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Taking Spectacle Seriously: Wildlife Film and the Legacy of Natural History Display

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Argument

I argue through an analysis of spectacle that the relationship between wildlife documentary films' entertainment and educational mandates is complex and co-constitutive. Accuracy-based criticism of wildlife films reveals assumptions of a deficit model of science communication and positions spectacle as an external commercial pressure influencing the genre. Using the *Planet Earth* (2006) series as a case study, I describe spectacle's prominence within the recent blue-chip renaissance in wildlife film, resulting from technological innovations and twenty-first-century consumer and broadcast market contexts. I connect spectacle in contemporary wildlife films to its relevant precursors within natural history, situating spectacle as a central feature of natural history display designed to inspire awe and wonder in audiences. I show that contemporary documentary spectacle is best understood as an opportunity for affective knowing rather than a constraint on accuracy; as a result, spectacle contributes to the virtuous inter-reinforcement of entertainment and education at work in blue-chip wildlife films.

Introduction: Planet Earth and the Blue-Chip Renaissance

When *Planet Earth* debuted on the BBC in 2006, it promised a comprehensive view of the Earth's ecosystems, from poles to jungles, mountains, caves, forests, deserts, and oceans. The first wildlife series to be filmed almost entirely in high-definition (HD),[1] the crisp visuals of *Planet Earth* were enjoyed at home on HD flatscreen television, as well as in trendier locales like bars, not normally the domain of natural history documentaries (Palmer 2010, 160). And it looked spectacular, with sweeping overhead views of running herds of animals on the savannah, jungle canopies, and mountain

[1]While the series was designed to be shot entirely in HD, it included "a few sequences on HD-friendly 35mm film" (Merli 2007).

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peaks, interspersed with close-ups of stunning behavior from individual animals, some of which had never before been caught on camera. The series' eleven episodes achieved critical acclaim and financial success with coproduction partners such as the Discovery Channel, as well as through record-breaking sales on DVD. It was one of the most-watched wildlife programs to date; a third of the population of Britain watched one episode or more (ibid.), and it was eventually broadcast in 130 countries with a total audience of 100 million (Reuters 2008). It also anchored a series of feature-length wildlife films by the new Disney subsidiary Disneynature, starting with *Earth* (2009), a film edited mainly from footage of *Planet Earth* episodes into narrative arcs of animal families. And even though *Planet Earth* employed many familiar elements from earlier wildlife series, it left an indelible mark on the genre thanks to its scope and visual spectacle. Natural history programs didn't look the same after *Planet Earth*, and those that did suffered by comparison.

Planet Earth was a far cry from the wildlife programming of the previous decade. In the late twentieth century, a variety of pressures from the shifting media landscape and within documentary filmmaking in particular resulted in a proliferation of wildlife programs of the "reality TV" style, featuring animal attack shows, "pets & vets," rescue animals, and human presenters interacting with dangerous animals[2] (Scott 2003; Mitman 2009; Chris 2006; Kilborn 2003; Ellis 2005). While some of those programs continue to be produced and broadcast, within a decade wildlife film saw a revival of the high-profile documentary production from mid-century, with enormous budgets, lavish visuals, star-studded narration, and a return of the traditional natural history documentary format. These films fulfill all of the characteristics of the older "blue-chip" wildlife genre as described by Derek Bousé: the visual splendor of pristine nature, charismatic mega-fauna,[3] an avoidance of the topics of science, politics, or conservation, no traces of human civilization, a sense of timelessness, and dramatic or suspenseful storylines (Bousé 2000, 14–15). I call this resurgence the "blue-chip renaissance,"[4] and

[2]The most prominent of these was "Crocodile Hunter" Steve Irwin, whose show ran on Animal Planet and the Discovery Channel from 1996 until his death in 2006.

[3]"Charismatic mega-fauna" is a term widely used in environmental and wildlife film scholarship to describe animals with which human viewers most easily sympathize. Large mammals, especially cats, elephants, bears, and primates, exemplify the charismatic mega-fauna. Smaller animals can also be charismatic; for example, the monarch butterfly's conservation success story is largely attributed to the species' charisma; both Mooallem (2013) and Adams and Carwardine (1991) describe how charisma can determine which conservation efforts are successful at engaging public interest and support.

[4]While *Planet Earth* epitomizes the characteristics of the blue-chip renaissance, eclipsing prior productions in popularity, it did not appear from thin air. *March of the Penguins* (2005) also enjoyed surprising critical and commercial success. Billed as a "love story," it followed the arduous process of emperor penguin courtship and parenting (Aguayo 2008). Before that, *Winged Migration* (2001), an independent documentary following the migratory patterns of birds, impressed viewers and critics with spectacular footage of birds on their extensive journeys around the world. The film employed innovative practices of acclimatizing semi-tame birds to the presence of filmmakers and aircraft (Gouyon 2016). Each of these films experienced unprecedented financial success and critical acclaim, challenging the assumption that such films were only profitable on the small screen

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its attraction of enormous new audiences to natural history programming took the industry by surprise (Palmer 2010, 161).

The films and programs of the blue-chip renaissance showcased nature's variety through unprecedented spectacle, achieved through innovative film technologies, new possibilities for home viewership thanks to the growing adoption of HD-capable flatscreen television, and a transformed broadcast landscape. Despite this new and remarkable confluence of features, however, these nature films are undergirded by a deep continuity with older traditions in natural history display, namely, the use of spectacle to generate awe and wonder in viewers. As a result, reaction to the natural history spectacle of the blue-chip renaissance has inherited the same tensions about the proper balance for the entertaining and educational functions of natural history. Griffiths has shown that such anxieties reliably followed the various innovations in immersive spectatorship in museums, based on concerns that spectacle might overwhelm pedagogical aims (Griffiths 2008). In a striking parallel, wildlife film theorists and documentary scholars more generally have focused on the genre's educational functions while neglecting their identity as entertainment. By exploring spectacle's importance within the blue-chip renaissance and its resonance with historical modes of nature on display, I aim to counter treatments of wildlife films that overlook the importance of their role as entertainment. To that end, in the following sections I show, first of all, that scholarship's emphasis on knowledge transmission and misrepresentation prioritize the wildlife films' educational function. I then describe the deficit-model assumptions that have led to both the neglect of the genre's role as entertainment and the characterization of spectacle as a constraint on accuracy.

Are Wildlife Documentaries Educational?

The blue-chip renaissance offers conventional natural history subject matter that falls within the category of the expository documentary, one of the form's traditional modes (Nichols 1991). Expository documentaries link film footage with voice-over narration, which is a primary characteristic of most wildlife filmmaking (Mills 2013). The footage acts as evidence for the narrator's descriptive exposition: in many cases wildlife filmmakers "are essentially seeking footage to *illustrate* preconceived ideas rather than to *reveal* something new" (Bousé 1998, 121; emphasis in original).[5] Nichols explained that expository documentaries "rely heavily on an informing logic carried by the spoken word" and use narration to transmit information and elicit viewer trust:

or in specialized venues, such as museums (Palmer 2010). Moreover, the resurgence was not limited to feature-length documentary films, either: the previous landmark series from the BBC's Natural History Unit, *The Blue Planet* (2001), consistently reached 30 percent of British viewers, motivating a continued focus on big-budget filmmaking (Nicholson-Lord 2006).

[5]Nichols describes this as "evidentiary editing" (Nichols 2001, 29-30).

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> [the] expository mode emphasizes the impression of objectivity and well-supported argument. The voice-over commentary seems literally 'above' the fray. … The professional commentator's official tone, like the authoritative manner of news anchors and reporters, strives to build a sense of credibility from qualities such as distance, neutrality, disinterestedness, or omniscience. (Nichols 2001, 107)

The choice of narrator is important to attain such credibility: typically, wildlife film narrators project what Lawrence Weschler calls the "Voice of Institutional Authority" (Weschler 1995, 101).[6] The omniscient-but-rarely-present narrators of blue-chip wildlife films offer a sober gravitas to the proceedings; the expository mode contributes to the familiar, conventional documentary "feel" and their perceived educational framework.

One result of this expository mode is that wildlife film scholarship tends to treat these films as vehicles for the transmission of knowledge about wildlife,[7] neglecting or downplaying their entertainment motivations. Mainstream blue-chip wildlife films, especially those of the "British Style" such as those produced by the BBC's Natural History Unit, are generally interpreted as straightforward educational programs (Bousé 1998).[8] And within the well-documented history of artifice in historical and current wildlife filmmaking,[9] much critical attention and scrutiny has focused on overt examples of anthropomorphism, scientific inaccuracy, misrepresentation, staging, or fakery in the history of wildlife films (Jeffries 2003; Bousé 1998 and 2000; Chris 2006; Dingwall and Aldridge 2006; Palmer 2010; Mills 2013). Under this interpretation, which Richards has characterized as an "obsession with audience deception" (Richards 2014, 333), nature is considered to be misrepresented by unscrupulous or commercially-pressured filmmakers, who mislead audiences and undermine the educational project of wildlife documentary filmmaking. In other words, this critique of natural history documentary is both motivated by and tends to reinforce a clear distinction between entertainment and education.

Documentary Accuracy, Misrepresentation, and the Deficit Model

These concerns within wildlife film scholarship reveal assumptions of a deficit model of science communication, in which lay audiences obtain knowledge about wildlife by

[6]Weschler refers to this voice as "the same unctuous voice you've heard in every museum slide show or Acoustiguide tour or PBS nature special you've ever endured: the reassuringly measured voice of unassailable institutional authority" (Weschler 1995, 15-16).

[7]For a distinct example of an alternative focus on wildlife filmmaking as a site for the *production* of knowledge, see Gouyon (2011a; 2011b; 2016).

[8]In particular Bullert's assertion that science documentaries, being straightforwardly factual, are unproblematic to produce, pitch, and broadcast compared to other types of documentary (Bullert 1997).

[9]See especially Mitman (2009) for a detailed history of American wildlife filmmaking, and Palmer (2010) on staging practices in contemporary wildlife films.

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watching documentaries. Worries about unrealistic or false portrayals of nature imply that filmmakers' staging or representational practices interfere with the informative goal of their productions. Targets involve unrepresentative images of nature; for example, a focus on overly-violent behavior or on only a subset of social and sexual behaviors occurring in the wild. Critics portray wildlife films as presenting a reactionary or heteronormative natural world, one in line with particular views of human beings in which certain human values have been naturalized (see Bousé 2000; Chris 2006; Mills 2013). Wildlife films have also been accused of spreading persistent misinformation about wild animals, such as the myth of lemming suicide perpetuated in the Disney True-Life Adventure film *White Wilderness* (1958).[10] These examples contribute to a suspicion that the entertainment contexts of wildlife filmmaking lead to misrepresentation (see Bousé 1998): commercial, non-informational features of the genre, including spectacle, are considered to put pressure on filmmakers and broadcasters, and undermine scientific accuracy.

In addition to these concerns, a vein of criticism of the ideological motivations of blue-chip wildlife programming targets its support of an untenable conceptual divide between nature and culture; one sustained by its propagation of images of a pristine wilderness devoid of human beings or discussions of the impacts of human activity on animal species and their environments. As a result, blue-chip films have been accused of downplaying urgent environmental messages and of failing to present the serious consequences of the anthropocene, allowing audiences to enjoy beautiful images of nature while engendering both a separation of human beings from the rest of nature and a sense of environmental complacency (Mabey 2005; MacDonald 2006; Austin 2007).[11] Some filmmakers dispute these claims by pointing to the beauty of wildlife programming as an inroad to enhancing viewers' admiration of nature (Palmer 2010); initial empirical results by Ivakhiv (2013, 211) from online reviews of *Planet Earth* support such an interpretation.

Whether, or the extent to which, blue-chip documentaries should discuss conservation issues is a heated topic in the wildlife filmmaking community, relating to questions of films' potential impacts on audiences' environmental attitudes.

[10] This is by far the most notorious use of staging to demonstrate theoretically-consistent animal behavior, which purported to show a scene of lemming suicide (Mitman 2009; Palmer 2010). The production, filmed in Canmore, Alberta, acquired lemmings from children around Hudson's Bay; the animals were launched over a cliff by assistants using a turntable offscreen (*Cruel Camera* 1982). The film's narrator explains that the lemmings' instinctive, periodic suicides may seem mysterious, but they are actually migratory phenomena to control abundant populations facing shortages of food. The generated lemming behavior in *White Wilderness* was in line with the theory of "lemming suicide" described by the narrator, and the footage popularized and perpetuated the lemming suicide myth (Woodford 2003). The film resulted in the deaths of many of the lemmings. Roy Disney apologized decades later for the widespread fakery in the *True-Life Adventures*, while "accurately not[ing] that they promoted 'awareness' of nature" (Williams 2010).

[11] Palmer includes an anecdote where a wealthy potential donor relayed to filmmaker Hardy Jones that "I watched *Blue Planet* last week and the oceans seem totally healthy … Why are we bothering to raise money?" (Palmer 2010, 159).

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Nevertheless, their content is meant to be palatable to a broad audience, and broadcasters may not be interested in episodes that specifically engage with environmental issues or appear pessimistic (Richards 2013b). Some blue-chip wildlife programs produce episodes with explicit environmental messaging, such as the 3-part *Planet Earth: The Future* (2006), but not all broadcasters elect to air them (Ivakhiv 2013, 210). Indeed, the above critiques run the risk of overlooking "the political economy of documentary production" (ibid., 204), since the visual tropes of blue-chip filmmaking are the result of their historical success within particular production and broadcast contexts. The blue-chip format has been profitable because it allows a program to be replayed in syndication, re-dubbed internationally, or reedited with other material and not appear dated (Cottle 2004; Mitman 2009); these benefits of amassing blue-chip stock footage were part of the founding aims of the BBC's Natural History Unit (Richards 2013a).

While these critiques illuminate representational, ethical, professional, and ideological issues relevant to wildlife filmmaking and its portrayal of animal life to the viewing public, the net effect is a disproportionate focus on films' accuracy and their educational role. For example, Dingwall and Aldridge point out the limitations of the deficit model, but nonetheless segregate wildlife documentary's entertainment and educational roles, treat the former as constraining the latter, and criticize blue-chip programming for not living up to its educational potential: "it should be better understood as a spectacle. Its economic and cultural constraints limit its capacity adequately to communicate the complexities of science" (Dingwall and Aldridge 2006, 147). Kirby has argued that similar accuracy-based criticism in the domain of science consulting for feature films obscures the complex co-constitution of education and entertainment within filmmaking (Kirby 2011), while Gouyon reminds historians of science to overcome the temptation to rely on any "self-evident distinction between entertainment and education" (Gouyon 2014, 245). This applies especially to expository wildlife documentary films, whose entertainment motivations have been both downplayed by canonical treatment in documentary studies in general (Beattie 2008) and misunderstood by many wildlife film scholars as commercial constraints on an authentic portrayal of nature. Such concerns overlook how all documentarians intervene and construct images of nature, not only those employing overt misrepresentation (Winston 2000; Richards 2014; Gouyon 2016), as well as misunderstand the contemporary wildlife documentary broadcast landscape. The entertainment context for wildlife documentary film is not a superfluous constraint on accuracy, but essential to the genre's identity. What we need then is a more careful attention to the methods and history of entertainment and spectacle as part of our approach to natural history for the public.

To that end, and particularly in response to Dingwall and Aldridge, I characterize spectacle as a key feature of wildlife film's blue-chip renaissance. Spectacle is not only a fortuitous result of better camera technology and higher budgets, merely enhancing entertainment value; on the contrary, spectacle has a relevant lineage in natural history display, where it has long served a central function in affective education about wildlife;

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in other words, offering an experience that is not only didactic but emotional. Following Richards' media ecology approach to wildlife filmmaking, relating the production, form, and content of media to new technologies, markets, and broadcaster institutions (Richards 2013a), I will identify the features of the blue-chip renaissance contributing to its visual spectacle: technological innovations, high cost, and extensive coproduction partnerships. I will then examine spectacle within older contexts of natural history display, in particular within museum settings, and illustrate the tensions surrounding the at-times uneasy balancing of entertainment and education. Situating wildlife film spectacle as a prominent contemporary iteration of natural history display undermines the deficit-model assumptions that underly wildlife film scholarship's focus on accuracy, and calls attention to the complex interactions between wildlife films' entertainment and educational mandates within the blue-chip renaissance.

Spectacle in the Blue-Chip Renaissance

The history of wildlife filmmaking and natural history television involves many technological innovations aimed at solving the problems inherent in filming animals in the wild.[12] Some of these involved the construction of specialized habitats or enclosures to facilitate viewing animals within their dens or nests, while others allowed for better underwater filmmaking (Mitman 2009; Palmer 2010; Gouyon 2016). The IMAX camera, used initially for films shown in museums and science centers, was employed for numerous natural history films and involved particular challenges based on its size and required filming conditions (Palmer 2010). And novel filming techniques, including time-lapse and microphotography, have made minuscule life visible, acclimatizing documentary film audiences to these new "authentic" pictures of nature (Scott 2003; Gouyon 2016). For the films and programs of the twenty-first-century blue-chip renaissance, HD camera technology (which coincided with consumer trends in home television ownership) and specific camera mountings resulted in the visual language characteristic of the period's wildlife filmmaking.

Planet Earth was the first wildlife program to be shot almost entirely in HD, in then-untested field conditions of the extremely varied filming environments (Nicholson-Lord 2006). High-definition cameras offered a higher image resolution, as well as a better ability to film in lower light conditions (Bryant 2007). This meant that HD footage contained more detail and offered crisper images, even on large televisions (Palmer 2010, 160). Better lower-light shooting would also be a boon to filmmakers working in caves and forest undergrowth. But technical problems, up to and including equipment failure, were a major possibility, as the technology had never before been

[12] In addition, most autobiographies by wildlife filmmakers describe the practical and technical solutions to filming wildlife (see especially Palmer 2010).

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employed on such a wide scale in so many different venues (Merli 2007).[13] The HD gamble paid off: the expensive HD equipment performed well in the field and yielded incredible footage. Indeed, one sequence of note in the *Planet Earth* episode "Jungles," a frontal, close-up view of the entire bird-of-paradise courtship dance which included the female's scrutiny and ultimate rejection, was credited both to the filmmaker's incredible persistence[14] and to the HD camera's low light requirements (ibid.).

Planet Earth further benefitted from a consumer television landscape with high demand for HD programming at the time of *Planet Earth*'s broadcast in 2006 and HD-DVD release in 2007. High-definition flatscreen LCD (liquid-crystal display) televisions were an ideal venue for the lush HD visuals of *Planet Earth*, and home ownership of HD-capable televisions was on the rise. As LCD technology improved, LCD flatscreen costs were decreasing compared to plasma screen alternatives.[15] By 2007, LCDs had outsold conventional cathode ray tube models and higher-end plasma and rear-projection TVs, with nearly 80 million LCD televisions sold worldwide that year, accounting for nearly half of global TV sales (Gruener 2008). Bryant cites the Hollywood Reporter's sales figures that by June 2007, a record-breaking 42,000 copies of the *Planet Earth* series on HD-DVD had been sold (Bryant 2007), corresponding to "one for every five owners of a high-def disc machine" (Arnold 2007) despite the box set costing more than the then-average cost of a HD-DVD player.

The most important innovation for the blue-chip renaissance's distinct visuals, starting with *Planet Earth* and continuing in the films and programs that followed, is the heligimbal stabilized helicopter camera mount, or "heligimbal," which allowed for long, extremely stable aerial shots (Bryant 2007; Palmer 2010). The mounting itself, manufactured by the Cineflex company, connects the camera to the "nose" of a helicopter, which would fly over an environment or animal community. The gyroscopes within the heligimbal mean that the camera can maintain its orientation despite vibrational motion from the helicopter. Thanks to this gyro-stabilized activity in the mount, a camera can film steadily despite turbulence in the helicopter's path: overhead shots can be smooth and unbroken (Bryant 2007; Merli 2007). Combined with a HD camera, the heligimbal made it possible to obtain crisp, high-resolution

[13]In 2002, Andy King, the BBC resources' technology development manager, described the barriers to filming entirely in HD for the 2001 series *The Blue Planet*: "In a perfect world, that would be ideal, although HD video does not yet give us all the features of film. It's also not practical because of costs, the extensive use of SD archives in natural history programs, and the difficulty of getting all crews to shoot in the same format. Anybody want to pay for 40 crews to have HD cameras?" That same year, thanks in part to the success of *The Blue Planet*, the all-HD *Planet Earth* was commissioned (Nicholson-Lord 2006). *Planet Earth*'s executive producer at the Discovery Channel Maureen Lemire told *TVTechnology* magazine that "A few years ago, high definition was still a new format for most camera operators, and back then there had been rumors that were not good about dealing with HD" (Merli 2007).

[14]According to the *Planet Earth Diaries* segment for the episode, cameraman Paul Stewart spent eight weeks (300 hours of filming) attempting to get this shot.

[15]Flatscreen televisions came in plasma and LCD options, but in 2006 it was easier for LCD flatscreens to offer HD resolution at sizes under 50 inches (Reuters 2006).

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overhead images of animals. Footage obtained via helicopter in older wildlife series, like *Mutual of Omaha's Wild Kingdom*, required a greater proximity to the animals. The effects of the helicopter's presence were evident in the footage, including grasses flattened by the propellers' wind or animals fleeing the pursuit. Film commentators remarked that animal behavior was less likely to be disrupted by unobtrusive filmmaking techniques and equipment such as the heligimbal, cinebulle hot-air balloons (which allow for steady vertical climbs), and the infrared shooting at night employed in *Planet Earth* (Slenke 2007). Filmmakers also commented on the distinct benefits of the gimbal system:

> "It was truly amazing to be able to suddenly film certain things from the HD aerial gimbal in a matter of days or weeks that would have taken perhaps years to film," said Huw Cordey, a veteran BBC producer who was responsible for three episodes in the series ("Caves," "Deserts," and "Jungles"). "Some of these sequences would never have been captured had we not been [shooting] from so far away and had our presence been known by the wildlife." (Merli 2007)

The benefits of unobtrusiveness were considerable: "The key to these technologies is in not disturbing the surrounding environment. A shot of the Amazon treetops bending and breaking from helicopter wind doesn't work. And what kind of behavior could we expect from animals if they knew they were being watched in the dark or from above?" (Bryant 2007).

A stunning scene shot during the caribou migration in northern Canada from the first episode, "From Pole to Pole," epitomizes the level of spectacle and visual scale made possible by the heligimbal system (BBC America 2010). The scene begins tracking a pair of wolves, then gradually zooms out to include the entire stark landscape where the wolves have been reduced to mere specks at the bottom of the frame. Next, it cuts to an overhead view of a dozen or so caribou crossing a ledge, then another cut to an aerial shot of thousands, perhaps tens of thousands of migrating caribou skirting a lakeshore, who nonetheless remain individually distinct as the camera slowly rotates. These crisp aerial scenes are deployed in juxtaposition to close-up shots of the wolves and caribou as well as several time-lapse shots of the enormous migrating herd. The music includes a haunting woodwind melody for the caribou herd (evocative of a hunting horn), slow drumming to mimic the wolves' footfall, and quickening strings as the tension mounts. Finally, the chase begins, filmed from both the air and at ground level: a group of caribou fan out pursued by one of the wolves. A calf gets separated from the rest and is pursued by the wolf; the zig-zag chase ends with the kill. The inclusion of such a scene of predation is commonplace in blue-chip wildlife filming; indeed, it's similar to another wolf hunt from the BBC's *Life of Mammals* (2002). But in that earlier series, the chase shots are more static and truncated, unable to keep all the animals within the frame (BBC Earth 2009), while *Planet Earth's* chase scene includes impressive aerial shots over 10 seconds long. The heligimbal shots are integrated into the Natural History Unit's

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established repertoire of visual techniques, which now benefits from the crispness of high-definition cameras. The caribou hunt offers the viewer nature at once vast and intimate; the spectacle derives in part from the series' mastery of manipulating visual scale.[16] This affords the same visceral experience of immersion that Griffiths described in her analysis of the spectatorship of the immense, wondrous spaces of panorama and IMAX screens (Griffiths 2008).

This spectacular imagery has a high price tag. The blue-chip renaissance is distinct for the return of high-budget wildlife filmmaking that helped make possible its spectacular visuals. Granted, the costs for blue-chip wildlife programming have always been higher than those for most other kinds of documentary, as sending filmmakers on location with uncertain outcomes was an expensive venture. In recent years, however, the industry saw greatly heightened production costs for feature films and unprecedented per-episode costs for wildlife television programs. *March of the Penguins* had a budget of $8 million USD,[17] while *Planet Earth* cost $2 million USD per episode and $25 million total for the series (Arnold 2007; Palmer 2010). *Planet Earth* involved sending 70 filmmaker teams to 200 locations in 62 countries around the world over a five-year span, with all the required crew, equipment, and logistical support for extended periods of remote work[18] (Slenske 2007; Bryant 2007). Wildlife films shot on location depend on crews' ability to find and capture on film animal behavior that can't be counted on or planned into a shooting schedule (Bryant 2007; Palmer 2010). The time and patience required for many of these shots depended in no small part on luck, as well as on producers' willingness to foot the bill for extended time on location. Indeed, Bryant outlines many stories of filmmakers fortuitously capturing footage of desired animals or behaviors in the last scheduled days or even hours of filmmaking, emphasizing luck, the capriciousness of nature, and the necessity for producers to accept large costs in order to achieve footage in the wild (Bryant 2007).[19] In such broadcast climate, it was difficult for film producers to make money unless they first spent it, precisely to obtain the spectacular visuals.

[16]These high-definition, stabilized aerial scenes are ubiquitous in *Planet Earth*; other noteworthy examples include flyovers of the Argentine-Brazilian Iguazú falls with staggering tilts and pans; a long zoom out from nesting colonies of socotra cormorants until the frame includes the edge of the Arabian desert; and a fly-through of the Utah canyon lands at different elevations.

[17]Estimated production budget (IMDB 2016). With domestic grosses of $77 million USD (Box Office Mojo 2016).

[18]The Discovery Channel website even made the series' production apparatus the subject of its own interactive game, "Mission: Planet Earth," where players took on the role of BBC producers, centrally located, managing the finances and logistics for the many teams of filmmakers in the field (Bryant 2007).

[19]These include a fortuitous break in cloud cover over Venezuela's Angel Falls; the mother polar bear and her cubs beginning their walk to the ocean; a jackpot of tree frogs in Costa Rica (thanks to information from a local); the entirety of an impala hunt by wild dogs in Botswana "in the final ten minutes of the shoot"; and a snow leopard hunt on mountainous terrain ("the crew set up their cameras one last time and was handsomely rewarded … all in the final hour of the final day") (Bryant 2007). Stories of such serendipity are common in accounts of wildlife filmmaking (see Palmer 2010).

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The high cost of *Planet Earth* and later wildlife series was only possible for the BBC thanks to extensive coproduction agreements with media companies, including the Discovery Channel and the Disney corporation. Ashuri's ethnography of international documentary coproduction (2010) describes how documentary films increasingly rely on coproduction to fulfil producers' economic needs.[20] Coproducers will partially offset costs by obtaining distribution rights within their broadcast region. For large-scale documentary series of the BBC's Natural History Unit (NHU), which Richards describes as "mega-chip,"[21] the need to be attractive to international coproducers resulted in a global branding strategy, the BBC NHU's Wildvision, which takes advantage of the NHU's in-house expertise and its archive of footage to meet international commercial requests (Richards 2013a, 150–51).

Such coproduction arrangements have contributed to the rise of a prolific new source of wildlife programming. In 2008 the Walt Disney Company founded a subsidiary, Disneynature, to produce and distribute nature and conservation documentaries. Beginning with *Earth* (2009), a feature-length film including reedited footage of several episodes of *Planet Earth* and focusing on the stories of the journeys of several animal families of several "charismatic" species including polar bears, elephants, and whales, Disneynature has released one or more films each year: *The Crimson Wing: Mystery of the Flamingos* (2008), *Oceans* (2010), *Wings of Life* (2011), *African Cats* (2011), *Chimpanzee* (2012), *Bears* (2014), *Monkey Kingdom* (2015), and *Born in China* (2017). With *Earth* and each subsequent Disneynature release, the company donated a percentage of funds from their opening weekend in theatres (generally timed to Earth Day) to environmental charities relevant to the films' subject matter, a marketable strategy resulting in favorable press coverage consistent with their "green," conservation-minded brand strategy. The films also share spectacular footage and visual style, as well as a focus on child-friendly narratives of animal families and a behind-the-scenes focus on the skill and patience of wildlife filmmakers, emphasized in trailers and promotional materials. Disneynature films also have high estimated budgets, which have parlayed into significant revenues, as they make up the majority of top-grossing nature documentaries to date (Box Office Mojo 2016) and their films have each made at least $15 million USD (Alter 2015).

Part of the motivation behind the proliferation of alternatives to blue-chip wildlife programming in the twentieth century was that the decline in feature-length wildlife

[20]Despite its recent prominence, coproduction is not a new strategy. Richards argues that the BBC's NHU was set up to be appealing to international broadcasters. She includes interviews with David Attenborough who explained that coproduction money wasn't initially necessary to produce the BBC's landmark series, but it allowed for "beautiful cinematography" which would have been an extravagance for the public broadcaster (Richards 2013a, 149).

[21]"This new style of landmark wildlife programming, which has been dubbed 'mega-chip' programming by industry insiders because of the huge budgets necessary to obtain ever more spectacular footage, emphasizes the 'multiplicity' of wildlife content, or the ease with which it can be repackaged for different markets or modified for use across a range of multi-platform media" (Richards 2013a, 153).

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films shown in theatres meant that the venue for home viewership of wildlife couldn't offer a commensurate experience. Blue-chip wildlife programming did not have the same capacity for spectacle on small screens. Karen Scott has argued that spectacle, defined as "images that produce a visceral response in the viewer by way of the sheer audacity of the image itself … to excite wonderment in an audience" (Scott 2003, 30), had to be achieved in other ways, including the use of computer-generated images (CGI) to recreate dinosaurs in the natural historical programs *Walking with Dinosaurs* (1999) and *Extinct* (2000).[22] Scott's treatment of spectacle did not foresee the blue-chip renaissance, which was able to leverage the broadcast and consumer landscape to offer visual spectacle not only in theatrical releases but also for home viewership. Filmmakers were able to generate awe and wonder from conventional natural history subject matter thanks to technical innovations that took advantage of better cameras and larger television screens. At the same time, the increasingly-large budgets allowed the time to shoot in ways that enhanced the resulting visual spectacle. Indeed, the success of *Planet Earth* led the BBC away from its reliance on CGI, and demonstrated that viewer-attracting spectacle could be achieved without it: according to the BBC's Martin Davidson, "After Planet Earth, people expect you to be there. CGI is no longer the kind of gift it used to be" (Holmwood 2006).

Thanks to HD cameras, the heligimbal apparatus, high budgets, and extensive coproduction partnerships, the wildlife genre can now offer content of unprecedented spectacle. The blue-chip renaissance is the result of trends that had been gradually developing within the wildlife genre. Coproduction money, for example, had been used as early as the 1970s to enhance the visuals of *Life on Earth* and "contributed to the spectacular cinematography that has since become a consummate part of the BBC's landmark wildlife series" (Richards 2013a, 149). It was only the combination of the BBC's cinematography and the wide availability of large-screen televisions for home use that allowed the sustained phenomenon of popular blue-chip television programming to take advantage of new possibilities for the viewers' experience. The more traditional subject matter of blue-chip wildlife documentaries, filmed so as to maximize visual impact, meant that filmmakers could forgo the inducements to spectacle which would previously have been required on the small screen.

Spectacle in Natural History Display

The remarkable visual showcasing of nature within contemporary blue-chip wildlife filmmaking, described in the previous section, depended on cutting-edge twenty-first-century film innovations. Yet these wildlife films draw on forms of spectacle that long predate cinema. Generating wondrous experiences for viewers by means

[22]Van Dijck has described how these spectacular effects are nonetheless grounded in documentary realism (van Dijck 2006).

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of visual spectacle has been a central aim of the multiple settings of natural history display, from illustrations to collections to the museum, a primary site for public natural history since the nineteenth century. The spectacular footage present in contemporary wildlife filmmaking is continuous with these traditional forms of visual natural history, each designed in order to elicit wonder and awe, and reiterate longstanding trends in visual reasoning, collection, and display. We need to consider the idea of spectacle historically; first, because these relevant precursors illuminate the primacy of spectacle within the traditionally-understood educational settings of natural history. In addition, considerations of wildlife film spectacle, including its deficit-model assumptions, inhabit a much older discourse over the proper role of spectacle in public settings of education about nature.

The domain of interest of the field of natural history has not been consistent,[23] and today's practitioners do not share a common definition. Indeed, a recent oral history project bringing together natural historians revealed a diversity of views about the scope and aims of the discipline (Drummond and Steele 2016). Generally, it has consisted in the study of living things within their environmental communities, but it has also encompassed the planet's nonliving things as well, meaning that its objects of interest span animal, vegetable, and mineral. Natural history museums have reflected this broad interest and heterogeneity.[24] Like their precursor cabinets of curiosity, natural history museums often included non-organismal material, from minerals and gemstones to man-made artefacts of anthropological interest from other cultures, including pottery, textiles, coins, clothing, and jewelry (Denton 1991). In addition, ethnographic cinema was a popular attraction at museums in the early 1900s, while worries over its balance of spectacle and education challenged anthropologists and curators (Rony 1996; Griffiths 2002). As many specimens were obtained from colonial territories, natural history collections have long been considered part of imperialist projects (Sheets-Pyenson 1988; Fortey 2008; Snell and Tucker 2003; Thorsen, Rader, and Dodd 2013).

Natural history is generally considered to have an aesthetic character.[25] Artists were employed by natural historians in the illustration of specimens (see especially Daston and Galison 2007) and as early as the Middle Ages, collections of specimens by natural historians were a source of scholarly material and prestigious display. The cabinet of curiosities, a quintessential locale of Renaissance courtly scholarship, brought together

[23] Historically, the discipline's scope has included organisms, natural objects, medicine, astronomy, mineralogy, and even superstition. The prominent example from antiquity is Pliny the Elder's *Natural History*.

[24] Living animals have also been displayed alongside preserved specimens in various natural history museum contexts (Thorsen, Rader, and Dodd 2013; Rader 2013; Rader and Cain 2014).

[25] Wildlife biologist Steven Herman, writing in *The Journal of Wildlife Management* in 2002, offered the following definition: "Natural history is the scientific study of plants and animals in their natural environments. It is concerned with levels of organization from the individual organism to the ecosystem, and stresses identification, life history, distribution, abundance, and inter-relationships. It often and appropriately includes an esthetic component" (Herman 2002, 934). For Herman, the "esthetic aspect of natural history" relates to an appreciation of the beauty inherent in nature and of the conservation value of rare species (ibid., 938).

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natural materials from far-off places as well as cultural artefacts (Daston and Park 1998). Scientific voyages were a source of specimens which elicited wonder at the variety and difference found in exotic locations (Stafford 1984; Polakowski 1987; Mason 2009); indeed, botanical and animal specimens from South America were instrumental in the construction of Victorian concepts of "the tropical," particularly the vivid colours and lush foliage of South American plants (Stepan 2001). Similarly, Chang describes how Chinese garden design and artefact exhibition afforded a British interpretation of Chinese aesthetic experience (Chang 2010). Often highly prized and valuable, botanical specimens showcased the wealth and taste of their owners; the Dutch tulip craze embodied the desire to display one's conspicuous taste and discernment for beautiful objects (Cook 2007). Botanical gardens containing colonial specimens were important for scientific as well as symbolic discourse, as travel to tropical colonies afforded utopian discourses and environmental epistemologies of colonial lands (Grove 2003).

Sustained debates have occurred throughout the development of natural history exhibitions over whether the aesthetic and entertainment values of natural historical models are obstacles to their veracity and educational merit (Secord 2004; Nyhart 2004; Jardine, Secord, and Spary 1996; Mitman 2009; Asma 2001; Chicone and Kissel 2014; Bates 1992; Rader and Cain 2014).[26] As part of the history of visual culture, the aesthetics of natural historical models, achieved through collaborations between artists and scientists, can be situated within changing trends in the appearance and arrangement of exhibited specimens (Jordanova 2004; Kemp 2006); in contrast to "animals as they really are" we encounter "representations of animals as they really are for the producers of the representations themselves … fail[ing] to escape their socio-historical context" (Thorsen, Rader, and Dodd 2013, 4–5). This conflict between authenticity and aesthetics is a major issue for natural history museums. Some interpret the natural history museum as an institution under tension, thanks to commercial pressures on research space in museums and the lack of wider interest in research taxonomy (Secord 1996), while others stress the interdependence of research and curation, suggesting that successful museums benefit from the interplay between top-tier research and the design of beautiful exhibitions (see especially Fortey 2008; Thackray and Press 2013).

Display is intrinsic to the field of natural history. Specimens sourced from remote locations, the prestige of collections of rare animal bodies, and institutional sites such as museums and cabinets of curiosities, all depended upon peer and spectators' appreciation of displayed items. While other branches of science have employed spectacle in the public demonstration of scientific effects,[27] natural history as a discipline has been largely public, highly visual, and display-based (Fortey 2008; Bates 1992; Chicone and Kissel 2014; Asma 2001). Natural history also involved the circulation of images of organisms which were created to showcase their physical characteristics,

[26]See especially Mitman (2009) on the tensions between authenticity and spectacle within institutional natural history settings.
[27]See especially Morus' (1998) discussion of the achievement of spectacular electrical effects.

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whether emphasizing individual differences of particular specimens of interest, or those aiming to illustrate an idealized type (Daston and Galison 2007; Kusukawa 2012; Smith 2006; Yanni 1999). Models were also a significant aspect of natural history, for both pedagogical and display purposes (Jardine, Secord, and Spary 1996); the beauty and craftsmanship of individual models often rivalled the work of artisans of decorative objects.[28]

The transformation of the natural history exhibition from being one among many tasks of museum research curators to their exclusive specialty coincided with an enhanced focus on spectacular displays. Rader and Cain (2014) describe the rise of the "New Museum Idea" of prioritizing display over taxonomic research that would come to prominence over the course of the nineteenth and twentieth centuries for American natural history museums. This led to no little conflict between research curators and a rising profession of museum exhibitors: "research staff continued to malign what they saw as a direct challenge to scientific scholarship" (Bates 1992). However, Fortey reminds detractors of exhibition that museums have always been the site of spectacular displays[29] (Fortey 2008, 292–93); moreover, the interdependence of research and display means that such divisions are not clear-cut (Thackray and Press 2013). In addition, thanks to rising costs and decreased government funding for museums, exhibition is a key source of support for museum researchers, requiring spectacular exhibits that consistently draw crowds (Rader and Cain 2014; Fortey 2008; Thackray and Press 2013).

The natural history museum is the most common setting for the display of natural history collections from the nineteenth century onwards. The aesthetic and architectural features of natural history museums, many dating from the Victorian period (including marble columns, echoing spaces, and large rooms), have been described as "cathedral-like" and were intended to convey sobriety and authority[30] (Sheets-Pyenson 1988; Snell and Tucker 2003; Fortey 2008). The architecture and

[28] A particularly striking example is the Ware Collection of Blaschka Glass Models of plants, on display at the Harvard Museum of Natural History, described in Daston (2004).

[29] Fortey, longtime trilobite researcher at the Natural History Museum in London, offers a nuanced voice in this dispute, suggesting that opposition to the prominence of exhibition requires a longer view:

> For the public, the exhibitions are there to give a show, and to inform. During my working life they have changed from being worthy and didactic to become 'attractions' – a choice among many available in London. Those who decry such changes should remember that when the okapi was first displayed people would travel especially to London to see a single mounted animal. This has always been a function of museums – they are the place to show off a worthwhile spectacle. (Fortey 2008, 292-93)

[30] The pastiche Museum of Jurassic Technology, in California, employs the trappings of a natural history museum while subverting its seriousness with exhibitions combining genuine and fraudulent natural history material. Despite this playful approach to natural history, Yanni interprets the Museum of Jurassic Technology as being on the same "truth seeking continuum" as traditional natural history museums (Yanni 1999). For more on the Museum of Jurassic Technology, see Weschler (1995).

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space of the natural history museum setting is designed to inspire "awe and reverence" in visitors[31] (Asma 2001, 265; also see DeMars 1991). Natural history museums' architecture, building design, spatial arrangements, glass, lighting, and display paraphernalia themselves have been of interest to scholars concerned with the museums' material contexts, situated needs, and impacts on pedagogy and display (Yanni 1999; Sheets-Pyenson 1988; Griffiths 2008; Brenna 2013).

Visiting a natural history museum was meant to be an affective experience, with learning tied to curiosity, engagement, and diversion (Asma 2001; Chicone and Kissel 2014).[32] The arrangement and display of collections of specimens had particular motivations, from packed cases demonstrating the ordered taxonomy of nature (Yanni 1999) to the showcasing of ecological and family relationships in dioramas (Rader and Cain 2014). Displays that combine aesthetic and scientific features resulted in spectacular, inspirational experiences (Asma 2001). In addition to these functions of museum design, the individual specimens on display were also meant to impress viewers and elicit wonder.[33] Encountering genuine natural history objects is considered to generate a feeling of "wonder and awe" (Bates 1992, 15).[34] The exhibition of large specimens in particular created spectacle: "'star' attractions with sufficient 'wow' factor to draw in the public" (Thackray and Press 2013, 61) or "magnificent" specimens which exemplified their species (Rader and Cain 2014).

This overview of spectacle's role within natural history display enhances our analysis of contemporary wildlife films. First of all, it grounds the inquiry of spectacle within a broader historical and disciplinary context: natural history has always worked to inspire awe and wonder for the viewers of displayed illustrations and specimens. Next, it situates concerns about the potential constraining effects of wildlife films' entertainment context within a much older conversation about the proper balance of education and enjoyment within natural history. The importance of spectacle within wildlife films' relevant precursors motivate a more nuanced assessment than those of wildlife film scholars who have interpreted the genre's entertainment context as the source of external pressures to entertain or, like Dingwall and Aldridge, criticize spectacular blue-chip films for not fulfilling their educational potential. Indeed, thanks to natural

[31]Asma described this as the "museum as temple" experience, potentially leading the visitor to "meditation, inquiry, and wonder" (Asma 2001, 265). Fortey opines that "Naturally, museums came to resemble their classical ancestors, as shown so blatantly at be-columned Bloomsbury [site of the British Museum], and a dozen other similar establishments around the world" (Fortey 2008, 293).

[32]Museums' treatment of historical and anticipated visitors is especially helpful here. For example, Davis describes the usefulness of museum audience studies to measure the effectiveness of environmental education in natural history museums (Davis 1996).

[33]Many popular museum displays are actually models, for reasons of preservation, security, or the unavailability of genuine specimens. Chicone and Kissel stress that viewer trust depends on a transparent labeling of specimens such that there is no doubt if any are reproductions (Chicone and Kissel 2014). This relates directly to debates over staging in wildlife filmmaking.

[34]DeMars describes this experience as "a communion with the real objects" (DeMars 1991, 132), reminiscent of Benjamin's treatment of the "aura" of singular works of art.

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history's largely visual and aesthetic character, it is difficult to draw any firm distinction between the discipline's display, pedagogical, and research aims, complicating attempts to entirely segregate those functions. Spectacle's aim of generating wondrous experiences can't be entirely circumscribed within natural history's public face; instead, spectacle has been intrinsic to natural history's representations of nature. As a result, while Dingwall and Aldridge claim that blue-chip wildlife films "should be better understood as a spectacle" (Dingwall and Aldridge 2006, 147), I counter that appreciating spectacle offers us a better understanding of wildlife films. This insight has begun to be applied by documentary film scholars interested in affective education, and is helpful in analyzing spectacle's contemporary effects in the blue-chip genre.

Spectacle as Affective Knowing in Wildlife Film

Acknowledging the underestimation of spectacle's central role in natural history display and the historical tensions related to its use is a productive jumping-off point for considering spectacle's contemporary function. Display in natural history was oriented towards inspiring awe and wonder in visitors. Spectacular wildlife documentary films have that same function, although this has been understudied for wildlife films in particular and documentary films in general. There are, however, a few documentary film scholars who challenge distinctions between informative and entertaining modes of the genre, and for whom spectacle has a central role not only in generating emotional experiences of awe and wonder, but in knowledge dissemination. Elizabeth Cowie focuses on what she deems the paradox at the heart of the documentary mode: a distinction between the pleasure of spectacle (scopophilia) and the educational project of nonfiction film (epistemophilia). For Cowie, spectacle is not a showy veneer over informative content, but characteristic of documentary as an art form, within which "the pleasures of looking" intersect with and even facilitate access to knowledge (Cowie 2011, 3). Beattie argues that the spectacular in documentary films has been under-theorized and neglected within more prominent treatment of documentary representation, which is a primarily epistemological framing of the content-viewer relationship including the canonical works of both Grierson[35] and Nichols (Nichols 1991). For Beattie, a distinct lineage of spectacle has been neglected in favor of a focus on documentary representation (Beattie 2008). An overemphasis on the didactic qualities of documentary (its informative role, as well as its sobriety and seriousness) has resulted in a neglect of its affective, spectacular, and pleasurable qualities, those which Beattie defines collectively as documentary display, or "showing" as opposed to "telling." In contrast to informational content transmitted didactically in expository

[35]John Grierson, filmmaker and critic, is the foundational, "father" figure in documentary film studies. Grierson's definition of documentary, "the creative treatment of actuality," has been widely employed and critiqued throughout the field of film studies (Winston 1995).

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documentaries, documentary display allows for knowledge through sensation, emotion, and affective ways of knowing. For Beattie, natural science documentaries involve documentary display in that they deploy scopic technologies to generate spectacular and immersive visual experiences. In particular, Jean Painlevé's aquatic microcinema and IMAX cameras' image enlargement share in "a technologically-enhanced revelatory 'showing' [which] reveals previously unseen worlds" and offers new forms of immersive understanding (Beattie 2008, 150).

Documentary spectacle's ability to provide an environment for affective education motivates a reassessment of the education/entertainment distinction within wildlife films. Natural history films embody scopic pleasures through their spectacular imagery, none more so than the recent wildlife films and series of the blue-chip renaissance. The embodied, affective pleasures of viewership abound in the spectacles of the blue-chip renaissance, by way of the crisp resolution and visual splendor of footage, particularly of aerial footage of animals and environments, and the sense (reinforced by narration, publicity materials, and behind-the-scenes footage) that animal life is being revealed to viewers in ways not normally accessible to the general public. For example, footage of a rare snow leopard in episode 2, "Mountains," of *Planet Earth*, is enjoyable for its pure visual impact, but even more so as a narrator describes how this is the first time that this species has been caught on film. The *Planet Earth Diaries* segment for the episode details the filmmakers' arduous efforts to capture this footage over three years, enhancing its "never before seen" status for the series. Griffiths describes viewers' immersion in visual spectacle as promoting a "'revered gaze,' a response marked as much by recognition of the labor and effort involved in creating the spectacle as in the spectacle itself" (Griffiths 2008, 286).

This "revered gaze" fits within Beattie's assessment of documentary display: spectacle affords new ways of knowing not only about nature but also about wildlife film production. These elements of contemporary wildlife film viewership are particularly relevant to the broader issues of filmmaker transparency, technological determinism, and documentary realism juxtaposed within recent wildlife documentaries' enhanced use of "making-of" material. As Griffiths' analysis of the "revered gaze" indicates, spectacle is linked to both the visual impact of footage and to viewers' appreciation of how a shot was filmed; the latter condition is made increasingly possible thanks to the prominence of behind-the-scenes material demonstrating and celebrating wildlife films' cinematic achievements. This "making-of" material prominently showcases the production conditions for wildlife filmmaking within DVD bonus features, on series' companion websites, and even as segments broadcast alongside the main program (such as the *Planet Earth Diaries*). As the filmmaker protagonists of these "making-of" segments demonstrate, both their remarkable persistence and their facility employing technological innovations are needed to capture footage of nature in a spectacular way. Ivakhiv remarks that viewers are invited to "celebrate the expansion of the human colonization of the world through technology" (Ivakhiv 2013, 211). In this way, blue-chip programs have maintained their spectacular depictions of pristine environments

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while promoting the observational realism of their footage, thanks to the contextual evidence of filmmakers at work on location under difficult conditions. Spectacle thus not only promotes feelings of awe and wonder, but also reinforces wildlife filmmaking's mastery of nature by engendering a revered gaze.

Spectacular imagery prompting this manner of affective knowing depends on and reinforces the historical and technical contexts of viewership. Scott points out that notions of "authentic" representations of wildlife have evolved alongside the use of new techniques, such as time-lapse photography which was developed in the 1910s and is now common in wildlife programming:

> Over the course of time, these new technologies have influenced what viewers are willing to accept as being authentic in the context of representations of the natural world. Time-lapse or slow-motion sequences, infrared or heat-sensitive imaging, the extreme close-ups of macrophotography – all of these have become accepted means of portraying the reality of the plant and animal kingdoms, even though they show aspects of nature that would not normally be visible to the naked eye. (Scott 2003, 31)

Landmark series such as David Attenborough's *Private Life of Plants* (1995) successfully employed these techniques to offer "a privileged, almost voyeuristic, glimpse of worlds that would normally remain hidden" (ibid.). Within the blue-chip renaissance, technical achievements and the lengths to which filmmakers must go to obtain never-before-seen animal behavior is similarly promoted in publicity materials and is prominent in the making-of-documentaries that accompany the programs. HD camerawork, aerial footage, super-slow-motion, time-lapse filming, and composite CGI footage from space[36] have each joined the genre's kit of techniques aimed at offering authentic footage of wildlife, and are increasingly removed from anything an individual observer would encounter in the wild.

Conclusion

The spectacular trends of the blue-chip renaissance are slated to continue. A sequel to *Planet Earth*, titled *Planet Earth II*, premiered in 2016 from the BBC Natural History Unit with international co-production (Barraclough 2016). Netflix announced in 2015 that it will produce *Our Planet*, a wildlife documentary series by the *Planet Earth* production team Silverback Films, for planned availability on the streaming service in 2019. *Our Planet* "promises to present never-before-filmed settings, ranging from the ice caps and deep ocean to deserts and remote forests, featuring some of the

[36] CGI was used to incorporate satellite images into the program's footage. For example, for a sequence showing the melting Arctic tundra from orbit, the BBC's *Planet Earth* website describes how, "Taken at intervals of several weeks, a short sequence of still satellite images is blended together to show change over a much larger timescale" (BBC 2009).

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world's rarest animals and most precious natural habitats," in part thanks to a partnership with the World Wildlife Fund, which will allow filmmakers privileged access to their protected areas around the world (Spangler 2015). The promotional materials and marketing of these anticipated series lean heavily on the earlier success of *Planet Earth* and their planned spectacular footage, to be achieved through ever-increasing camera technologies and filmmaker persistence.

I have shown how the blue-chip renaissance's technological innovations and market contexts contributed to a new and successful venue for spectacular visions of wildlife. Similar to its role in natural history display, spectacle works to generate awe and wonder in wildlife film viewers and to provide an affective educational experience. As a result, it contributes to the virtuous inter-reinforcement of entertainment and education at work in contemporary blue-chip wildlife films, undermining the deficit-model assumptions about documentary's informative function. In a broadcast landscape within which wildlife filmmakers have "the authority to speak for nature" (Gouyon 2011a, 26), we need not only to assess wildlife documentary's accuracy or representational commitments, but also to appreciate its complexity as a cultural product and resonance with historical forms of nature on display.

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