures the lively reactions of average citizens. His interviews emphasize an unadorned directness and mesmerizing immediacy that tends to expose the hidden humor of human encounters with the natural world.

“When it comes to a creature like this, I feel that a person who has cane toads in their backyard has just as legitimate and valid a point of view as the scientists,” Lewis remarks. “A scientist will probe the cane toad, but a person who has one on the back porch has to live with it. So I’m interested not only in the specialist’s point of view, but even more so in the local point of view of the people who are at logger heads with the toads. This always leads to meeting some wonderful characters, and I really love the characters in my films.”

As the film traverses through out-of-the-way Australian towns with names like Humpty Doo and Borroloola a sense of specifically Aussie eccentricity emerges -- but Lewis believes the cane toads transcend national identity. “Some quirk of fate where the flora and the fauna and all the elements were just right allowed the cane toad to flourish in Australia in a way it hasn’t anywhere else. And yet, what I like about the cane toad is that even though it is perceived as so typically Australian, their story is also quite

universal,” he comments. “The story of the cane toad is about humanity and nature wherever they meet.”

Lewis allows his human subjects to spin their stories directly for the camera, largely unadorned, saving his directorial playfulness for the film’s “dramatic re-enactments,” which include a dog’s hallucinatory trip; another dog’s perilous, *Rescue 911*-style journey to the hospital after a toxic toad encounter; and the mysterious trailer park death of a toad hunter.

“There’s certainly an idiosyncratic side to my filmmaking,” confesses Lewis. “I can’t help it. It’s not so much that I set out to make whimsical films, so much as that funny stories are what I’m attracted to as a filmmaker. I mean if you tell a filmmaker he has the chance to recreate what a dog’s LSD trip might look like, how could anyone resist that? I suppose you might not be able to make a film like this about a war or an international catastrophe, but stories about animals allow more leeway. It comes naturally to me to try to see the world not only from the human perspective but through the eyes of the cane toad.”

Lewis is also enamored of the myriad ways the cane toad has hopped its way right into the fabric of pop culture. He highlights the tales of Big Betty, the first cane toad to become a media celebrity, and Melrose the Wonder Toad, star of a traveling toad show, among others, while exploring the toad’s incursion into such far-flung human fields as public sculpture, music, the 24-hour news cycle and even cutting-edge cancer research.

“I’m the type of person who likes to collect things,” Lewis explains, “and over the years, I’ve collected an enormous amount of ephemera to do with cane toads and it runs the gamut. We explored a lot of these for the film. What fascinates me about the cane toad is that very few other animals have such disparate links to human uses, from getting dogs stoned to

medicines that might treat cancer to making ladies' handbags. The applications people have found, and continue to find, for the cane toad are so diverse – well, it's quite rare to see one small animal pulled in so many different directions.”

Toads In A Whole New Dimension: **The Shoot**

The making of *CANE TOADS: THE CONQUEST* became a giant, 22-week road trip across Australia, following in the path of the toad across four different states, from the damp rainforests of Northern Queensland to the steamy outback of Western Australia. It was also the first 3D digital production ever shot in Australia, which meant the crew had to invent as they filmed, forging unique equipment and solutions that would work in the country's extreme environments along the way.

Although he was brand new to shooting in 3D, Mark Lewis notes that he wanted story to trump technique, and made that his first focus. “I put the whole 3D thing to one side as we were preparing, and thought about every storyboard and every shot from the pure perspective of storytelling,” he says. “No matter what, that's the most important thing.”

Then, Lewis made a move that he credits with simplifying what was, in fact, a hugely challenging production – he recruited stereographer Paul Nichola to serve as the film's VFX Supervisor. “Paul is a wonderfully creative person and I was very lucky to be able to leave preparing for the 3D aspects in his hands,” Lewis says “He came on board very early on and worked on the technical aspects of the rigging and the storyboards before we

ever so much as shot a toad. In my films, every single shot is structured and created, and he was a great partner for that.”

Nichola helped Lewis to compose each camera set-up while attending to such necessary stereographic elements as inter-axial distances, convergence ratios and coordinating left and right cameras. He created two unique rigs utilizing Silicon Imaging’s SI-2K camera -- a rugged, portable, digital cinema class camera known for its versatility -- which has been used to film sequences for such films as *Slumdog Millionaire*. One rig was designed to capture close-up interviews and wide vistas; while the other was toad-specific. Both rigs allowed real-time 3D preview lending Lewis tremendous versatility.

Preparation was key in part because the cane toad itself is so wildly unpredictable. “When you are shooting cane toads, you are at the mercy of the beast,” Lewis remarks. “The cane toad does what the cane toad does and you can’t expect it to do something else. We knew, for example, that audiences were going to want to see the cane toad leaping straight at them in 3D. But cane toads don’t do that! They won’t leap straight at a person or a camera. In fact, the cane toad doesn’t do a lot. For the most part, it just sits there, until it gets hungry.”

When the cane toad does travel, it’s usually through rather mucky territory, making following its trail a trial – albeit an often photographically stunning one.

“The film was a grand journey through the extreme diversity of the Australian landscape,” Lewis says. “It brought us from the lush, tropical rain forests of Queensland, where we encountered the worst floods in 30 years, through sugar cane country and costal white beaches all the way to the Western Australian town of Kununurra, where Baz Luhrman shot

Australia – except we didn’t have Nicole Kidman, we just had 120 degree heat and soggy sandwiches!”

The two-camera 3D process – and all its attendant equipment -- only added to the challenges. “3D makes things slow and cumbersome and there are constant technical issues. For me it was a whole new world – and the reason why my hair is now gray,” Lewis laughs.

Even after all he and his team went through to capture this latest portion of the cane toad conquest with new technology, Lewis remains undeterred. He says he will continue to follow the cane toad story -- especially since he is now an integral part of it himself.

But Lewis’ larger dream is that the future of toad-human relations will lighten up a little. “Despite all the alarms and media reports and exploitation, the toad seems to be finding a sustainable level of living where it can co-exist with most other animals and become part of the greater harmony,” he sums up. “And that, hopefully will make us all, human and toad, happier.”

THE TRUTH ABOUT TOADS: A FACT SHEET

THE CANE TOAD INVASION

- Cane toads are natives of Central and South America.
- The cane toad is the only member of the family Bufonidae in Australia. Australia has no native toads of this group.
- **102** cane toads were brought into Australia in 1935. There are now more than **1.5 billion** of them.
- The cane toad was **introduced** into the Australian ecosystem at the Mulgrave River near Gordonvale, Queensland in August 1935. By March of 1937, 62,000 toadlets had been released into the wild.
- A former New South Wales Government entomologist named W W Froggatt protested the release of the cane toad, claiming that they may do massive long-term damage to the ecosystem. His protests were dismissed.
- The cane toad was supposed to act as **an introduced predator for the “white grub”**, (the larvae of the greyback cane beetle, a sugarcane pest).
- After toads were released in Queensland, they **expanded their territory** at about 10 km per year in the first few decades. This rate has gradually increased to an average of about 55km per year. As well as hopping, they also hitch rides on trucks, and in cartons, fruit crates and luggage.
- The first state in Australia to recognize the cane toad as a **pest** was Western Australia, where it was gazetted in 1950 as vermin under *The Vermin Act of 1918-1946*.

TOAD TERRITORY

- In 2010, the cane toads have advanced inland from Gordonvale,

Queensland as far west as Kununurra, just inside the Western Australian border. **This is a distance of about 2,424 km or 1,506 miles.**

- Individual toads have been found as far afield as Adelaide, South Australia, and on the Pilbara coast of Western Australia. **The toads now occupy over 620,000 square miles of territory.**

SIZE

- Average-sized adult cane toads are 10-15cm long.
- In 2007 ‘Toadzilla’ was captured in the Northern Territory. He was 20.5cm long and weighed **840 grams (1.9 pounds).**
- In 1988, Dr Glenn Ingram, a Queensland Museum zoologist, was given an enormous cane toad called Big Bette. She was named after Bette Davis, due to her mesmerizing gold-flecked eyes. Big Bette measured **22cm (8.6 inches) in length and weighed 1.8 kilos (4 pounds).** That’s about the same weight as a Chihuahua. An anonymous donor from Hill End donated Bette to the institution in a foam Esky, which she demolished. Bette was doomed to a lonely demise because the museum was unable to find a male big enough to mate with her.
- In 1975, a submission was made to the Guinness Book of Records about a cane toad from Proserpine, QLD. Gerty allegedly weighed **3 kilograms (6.61 pounds)** and was raised on a diet of beer. She had been entered in Proserpine’s novelty cane toad race but staggered off the track in an alcoholic daze. Along with her world record hopes, Gerty was crushed under the metal chair of an excited spectator. The Guinness adjudicators rejected the record claim due to lack of evidence.

LIFE EXPECTANCY

- Cane toad life expectancy in the wild is 10 to 15 years, but they can live as long as **35 years** when kept in captivity.
- Many native frogs have been killed by overzealous folk due to a resemblance to the dreaded toad. Native Australian frogs often mistaken for cane toads include the Eastern Pobblebonk Frog, the Giant Frog and the Ornate Burrowing Frog.

- While toads are not protected by Australian wildlife laws, they are protected by animal welfare laws. Cane toads are living creatures and they feel pain. **The best way to kill a cane toad is humanely.**
- The RSPCA suggests that the kindest approach is refrigeration. To do this, put on a pair of gloves and catch the toad. Once captured, put the toad in a plastic bag or container, and seal it up. Then, put it in the fridge for 12 hours and the toad will go to sleep. It's still alive, just anaesthetized. Next, put the bag into the freezer for at least 24 hours and the toad will die painlessly.
- At one point the RSPCA recommended dispatching the toads humanely by smearing them with **hemorrhoid cream**. This method did not gain popularity.
- Cane toads are extremely hardy and have been observed hopping out of bush fires, climbing out of freshly tamped hot tar and hopping away after being impaled or run over. In 2008, a cane toad named Spew survived for 40 minutes in a dog's stomach after being swallowed whole. Dog and toad were unharmed.

CONTROL

There is no effective biological solution (like diseases or genetically-engineered viruses) to stop the toads, so an attempt is made to control them through trapping and containment using physical barriers.

USES

Uses for cane toads include:

- **Poison for arrow tips** (traditional South American use)
- A **Bufotenin-based traditional medicine** called "ch'an su" (China) or "senso" (Japan) is used as an aphrodisiac (applied directly to the penis), hair-restorer, mild anesthetic, cancer treatment, and to regulate the heart-rate of cardiac surgery patients (China, Japan).
- **Liquid fertilizer** made from pulverized cane toad carcasses (Australia)

- **Leathergoods** and novelty items like cane toad key rings (Australia)
- **Pregnancy testing** – (mid 20th century, for about 20 years) a woman's urine was injected into a male toad and if sperm appeared in the toad's urine, the woman was deemed pregnant.

BUFOTENIN

- Bufotenin is an alkaloid produced by cane toads (as well as some mushrooms, plants and mammals). It is secreted through the toads' skin.
- Ingesting Bufotenin may have **psychedelic effects**. However, the venom also contains cardiac glycosides, which affect the heart rate, leading to ventricular tachycardia (racing heartbeat), fibrillation (trembling heart muscles) and **sudden death**.
- Bufotenin is listed as a Schedule 1 controlled substance in Australia's Drugs Misuse and Trafficking Acts (alongside heroin, cannabis and LSD), and is also a Schedule 1 controlled substance in the USA.

TOXINS

- The adult toads have parotoid glands behind their neck which secrete a toxic milky sap when the toad is disturbed. The eggs and tadpoles are also poisonous.
- Cane toad toxin is absorbed through the body tissues, such as those in the eyes, nose and mouth.
- **Dogs and cats may die** after mouthing cane toads. Symptoms include profuse salivation, twitching, vomiting, shallow breathing and collapse of the hind limbs.
- No Australians have died from cane toad poisoning (yet), but some reports claim that in Peru in 1967 a Peruvian woman and two of her children died after eating a soup made of boiled cane toad eggs.

- A first-year medicine student at the University of Sydney who was dissecting a female cane toad in a lab class was encouraged to eat cane toad 'caviar'. He said he wouldn't eat it unless all his friends threw in a dollar, which they did. After consuming the eggs, he had his first cardiac arrest after 20 minutes, **was in intensive care for five weeks**, and had two further cardiac arrests.

[From an anecdote by Dr Mike Tyler]

- A direct hit to the eye with a spray of cane toad toxin causes **immediate temporary blindness**.
- Cane toads can be a vector for carrying human diseases like salmonella.

BREEDING

- The fastest, strongest toads form the invasion front. These athletic toads breed with each other and produce extremely robust babies. Scientists call this the **“Olympic Village” effect**.
- Australia’s cane toads are **evolving** unusually quickly, with longer legs, bigger bodies, and more directional migration habits than their ancestors.
- A female can lay up to **50,000 eggs twice a year**. The eggs hatch within 24-72 hours. In tropical areas the toads can reach sexual maturity within 12 months, but in temperate areas they mature in 18-24 months.
- The female cane toad is larger than the male. She has smooth, brown skin and he has rougher, yellower skin.
- Male toads have two testicles inside their body (like male birds and fish), but they **ALSO** have two special organs just above the testicles. Called **‘Bidder’s organs’**, they are the same size as the testicle or larger, and they work like ovaries. They contain little egg cells and produce sex hormones, just as female ovaries do. If a male toad is castrated (surgically), the Bidder’s organs develop into a functioning ovary and begin producing eggs. So far, no-one knows the purpose behind this natural mystery.
- Cane toads mate by a process called ‘amplexus’. Males seize the females from behind and grab them under the armpits, holding on tight. They have to hang on, otherwise bigger, stronger males will shove them off. Sometimes, males grab other males by mistake, whereupon the unwilling target gives a special ‘release call’ to indicate that his amorous attacker should let go.
- Cane toads have an especially **strong drive to mate** and have been observed in their over enthusiasm mating with rocks, clumps of dirt,

human feet and roadkill.

- The mating process involves the male fertilizing a long strand of eggs as the female excretes them. The eggs are poisonous to predators, so they stand a good chance of making it to the stage where they hatch out as a very shiny, very black tadpole.
- Baby toads have a tough life. Not only do they have to worry about birds, ants and other predators... their biggest danger is being eaten by one of their **cannibalistic siblings!**

HABITAT AND HABITS

- Cane toads are homophilic – they like people and seem to enjoy living near us, in places that have been altered by humans.
- Adult cane toad survival depends on constant access to water. In dry conditions, deprived of water, cane toads can die of dehydration in three days.
- Cane toads do not drink, but instead absorb water through the skin of their underbelly. They extract moisture from any damp substance, such as dew, sand, soil, or cattle dung.
- During the dry season, toads can remain inactive in shallow burrows, or in clusters under logs, rocks, sheets of iron, and garden debris.
- Native Australian frogs often mistaken for cane toads include the Eastern Pobblebonk Frog, the Ornate Burrowing Frog and the Giant Frog.
- Cane toads mostly eat insects, but **they will eat anything that fits into their mouths**, which are the size of a tennis ball. Their diet is unusual for a toad, in that they will eat both dead and living matter. Toads have been recorded as swallowing **ping-pong balls, lighted cigarette butts and mice**.
- Cane toad venom is deadly to almost all native Australian animals. Cane toads have reduced native populations of dingoes, crocodiles, northern

quolls, crows, kookaburras, goannas, frill-necked lizards, frogs, snakes, native snails and leeches. Studies show that many of these species bounce back after time.

- Native wildlife is important to Australian Aborigines as a part of their traditional diet (bush tucker) and also their cultural heritage.

WACKY FACTS

A Queensland University academic estimated that more than 200 ton of cane toad flesh is **squelched** on Queensland roads each year.

In the 1980s, a man from Adelaide, South Australia, was prosecuted for jumping out in front of cars on a highway; he told police he was “Joh Bjelke-Petersen” and “a cane toad”. The man was fined \$50.

Prince Charles and Lady Diana were given a book bound in cane toad skin as a wedding present. Charles, in his “thank you” letter, said it would give them much pleasure in their married life.

Toad links

The Australian Museum Cane Toad information Site

<http://australianmuseum.net.au/Cane-Toad>

The Department of Environment Cane Toad information Site

<http://www.environment.gov.au/biodiversity/invasive/publications/cane-toad/index.html>

Website of Rick Shine and his toad research team

<http://www.canetoadsinoz.com>

TOAD BUSTERS: **A CATALOGUE OF TOAD CONTROL METHODS**

As the cane toads have hopped across Australia, invading one dismayed town after the next, a variety of “control” methods have sprung up. Here are a few of the common and innovative methods – and why most of them don’t work.

Method: Barriers to Toad Progress

Implementation: Fences, Enclosures and Walls

What Really Happens: Barriers take a lot of time and resources to build and maintain; and toads tend to ultimately find a way around or through them

Method: Hand Collecting Toads One by One

Implementation: Teams of “toad collectors” or individuals collect or kill toads on sight

What Really Happens: A group of people might be able to hand collect hundreds or even thousands of toads, but can’t outpace their efficient reproduction

Method: Trapping Toads

Implementation: Cages and Other Cleverly Designed Traps

What Really Happens: Traps have not been very effective at attracting toads in sufficient numbers and can harm other animals

Method: Biological Control

Implementation: Turning the table on the cane toad, who was brought to Australia as a means of biological control itself, some are now looking at biological control to halt their spread, namely by using parasites that might kill them or pheromones that disrupt their normal behavior

What Really Happens: Still in the experimental stages, the consequences of these methods are not fully known yet

TOAD-MANIA: **TOADS IN POPULAR CULTURE**

The experience of witnessing a cane toad in the full, larger-than-life, visceral glory of 3D leads one to ask the question: *just what is it about toads?* Why do we find them so strangely alluring? How do these placid-eyed amphibians inspire human emotions ranging from laughter to anger to fixation?

Toads, in fact, have a long history of mystifying and intriguing humans. For centuries they have been a staple of myths and fairy tales in numerous cultures. In the Bible, they were signs of vengeful plagues; and in Medieval Europe, they symbolized the work of the devil or witchcraft – but the toad also had a more magical side. A long line of fairy tales portray them as ugly creatures who, under the right circumstances, can metamorphose into handsome princes; and in some Asian countries, the toad is even considered sacred. The Kihn people of Vietnam say that the toad is the uncle of the God of Heaven.

There is also a considerable history of toads in film and literature, although mostly as minor characters. The children's book *The Wind in the Willows* introduced the toad hero, Mr. Toad, who in turn inspired the classic Disneyland attraction, *Mr. Toad's Wild Ride*. The 1970s saw the animated television series *Tijuana Toads* followed by *Texas Toads*.

Toads have also inspired countless works of art and folk crafts. Every year the town of Conway, Arkansas holds an arts festival known as Toad Suck Daze, which features toad races along with music and crafts.

Folk medicine has also benefited greatly from the toad. In addition to its notorious hallucinogenic effects, the venom of toads is prized by Chinese medicine, said to do everything from alleviate toothaches and boils to encouraging hair growth and serving as a powerful aphrodisiac.

The cane toad has made its own unique mark on pop culture in Australia, with the advent of cane toad songs, cane toad cuisine, cane toad

coin-purses, cane toad beer, cane toad art, stuffed cane toads, famous cane toads, and of course, cane toad movies. *The Simpsons* even broached the cane toad controversy with the episode, “Bart vs. Australia,” in which Bart Simpson accidentally leaves a bullfrog in the airport, which soon overruns the country.

INVASION OF THE INVASIVE SPECIES: A BRIEF HISTORY OF ENVIRONMENTAL MENACES

Wherever you live, there are aliens among us, and they are wreaking havoc right under our noses. The cane toad is only one particularly charismatic example. But all over the world, environmentalists are facing the ongoing menace of *invasive species* – non-native plants, insects or animals who have been introduced into new eco-systems, often with unforeseen, harmful results. One study estimates that invasive species cost the United States alone some \$100 billion every year (source: National Invasive Species Information Center).

Invasive species spread rapidly, alter new ecosystems they encounter and drive other species to extinction – leading some to ponder if the most successful invasive species of all time might, in fact, be. . . *our own*. Here are a few other examples of invasive species, neither toad nor human, running rampant in the world:

Fire Ants: These aggressive, stinging ants were accidentally introduced in the U.S. in the 1930s and have spread through 13 states, endangering other species, damaging structures and electrical systems and scaring families who find them in their home.

The Glassy-Winged Sharpshooter: this large, leafhopper insect arrived in California accidentally via shipments from the Southeast, and has spread a foreign bacteria that destroys grapes, to the tune of \$35 billion in losses to the Wine Country every year.

Kudzu: This harmless looking vine from Asia was introduced into the U.S and quickly started growing over anything and everything in its path – including other plants, trees and houses. It is reported to cost the U.S. \$500 million in economic losses each year.

Gypsy Moths: These hungry, leaf-munching, flying insects were accidentally released from a research facility in Massachusetts in 1869 and have since caused the destruction of entire forests.

Nile Perch: Europeans introduced this non-native fish to Africa's Lake Victoria, only to watch the voracious fish eat nearly all the life in the

lake and then perish of starvation, leaving the local people without their major food source.

Zebra Mussels – These mussels native to southeast Russia spread to Europe in the 1700s. More recently, in the late 1980s, European ships transported Zebra Mussels to the Great Lakes region of the U.S., where they have devoured the local plankton supply, starving other species, and causing clogged pipes and extensive damage to nearby electrical plants. The U.S. Coast Guard estimates that economic losses and control efforts cost the U.S. \$5 billion a year.

Water Hyacinth: It might sound beautiful, but this plant native to South America is causing headaches in China, where, once used to feed pigs, it has grown out of control, blocking waterways and damaging eco-systems. China spends as much as 1 billion yuan each year to keep the Hyacinth at bay.

Wild Boars: Brought to North America in 1539 by the conquistador Hernando de Soto, wild boars are now found in 39 states where they have been known to spread disease, destroy croplands, eat gardens and golf courses, and cause \$800 million in property damage annually.

TOAD QUOTES: FROM THE CHARACTERS IN THE FILM

They've got no place in society and they're an unnatural habitat to Australia. They don't belong here at all. Send them back to Hawaii. Send them back over there to Barack Obama.

Tip Byrne, Cane Farmer

Yeah, it was a bit of an "Oh, shit" moment to think that it was there. It was a bit like an army on the march... there was just wave after wave of them.

Graeme Sawyer, Lord Mayor, City of Darwin

I think of those brigades in the desert in the Second World War, where you hear that there was eight of them out there against 500,000 on the other side, and it feels like that sometimes.

Sandra Boulter, Volunteer Toad Buster

It's like they're going on a holiday, like a free trip to Alaska, when we put them in the freezer.

Merinda Sharp, on euthanizing cane toads.

They're not injured... other than they're dead.

Keith Barnes

Well, people might say I was crazy but he was just like one of me kids. I'd put him on me head and walk around with him on top of me head.

Kevin Ladynski on Melrose, his toad

I went to feed him one day and he was laying in his water, dead. And it just felt like part of me was dead too.

Kevin Ladynski on Melrose, his toad

Not every lady likes a toad bag to have a head on it.

Terry Selwood, entrepreneur and toadskin handbag designer.

If a person's ugly they're not very popular, that's human nature I'm afraid, isn't it, that's the way it goes. Poor little cane toad, he's ugly.

Tom McLaughlin

I like to think of myself as a modern day pied piper, bringing the toads in towards their own destruction.

Andrew Arthur

You're not going to set the clock back. You can't reverse evolution. You can bash with gold clubs till you're blue in the face, it's not going to make them go away.

Peter Ravenscroft

It is truly remarkable that despite all of the fantastic activities that can be undertaken by the human race - the magnificent pieces of equipment that are being developed, our capacity in space - and yet we still haven't come to find a way to control the cane toad.

Mike Tyler

MORE TOAD QUOTES:
QUOTES ABOUT (OR POTENTIALLY ABOUT) TOADS

*It is fat, deadly, hallucinogenic and ugly, with skin like a leper's backside.
 Even the French wouldn't eat it.*

Keith Elliott

With no other creature has invention been more free.

Reg Mungomery, Entomologist

*It's not our native animal. Since the toad came we hardly go fishing.
 Sometimes we take the fish out of the water and it's not a healthy fish. Fish
 eat tadpoles and birds eat fish and everything starts dying. Even the
 wallabies are going away... The older people worry about the cane toads.
 They know what it has done to our land, the things we used to have. Our
 everyday use is not there anymore.*

**2003 report from the Ngukurr Women Rangers, from an Australian
 Aboriginal community near the Roper River, Northern Territory.**

All things dull and ugly

All creatures short and squat

All things rude and nasty

The Lord God made the lot

Monty Python, 'All things dull and ugly'.

Surviving is important. Thriving is elegant.

Maya Angelou

ABOUT THE FILMMAKERS

MARK LEWIS (Director/Writer/Producer) has, for more than a decade, been renowned for developing the unusual genre of the comical nature documentary. Lewis' films focus on man's quirky and quizzical relationship with animals and provoke us to rethink how we view creatures great and small. Besides examining the behavior of beasts, Lewis frequently turns his lens inward, ultimately revealing surprising insights about one of the world's strangest animals – human beings. Often featuring narrative vignettes by ordinary people with unusual fascinations or problems with a particular animal, Lewis imbues his films with a combination of hard fact, tongue-in-cheek irony, and his unique brand of gentle humor.

Born in Sydney, Australia, Lewis graduated with a Bachelor of Economics degree from Sydney University and later attended the Australian Film School, earning a diploma in direction.

His credits include the classic *Cane Toads: An Unnatural History*, *The Wonderful World of Dogs*, *RAT*, *Animalicious* and *The Natural History of the Chicken*.

His films have earned him many awards, including two Emmys for Outstanding Direction in documentary film, an Emmy for Outstanding Science Program on American Television, a British Academy Award nomination, and a nomination from the Directors Guild of America.

JEFF SKOLL (Executive Producer) founded Participant Media (formerly Participant Productions) and serves as Chairman. Jeff's vision for Participant is to produce and finance entertainment that inspires a sustainable world of peace and prosperity.

Skoll recently served as executive producer on Participant's films *Good Night, and Good Luck.*, *North Country*, *Syriana*, *American Gun*, *An Inconvenient Truth*, *The World According to Sesame Street*, *Fast Food Nation*, *Angels in the Dust*, *Jimmy Carter Man from Plains*, *Darfur Now*, *The Kite Runner*, *Charlie Wilson's War*, *Chicago 10*, *The Visitor*, *Standard Operating Procedure*, *The Soloist*, *Pressure Cooker*, *Food, Inc.*, *The Informant!*, *CASINO JACK* and *the United States of Money*, *Waiting for Superman* and *Countdown to Zero*.

DIANE WEYERMANN (Executive Producer) is Participant Media's Executive Vice President of Documentary Films and responsible for the company's documentary slate. Recent projects include Robert Kenner's *Food, Inc.* and Jennifer Grausman and Mark Becker's *Pressure*

Cooker, as well as *Angels in the Dust*, *Jimmy Carter Man From Plains*, *Darfur Now*, *Chicago 10*, *Standard Operating Procedure* and the Oscar®-winning *An Inconvenient Truth*.

Prior to joining Participant in October 2005, Weyermann was the Director of the Sundance Institute's Documentary Film Program. During her tenure at Sundance, she was responsible for the Sundance Documentary Fund, a program supporting documentary films dealing with contemporary human rights, social justice, civil liberties, and freedom of expression from around the world. She launched two annual documentary film labs, focusing on the creative process--one dealing with editing and storytelling, and the other with music. Diane was also part of the Sundance Film Festival programming team, where she was instrumental in creating a platform for international documentary work and responsible for programming the documentary content of the Filmmaker Lodge activities.

Weyermann's work in the documentary and international fields extends many years prior to Sundance. She was the Director of the Open Society Institute New York's Arts and Culture Program for seven years. In addition to her work with contemporary art centers and culture programs in the Soros Foundation network, which spans over thirty countries, she launched the Soros Documentary Fund (which later became the Sundance Documentary Fund) in 1996. Since the inception of the Fund, she has been involved with the production of over 300 hundred documentary films from around the world.

CLARK BUNTING (Executive Producer) is president and general manager of Discovery Communications' Emerging Networks, which include Investigation Discovery, Science Channel, Military Channel and HD Theater, some of the fastest growing networks in cable. In his role as president and general manager, Bunting is charged with further developing the networks into robust brand-defining cable properties. Bunting previously ran Discovery Studios, which encompassed the Discovery Production Group, Discovery Films, Discovery Creative Resources and Predator, the short-form content unit. Discovery Studios produced original productions across Discovery's domestic and international networks and across all varieties of programming genres, including science, health and fitness, animal, nonfiction, lifestyle, current affairs and daytime, as well as, numerous sub-genres.

Prior to Discovery Studios, Bunting served as executive vice president, Discovery U.S. Networks Group, overseeing Travel Channel, Discovery Health, Discovery Kids, Discovery Home, Military Channel, Science Channel and FitTV. In a previous post as executive vice president and general manager for Discovery Channel, Bunting oversaw a number of trendsetting

series, including *American Chopper*, *Monster Garage*, *Dirty Jobs* and *Mythbusters* and also oversaw the production of such landmark specials as *Nefertiti Resurrected* and *Walking With Cavemen* - the two highest-rated nonfiction programs of 2003. Bunting launched Animal Planet in 1996 and served as its executive vice president and general manager until 2001. Under his leadership, it became one of the fastest-growing cable networks in the history of television.

ROBERT DEMAIO (Editor/Story Consultant) has vast experience in the film industry as a writer, director, and editor, but his true passion is for documentaries. Bob first worked with Mark Lewis when he edited the offbeat documentary *RAT* which later won a Silver Spire Award at the San Francisco Film Festival and took the Best Editing prize at WildScreen. Bob edited *The Natural History of the Chicken*, which screened at the Sundance in 2001. Bob also edited the highly rated television series, *The Standard of Perfection*, and three episodes of the PBS special *The Pursuit of Excellence*. Bob has been a member of the Writer's Guild of America since 1989 and resides in Los Angeles.

PAUL NICHOLA (Stereo and VFX Supervisor) has worked as a film and television director, visual effects director, director of photography, new media director, and more recently, as a stereographer participating in the resurgence of 3D cinema.

During the 1980s Paul was one of the four Company Directors of Mirage Effects Pty Ltd - a Sydney-based visual effects company. He has been the Head of New Media at the Australian Children's Television Foundation and has worked on numerous feature films and television commercials.

3D has been Paul's passion since film school, where he first met *Cane Toads* director Mark Lewis. As Australia's leading expert on 3D stereography, Paul was responsible for all the stereo elements in the production and post-production of *Cane Toads: The Conquest* and worked on the film for over a year. He developed and implemented the various 3D camera rigs used to shoot the broad spectrum of 3D requirements for the film, from wide vistas to the deep-focus macro environments and underwater sequences.

Paul is the recipient of two Golden Tripod Awards for excellence in cinematography and the Ross Wood Senior Trust Award for achievements in 3D cinematography, awarded by the Australian Cinematographers Society. Recently, Paul has been exploring the integration of 360 degree imaging with auto stereoscopic projection systems.

DANIEL NYIRI (Production Designer) is an American scenic designer with over 90

productions to his credit. He has been nominated for the Lester Horton Award for Dance, is a three time winner of the Inland Theatre League Award, and his work on *The Inspector General* received a Los Angeles Theatre Critics nomination. He is a veteran of Mark Lewis' films (insisting that each one is his last) having worked on *RAT*, *Animalicious* and *The Natural History of the Chicken*. In his spare time, he has designed commercials, Art Directed for TV, written theater reviews, composed the librettos for five ballets, and taught Technical Direction at Humboldt State University Department of Theater, Music and Film.

BEN McNEILL (Stereographer) collaborates a third time with Mark Lewis, having previously been involved in *The Standard of Perfection* and *The Pursuit of Excellence*. The words '3D' and 'new technology' are what brought Ben on board the latest Mark Lewis endeavor, promising a steady stream of issues to resolve as part of developing a brand new workflow. His motto is "If it's broken, fix it, and if it isn't, tweak it." Ben resides in the city of Brisbane, Australia and spends his time developing software technologies for the film industry, consulting on digital workflows, and chasing Llamas.