

Cane toad invasion: documentary review

Iman Shepard

Lake Forest College

Lake Forest, Illinois 60045

You see an ominous figure lurking in the shadows of a bush outside your front yard; cognitive dissonance overcomes you as you curiously, but cautiously, approach the frightening entity. As epinephrine is released in your brain, fear builds in your body and your subconscious considers flight or fight; your hand lifts the bushes and... a wide, stumpy, forest green creature with large brown eyes stares back at you. You have found yet another cane toad in your yard. *Cane Toads: An Unnatural History* (1988) is an iconic documentary directed by Mark Lewis that explores the introduction and invasion of *Rhinella marina*, more commonly known as cane toads, along the coast of eastern Australia. Cane toads are native to Central America, where they are vital contributors to the ecosystem by controlling insect populations. Cane toads were purposefully released by humans with the hope of controlling *Dermolepida albobirtum* (commonly known as cane beetles) because cane beetles were decimating sugar cane populations and subsequently decreasing crop yield. This film explores the scientific aspects of the cane toad both anatomically and ecologically and addresses the cultural impacts of cane toads in Australia. Comedy is uncommonly used in the scientific documentary genre; the unique aspects of this film are its use of satire through audio, visuals, and jump cut scenes. The film dives into the toxins and unique features of the cane toad that allow it to protect itself, reproduce, and spread in Australia. Cane toads have parotoid glands located on each shoulder that release a potent, fast-acting toxin known as bufotoxin. Bufotoxin is made up of adrenaline, serotonin, and other compounds that are found in bodily tissue. When ingested, bufotoxin can cause tachycardia, increased salivation, convulsions, paralysis, and even death. The release of this toxin is caused when significant pressure is placed on the cane toad's glands, causing them to burst; a thick, white, opaque substance ruptures from the glands. This would typically occur if another organism were attempting to eat or grab the cane toad with their mouth, which illuminates why the toxin must be ingested to be effective. This protective mechanism is not a common occurrence recognized by native Australian animals and is part of the reason cane toads are extremely effective at surviving in Australia. Additionally, cane toads are r-selected species, which means they produce a large amount of offspring with limited parental investment. R-selected populations are controlled by a high death rate in the early stages of the species' life cycle—few individuals make it to adulthood. In Australia, the cane toads have no natural predators and are prolific breeders. Females deposit between 8,000 and 30,000 eggs one to two times a year. Rather than a large die-off early in life, many of the juvenile cane toads reach adulthood because of the lack of predators or environmental pressures placed on them. Cane toads are a successful invasive species because of their unique characteristics—they have mechanisms to protect themselves from predators and are r-selected species. Australia is an ideal environment for a cane toad invasion because the native species are not adept in dealing with cane toads. The impacts of cane toads stretch beyond the ecological and into the cultural setting of Australia as well. Along with being informative, *Cane Toads* considers the cultural impact of the toads on affected Australians. The Australians featured in the film had a wide variety of reactions to the invasion of the toads, ranging from anger to fondness. Many find the cane toads endearing; the film features an interview of Councilor Max Ackland, who recalls attempting to resurrect a statue of a cane toad in the middle of his town (Mulgrave) outside a government building. Additionally, the film included an interview with Elvie Grieg, a resident of Redcliffe, in which she fondly describes viewing and treating the cane toads akin to pets by feeding them cat food and providing them with shelter. Despite this positive response to the cane toad invasion, not every Australian shares in these sentiments. A vlog created by Brent Vincent, a resident of Cairns, shows him filming himself while purposefully running over cane toads on the road; he finds himself empowered by directly helping with the pest control of the cane

toads. He expresses frustration with the government reaction and discusses his vexation with the toads' invasion. Along with contentment and anger, there is also an element of fear surrounding the cane toad invasion. The fear of cane toads especially concerns the safety of pets and young children. If either is left unaccompanied and happens to disturb a cane toad enough to trigger a release of bufotoxin, there would be serious (and potentially deadly) consequences. The film depicts a satirical scene of this occurrence in which a mother takes a phone call inside and leaves her child unattended; the camera angles, jump cuts, and suspenseful music make a cane toad appear to be stalking and trying to harm the child. This unrealistic scene adds an element of humor to the film while also addressing the real fear parents and pet owners face regarding the invasion. Ultimately, the comical aspect of the film that is a vital part of its charm and differentiates this documentary from others of similar subject matters. The satire is the main draw of the film for me. I would rate this film 5 out of 5 stars because of its flawless combination of humor and science; this is a difficult feat to overcome, but I learned about invasion ecology, Australian ecosystems, and cane toad anatomy in a fun and engaging way. I recommend this movie to any non-specialist looking for a fun documentary or for anyone interested in invasion ecology.