

DISTURBANCE IN THE GARDEN:  
TOWARD A NEW PORTRAYAL OF WILDFIRE IN  
SCIENCE & NATURAL HISTORY FILMS

by

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## GLOSSARY OF TERMS

*Blue chip film*—a natural history documentary that typically has high production values, off-screen narration, an absence of politics, and usually an intentionally limited or non-existent on-screen human presence. These films also tend to have significant budgets. This essay will use the contemporary definition advanced by Derek Bousé in Wildlife Films (2000: 14-15)

*Eden myth*—a myth derived from Judeo-Christian belief in a peaceful garden of plenty from which humans have been banned. The myth informs contemporary perspectives of wilderness and human's place in it. This paper refers to the mythical landscape where animals live together peacefully. Disturbance of this balance is the work of evil.

*Fire-adapted species*—a species that has evolved biological traits which allow it to survive and in some cases thrive from the impacts of forest fires.

*Fire-dependent species*—a species whose life history has evolved to depend on the ecological impacts of wildfire. Without fire, these species struggle to complete their life cycles.

*Indexical bond*—the supposed correspondence in reality between an image and the thing itself.

*Stand-replacement fire*—a class of forest fire in which the severity is great enough to kill an entire stand of trees. Rather than burning low on the forest floor, these fires typically reach into the crown of the forest, producing large, dramatic displays of heat and flame.

*Tyranny of formula*—a phenomenon in which the use of formula to streamline the production of a product begins to render the product unrecognizable unless it has been produced by the formula.

## ABSTRACT

Science has proven that wildfire has a positive rejuvenating effect on many ecosystems, creating new habitat and bolstering global biodiversity. Despite growing scientific understanding of wildfire over the past 100 years, science and natural history films repeatedly position wildfire merely to achieve dramatic effect. These films typically ignore the available science and in many cases contradict scientific truth outright for the sake of the dramatic narrative.

Formulaic conventions developed by Walt Disney and various societal convictions are responsible for the perpetuation of old narrative devices that condemn fire. Science and natural history films reach tens of millions of people each year and shape public opinion of forest fires. These films have perpetuated the myth of Eden, the damning of wildfire, and the valorization of total fire suppression, all of which have had social, political, and economic ramifications.

To help align public perception of fire with the current scientific understanding of fire, producers of science and natural history films must redirect their narrative devices that traditionally demonize fire to create a new Eden, one borne of fire.

*Disturbance* represents a new model for the portrayal of wildfire in science and natural history films by employing drama to advance an appreciation of burned forests while avoiding narrative pitfalls that traditionally condemn fire. By combining observational and expository filmmaking modes, *Disturbance* also offers a new model for conservation-based science and natural history films, a model that incorporates society into nature and conservation into society.

## INTRODUCTION

Stand-replacement fires in the northern Rocky Mountains are full of drama. Thundering flames, narrow escapes, and valiant efforts to suppress the fire are what the average citizens typically see on television and film. For ecologists, the real drama begins after the flames pass. Almost immediately, an army of specialized wood-boring beetles, able to detect the fire's electromagnetic field distortion, descends on the forest to lay eggs in the hot trees (Evans 1061-65). Robber flies then arrive to prey on this abundance of beetles (Linsley and Hurd 9-11). The following spring morel mushrooms erupt by the thousands per acre from charred ground (Pilz et al. 367-86), and fire-adapted plants emerge by the billions (Van Staden, Brown, and Johnson 167-78), turning the bounty of available nutrients into a sea of colorful blooms. Specialized black-backed woodpeckers arrive to prey on the larvae of the wood-boring beetles (Wickman 162-64), and boreal toads arrive in droves to feast on the bounty of other insects attracted to the burn (Raphael 23-31). As time goes on, the abundance of roots, shoots, mushrooms, and ants attracts bears, and the lush grass attracts elk (USFES 2009). These cycles continue as a new forest slowly emerges to replace the old one. Like ripples on the surface of a pond, these circular stories repeat on different scales with different species through time until finally they disappear into the landscape with evidence of the burn.

A smoldering forest in the northern Rocky Mountains is bursting with these and other dramatic stories, many of which have been well known to science for more than fifty years. Knowledge of these post-fire recovery stories has expanded at an ever-

increasing rate since it began one hundred years ago, and scientists discover new stories each year. The portrayal of fire in nature films, by contrast, has changed little in the last one hundred years. Natural history films routinely cast fire as a significant killer of wildlife and a destroyer of habitat. National Geographic tells viewers that “the forests will *never* grow back” (*Be the Creature*, 2003) and the BBC tells viewers that “of all the forests dangers, fire is the biggest killer” (*Big Sky Bears*, 2002). Such dramatic statements contradict publicly available scientific data. The extensive fires in Yellowstone National Park in 1988, for example, provided evidence that fires kill relatively few mobile animals (Singer et al. 716–722). Of twenty-one Yellowstone grizzly bears outfitted with radio-collars during the large fires, not one was killed and many showed casual movements in and around the burning forest, even with cubs (USPS 2007). Following the fire, grizzly bears preferred burned areas to feed on the proliferation of roots, foliage, and ants (USFWS 2009). This sort of scientific knowledge rarely finds its way into natural history films. My film *Disturbance*, based on scientific literature, is an attempt to counter this trend and show that fire is not a destructor, but a constructor of wildlife and habitat.

This essay explores the portrayal of wildfire in natural history film in four sections. First, I discuss how I chose to approach the film in form and mode. Next, I discuss why a film such as *Disturbance* has not been made, with emphasis on the role of the narrative conventions and societal convictions. I then examine the continued use of these problematic narrative conventions in natural history films and discuss the social and political ramifications that come from this continued approach. Finally, I discuss how I

dealt with problematic traditional elements during the production of *Disturbance*, and why this approach represents a new model for advancing a scientifically accurate portrayal of wildfire.

## APPROACHING FIRE ECOLOGY: FORM AND MODE

As a filmmaker and photographer who appreciates and pursues high image quality, I prefer to visually emulate the blue chip style of wildlife filmmaking. Blue chip films, unique to natural history filmmaking, employ high production values that include candid, close-up shots of wildlife and wide, well-composed landscape shots. For the film *Disturbance*, I pursued high-quality, candid shots of fire-dependent species in their natural habitats. For instance, I included in the film close shots that focus on the black-backed woodpecker's eye, its pointed claws gripping charred bark, and the detail of its jet black feathers. Similarly, tight shots of the boreal toad reveal the moisture of its skin, ants crawling over its toes, and the burned forest reflected in its eye. The camera even appears to see inside a burned tree where beetle larvae chew tunnels. Film theorists such as Mitman and Bousé have criticized these types of shots for creating a false sense of intimacy, but I deliberately captured and included such falsely intimate shots in order to forcibly familiarize the viewer with these animals. The relative obscurity of these fire-dependent species means that the public doesn't often know much about them or see these species, precluding them from public consideration in debates about wildfire.

However, blue chip films perpetuate a trait that I consider a hindrance to effective conservation—the exclusion of people and politics. The collection of essays Uncommon Ground (1996) demonstrates how the omission of human presence continues the separation of humans from nature, a myth that continually complicates resource management issues. Like most ecological processes, landscape-scale disturbances do not

occur in a vacuum, but in a complicated matrix of politics, economics, and social anxiety. A typical blue chip wildlife film is designed more to entertain and impress than it is to deal with these complex elements. The total suite of stakeholders involved with landscape-scale wildfires also includes ecologists, fire management agencies, politicians, and the general public. For *Disturbance* to have any conservation value, I felt that I needed to include this multifaceted human aspect in the film. Not all human stakeholders found a voice in my film, however. Surveys clearly demonstrate that the public understanding of fire is shallow and largely informed by sensationalistic media (Pyne 8-15), so I chose to exclude the perspective of the general public, and instead make the public the target of my message.

*Disturbance* also diverges from traditional blue chip films in its narration. Blue chip films typically employ a single, omniscient voice-of-God narrator, which promotes a singular viewpoint and gives the films pedagogical and propagandistic overtones. I wanted to create a roundtable discussion among the stakeholders who deal directly with fire, and to convey the unity of these stakeholder's voices to the general public. Rather than employ the narration typical of blue chip films, I wove content from all my interviews into a tapestry of commentary that spanned gender and disciplines, including fire fighters and managers, politicians, and ecologists. I then set this narration under the images, thus allowing my interviewees to become a collective and secular voice-of-God. This approach simultaneously allows the film to adhere to a recognizable blue chip model yet dampens the propagandistic overtones and achieves a sense of stakeholder consensus. The appearance of *Disturbance's* interviewees at the end of the film, with their names

and titles, simultaneously lends authority of the content of the narration and places a human face on it. Further, with the exception of one female interviewee, the audience cannot assign these people to their comments. The credits only reveal that the narrative was comprised of professionals from many disciplines who work throughout the American West, thousands of miles apart from each other, yet seem to agree.

Most conservation-based documentary films fall squarely into an expository mode of documentary filmmaking (Nichols 34). They emphasize verbal commentary, follow argumentative logic, and offer a preferred interpretation. While the expository mode of documentary filmmaking largely informed my approach to *Disturbance*, the film contains other modal elements of documentary film. Although my piece is not the *cinema verité* work of the Maysles brothers or D. A. Pennebaker, the film contains elements that belong to this observational mode of documentary filmmaking (Nichols 38). I deliberately shot long, handheld takes of behind-the-scenes action that I did not stage or influence. I used this method of image capture to document the myriad human viewpoints in the film, from strategy meetings among fire managers to town hall meetings with the general public.

The film contains both expository and observational modes of documentary filmmaking because I wanted to interject some quasi-objective reality into the piece. This helps to offset the dreaminess of the blue chip aesthetic, which tends not to reflect people's experiences in nature, and is therefore not completely recognizable as reality. A failed recognition of *Disturbance* as reality would serve to undermine the film's purpose, so I intercut the blue chip sequences with content that *does* reflect people's experiences and *is* recognizable as reality. I focused my quasi-observational shooting on subjects and

actions that were not the heart-pounding, frontline action that typically receives coverage in the evening news and other documentaries. Instead, I shot strategy meetings with maps and coffee cups; base camp events like parking trucks and eating on the run; and town hall meetings filled with chatter and wall maps. The final effect of mixed modes is a partial blue chip film tempered with a recognizable reality that humanizes fire management, rather than valorizes it.

## AVOIDING REALITY: CONVENTION AND CONVICTION

A Tyrannical Formula

For elements within a wildlife film to be accepted by an audience, or by natural history film producers, they need not be accurate, only plausible (Bousé 4). The unfortunate effect of this is that as time goes on plausibility increasingly refers to the medium, not necessarily reality. In other words, plausibility is increasingly defined by asking the question “*Have I seen it in nature films before?*” This phenomenon is known as the *Tyranny of Formulae* (Aldridge and Dingwall 437). At some point, wildlife films become their own referent, and I argue that this phenomenon is largely responsible for the perpetuation of a fire-damning mentality within science and natural history films.

Walt Disney’s distinct and highly successful style dominated the development of narrative conventions in wildlife filmmaking for nearly fifty years, and Disney largely informs the formulaic portrayal of fire in science and natural history films today.

Disney entered a particular cinematic climate in the late 1930s. Between 1900 and 1920, three important narrative components had come together to create this climate. First, at the beginning of the century, films of animals fighting and dying began to overtake the earlier popular animal feeding films (Mitman 6-24). As death eclipsed feeding as a crude storyline, hunting and chasing elements rose in popularity as well (Sklar 29). Given the public preference for conventional narrative at the time (Ray 34), film producers discovered films such as *Stalking and Shooting Caribou* (1907), *Wolf*

*Hunt* (1908), and *Rainey's African Hunt* (1914), all chase films that promised to end in a potentially lethal confrontation, attracted a paying crowd.

The second important narrative component that rose in popularity before Disney's arrival was suspense derived from sheer power of nature. Films such as *Rough Sea at Dover* (1895) were immediately successful, but soon real world disasters provided a source of fire-based drama. In 1906, a significant earthquake ruptured a vast underground network of gas lines beneath the streets of San Francisco. On April 16<sup>th</sup>, 1906, the New York Times reported that the ensuing apocalyptic fire swept through the city, destroyed over half of it, and killed more than 500 people. Later, in 1910, a major wildfire, fueled by drought and poor logging practices (Pyne 2001: 77-78), burned over 20 million acres and killed 87 people (Egan 5). Trains raced over burning trestles as they evacuated mountain communities; miners hid in their shafts as the firestorm thundered past. The U.S. Forest Service lost eight billion board feet of potential lumber (Kennedy 107). Both of these large natural disasters created a national perspective on fire, and prompted the U.S. Forest Service to begin a militant campaign of total fire suppression. The 1906 and 1910 fire disasters also provided a wealth of dramatic story lines for cinema.

The third narrative component predating Disney's arrival was the advent of the orphan motif. Already popular in novels, this motif began to find a foothold in cinematic narratives. The orphan signified naivety, vulnerability, and injustice, which elicited sympathy from the audience and made the orphan a powerful protagonist. By the mid-1920s, Gotham Productions successfully combined animal chase and potential death

sequences, the drama of natural disaster, and the orphan motif into a single successful film, *Phantom of the Forest* (1926). In this film an orphaned dog deliberately spoils the plans of a strong-arming developer, who in a rage sets the forest on fire. In the mayhem, a helpless, baby is trapped in a house by the raging conflagration. The dog saves the motherless baby from destruction posed by both the land developer and the forest fire. Reduced to its simplest terms, the plot reads: orphan saves orphan from flames. *Phantom* showcases the combination of narrative elements that typifies public perception of fire in the 1920's. Animal-based films of the era such as *Phantom* would become the foundation of future natural history films, and they would bring their narrative darlings with them, including chases, flames, and orphans. It was in this cinematic and political climate that Disney emerged as a businessman.

### Bambi (1942)

In the late 1930s, Disney held meetings with his story artists about ramping up the drama of a story he had purchased, Felix Salten's Bambi. Notes of those meetings reveal in detail Disney's approach to 'making swell suspense' by adding the element of wildfire to a climactic orphan chase scene. Disney says:

You never see fire start. If you did, they wouldn't catch hold. You're right there and suddenly there's a fire. I don't mean to humanize everything but...my God they're hungry....There's something alive to a fire...When it hits these trees, you can bring out something with your music and scare the pants off 'em...I think that very dramatic chase has an awful lot to do with sending somebody out thinking they've seen something big. You've got to be dramatic in these things or else they don't take it. I see a marvelous scene after a forest fire. It is a very desolate scene, devastated — a no man's land. (Walt Disney Home Entertainment 2005)

Scaring the pants off viewers with a dramatic fire scene in hopes that they would “take it” was part of Disney’s moneymaking vision. As the history of Disney’s corporation shows, Disney’s dramatic fire scene in which the orphan has to escape a raging wildfire and swim to the safety of an island worked marvelously. The film received three Academy Award nominations, and was emulated for decades to come. This film, and its villainization of fire, reached millions of viewers. It was re-released into theaters six more times over the next 45 years, released on VHS in 1989 and 1997, and then released on DVD in 2005. *Bambi* has impacted at least five generations of viewers, and although today this animated nature film may not seem related to blue chip films such as *Planet Earth* (2005), it contains many of the elements of modern blue chip films including an Edenic, animal-centric story that separates man from nature, is explicitly based on reality, and employs visual splendor.

#### Perri (1957)

After the success of *Bambi*, Disney discovered that live-action animal films were faster and far cheaper to produce than animations, so in 1948, he created the *True Life Adventure* series. In the eleven years of production that followed, the thirteen *True Life* films won twenty-four major awards, including eight Academy Awards. Disney dominated the nature film genre. If other nature film producers wanted to be successful, they had to compete on Disney’s terms and appropriate his devices.

In 1957, Disney reapplied the dramatic wildfire formula from *Bambi* to *Perri*, a live-action, *True Life Fantasy* film. This film depicts the life of a squirrel in a “secret

garden” where the “plot is nature’s own” (*Perri 1957*). In blue chip fashion, the opening takes the viewer on a lulling drift through an Edenic forest as the animals begin to stir. We see a rabbit (read: Thumper) and a family of skunks (read: Flower), and finally, the spotted deer fawn (read: Bambi). Eventually, the newly orphaned Perri “glimpses the Forest King himself, Bambi,” a scene that blurs cartoon and reality (*Perri 1957*). The narrative repeatedly thwarts the squirrel’s attempts to realize her romantic longings, and just as her “moment of fulfillment is at hand” a lightning storm summons the “dreaded destroyer that all wild things fear,” wildfire. In this climactic moment, all of the animals eventually escape the “seething Holocaust,” not surprisingly, on small islands. The film was nominated for an Oscar, indicating that society accepted this representation of reality and found it worthy of formal praise.

#### A Fire Called Jeremiah (1961)

A 1961 episode of the television program *Walt Disney Presents* entitled *A Fire Called Jeremiah* also features Disney’s classic formula for wildfire. The program opens with a studio-based introduction by Walt Disney himself who confirms that, although Bambi was a fantasy, the fire scene was not. He continues, “This week, we’re going to show you a demon at work. That demon—fire.” Disney dedicates the film to “those who go out and fight the demon, ...the worst kind of bad magic...that destroys what is beautiful and irreplaceable.”

Following Disney’s introduction, the film opens with an Edenic exploration of the “vast expanses of virgin forest, a far reaching sea of green trees, ...a sanctuary for wild animals.” Eventually lightning starts a fire that turns into a “monster, an angry demon

consuming everything in its path...wreaking its havoc both night and day.” When the “winds lash the demon into a new fury,” the protagonist, a young fire fighter, must use a helicopter to rescue a helpless young woman (referred to as a “girl”) and her pet squirrel after the two become trapped on a mountaintop island surrounded by a sea of angry fire. When the “monster” finally “laid down to die,” the narrator tallies the total damage, then reminds the viewer that “for generations the ugly scar would remain where the fire had ravaged the earth and wrought its terrible devastation.” The film closes as the viewer is taken on a visual tour of the devastation brought by the fire, which had come to “fulfill the ancient biblical promise of the biblical prophet Jeremiah: I shall kindle a fire in the forest and it shall devour all things round about.”

Between 1942 and 1961, Disney won numerous prestigious awards and dominated the field of natural history film. He created the model to emulate and set the narrative standard for the portrayal of wildfire in nature films with his films *Bambi*, *Perri*, and *Jeremiah*. His formula required that fire be cast as a demon, a destroyer of Eden, and the menacing pursuer of the young and vulnerable, preferably orphans. Disney’s repeated formula became one surrogate referent for reality for future filmmakers incorporating wildfire into their natural history films. Other large fires that would eventually burn throughout the American West would probably come to be viewed by the general public with eyes already tainted by Disney’s version of wildfire and those who would emulate him.

### Societal Convictions

In addition to Disney's influential narrative conventions, several societal convictions also function to perpetuate the traditional portrayal of wildfire in natural history film. These include society's belief that photographic images truly represent reality; its faith in science as depicted in natural history films; and its belief, conscious or not, in the myth of Eden.

### Seeing is Believing

Although the photographic image can be manipulated, the image implies a one-to-one correspondence to the object it represents. This is the *indexical bond* of photographic images (Nichols 28), and despite growing knowledge of an image maker's ability to manipulate reality, the truth of this bond is probably still widely and likely unconsciously accepted by society. Viewers of photographic images may not deeply scrutinize the limitations of this bond and probably do not often consider the framing, lighting, or other invisible human manipulations of the photograph. The medium of film expands the possibilities of photographic manipulation by adding the elements of time and sound. The photographic image of a squirrel in a tree takes on an entirely new meaning when this image is intercut with images of a fire burning the base of a tree and underscored with dramatic music. The indexical bond of photographic images coupled with society's tendency to believe photographic images allows such edited sequences to appear completely representative of reality. To most of society, seeing is believing, and therefore society has little reason to doubt images and their narrative assertions.

### Faith in Science

Society's faith in science is also partly responsible for the wildlife film industry's inability to tell an accurate story of fire ecology. When facts are presented as scientifically based, doubt tends to be silenced. All natural history films are implicitly, if not explicitly, science-based. What made Disney's wildfire conventions so pervasive is that his films, animated or not, claimed explicitly to represent science, reality, or both. The first *True Life Adventure* in 1948 opened with the claim: "These films are photographed in their natural settings and are completely authentic, unstaged and unrehearsed" (*Seal Island* 1948). Even the title of the series refers to an objective reality through the indexical bond. Disney appeared to be merely passive vessel through which reality and science spoke to the viewer. Yet, in a 1954 article, Disney noted that his model for "live animal drama" was directly linked to "cartoon tales, especially *Bambi*" and that his films were "to bring interesting and delightful entertainment into the theater," *not* for "education in natural sciences" (Disney 38). In other words, for Disney natural science was not necessarily part of "true life," but his successful films asserted the opposite. In 1970, Walt Disney Educational Products continued the tradition after Walt Disney's death by releasing an instructional record album titled "The *Bambi: A Listening Story Lesson*, which included a teacher's guide with the following text:

All too often, animal books are highly emotional, over-sentimental stories of creatures who act amazingly like humans. Although the animals in *Bambi* speak, they still retain their animal characters, and the portrayal of their way of life is scientifically true. From *Bambi*, children learn accurate information as well as feel deep concern and tenderness for the characters. (Walt Disney Educational Products 1970)

Disney had his own version of natural history and supplied educational materials of what was “scientifically true” so “children learn accurate information” (ibid 1970). Viewers of Disney’s films, including aspiring filmmakers, had little reason to doubt Disney’s narrative assertions because these assertions were apparently scientifically true.

### The Myth of Eden

According to Merchant, western society transfers the Judeo-Christian myth of Eden to its concept of wilderness landscapes and their inhabitants (Reinventing Eden, 2003). *Bambi*, *Perri*, and *Jeremiah* all open with an intact, Eden-like forest, a land of peace and plenty where all species live in harmony, a land that is later destroyed by fire. Because fire is the *reverse* of photosynthesis, it will always stand in apparent opposition to any Edenic garden. If natural history film portrays green forests as an Edenic sanctuary for animals, especially as they typically do in blue chip films, then fire plays the role of Eden’s destroyer. Until western society sees an Edenic garden borne of fire, fire will be cast as a demon.

## CARRYING THE TORCH: AN UNDYING TRADITION

The 1970s saw a tremendous boom in the number of aspiring wildlife filmmakers. Christopher Parsons published Making Wildlife Films in 1971, in which he teaches new recruits that “the filmmaker’s only obligation to his audience is to ensure that his film is true to life, within the accepted conventions of filmmaking” (Parsons 14). By this time Disney had thoroughly developed the accepted conventions of wildlife filmmaking as they applied to forest fire. The convention recommended dramatic chases and narrow escapes of the young and vulnerable, preferably orphans. It recommended island refugia and the implicit threat to the qualities of Eden (peace, habitat, plentiful food, etc.). What follows is a brief survey of how science and natural history films have treated wildlife following Disney’s establishment of narrative convention.

“Wildfire: sweeping through the forest in a storm of smoke and flame that destroys everything in its path... Welcome to Mutual of Omaha’s Wild Kingdom.” A special two-part series on wildfire opened in 1972 with those lines as 4.5 million people tuned in to watch Marlin Perkins’ next adventure (Bousé 219). Under the guise of scientific study, Perkins spends two complete episodes observing animals driven to fighting and dying because of the fire. He also shepherds a herd of bison to safety and observes three orphans: a spotted deer fawn, a bison calf, and a bear cub. Perkins flew the calf and fawn to safety with his helicopter while the cub sought refuge on an island. “To forest animals, nothing is more devastating than wildfire,” claims Perkins. Although fire had long been used to improve forage for bison by the government (Forde, Sloan, and Shown 97-110), Perkins bemoans the loss of bison habitat and implores the viewer help

stop such destruction and “preserve a unique part of the Wild Kingdom.”

In the five years leading up to Marty Stouffer’s *Wild America* special on woodpeckers in 1985, scientific literature produced at least sixteen papers addressing the fire dependence of black-backed woodpeckers. Stouffer’s episode, entitled *Woodpeckers: Nature’s Hammerheads*, was broadcast to at least 3.4 million viewers (Bousé 219) and gave treatment to each species of woodpecker in North America. When this program turned to the black-backed woodpecker, the segment did not mention fire once. The following year, Stouffer produced *Wild America: Evergreen*. Although Stouffer crudely hints at regeneration, he calls fire “one of the forest’s deadliest enemies.” Although the wildlife filmmaking community eventually repudiated Stouffer for animal cruelty issues, his *Wild America* series remains a significant hallmark in the history of the genre and continues to inspire filmmakers.

In 1998, Discovery Pictures produced *Wildfire: Feel the Heat!* which highlights the “endurance and valor of the human heart” on the “battle field” where we can hear the “battle cry of an army” who vow to protect us against “nature’s fury.” As the approaching flames make trees “seethe with heat and suddenly detonate into flame,” the viewer learns that massive fires will actually “look down at you to make you bow down to it.” A closing aerial shot sweeps over the landscape of “destruction” as melancholy music swells. A later Forest Service critique of the film notes that the film does nothing but “titillate the audience by featuring fireline action” and “largely misses the opportunity to explore the long-term role fire plays in shaping wildland ecosystems” (USDA 17-18).

In 2002, *NOVA* broadcast *Fire Wars*, a documentary about wildfire in America

that includes one of the most accurate overviews of fire ecology of any documentary to date. The film shows a few scientists asserting that fire is natural and should not be suppressed in all cases. However, the fire fighting action and heart-pounding drama comprising the bulk of the film thoroughly overruns these assertions. By valorizing the lives of wildland firefighters, *NOVA* asks the viewer to find noble their implied mission of suppressing all wildfires. Ultimately, the voice-of-God narration tells viewers that fire is like “Hiroshima every 15 seconds” and “many of our magnificent landscapes are at risk,” while, through the indexical bond, aerial footage serves to verify the “obvious damage from uncontrolled wildfires.”

In 2007 the BBC released its impressive blue chip film series *Planet Earth*. The episode entitled *Planet Earth: Great Plains* opens with an aerial shot of a vast grassland in which eagles nest and gazelles tend to their calves. The narration suggests that both sets of young animals are terribly vulnerable, when suddenly a grassfire sweeps toward them as dramatic music swells. “With nothing to stand in its way, the blaze consumes anything that can’t flee.” After the dramatic escape scene, we learn that “huge quantities of grass, valuable food, have been lost.” BBC did not say what scientists know: that fire benefits grass by making available massive quantities of nutrients and kills very few large animals (USFWS 2009). While the gazelles “leave the desolation behind them,” a gazelle carcass lies smoldering on the blackened prairie.

## THE COST OF CARRYING THE TORCH

While ecologists answer to science, fire managers remain stuck in a limbo between science and public opinion. Fire management policy is heavily influenced by public opinion, yet public opinion of national natural resource issues is rarely based on real experiences. As Pyne illustrates throughout his book Tending Fire: Coping with America's Wildland Fires (2004), public opinion is typically based on the message delivered by some mediating source such as television and film. If science-based films show that fire is a forest animal's biggest killer and the forest's worst enemy, then it follows that scientists must recommend suppressing those stand-replacement fires. If explicitly or implicitly science-based films demonize wildfire, especially stand replacement fires, what conclusion will average voting citizens reach?

Research demonstrates that the greatest impediment to the use of fire to benefit wildlife and ecosystems is, ironically, public concern about the harmful effect of wildfire on wildlife and ecosystems (Jacobson, McDuff, and Monroe 7-10). The results of fire suppression have been ecologically and economically disastrous. Fire dependent species are deprived of habitat and fighting wildfires costs taxpayers billions of dollars a year. Further research demonstrates that public opposition to the use of fire is based on *shallow perceptions of fire* (Donovan and Brown 73-79). With natural history films reaching tens of millions of viewers, and typically employing dramatic narrative conventions that recall an early Disney era, these films probably contribute significantly to the public's shallow perception of wildfire.

As natural history film producers head into the field with a camera, they likely also hold in their hand a list of shots to capture derived from storyboards. Evidence suggests that preconceived notions of what stories and behaviors exist in burned and burning forests may be more likely based on dominant narratives than on the reality of ecology. Such films do more to fuel public apprehension than to convey meaningful science about wildfire. Public concern translates into public policy, and since the world regards the United States as the leader and the model for managing fire (Pyne 2009: 8-15), our political and management decisions have global impacts. These political and management decisions have roots in the public's perception of fire. The public perception of fire has roots buried deeply in nature films.

## CONCLUSION

Disney's tyranny of formulae and the indexical bond, the myth of Eden, and society's faith in science have contributed to the perpetuation of old, worn out narrative conventions for the portrayal of wildfire in science and natural history films. Despite scientific understanding to the contrary, these narrative conventions have not gone away. They permeate science and natural history films made today, and these films help to inform public understanding of fire's role in ecosystems, an understanding that is now significantly misaligned with science. Creating a new model for wildfire depends explicitly on how future films deal with narrative conventions for wildfire and societal convictions of Eden, science, and the indexical bond of images to reality.

Producers of wildlife films are hesitant to break with narrative conventions outright, because such films would likely not be recognizable to the general public if they did not at least follow a linear narrative format. It is possible, however, to successfully employ dramatic narrative devices and to avoid the problematic fire-damning conventions established by Disney and perpetuated by others. For example, the destruction of mythical Eden generates great drama, and I commandeer this drama in *Disturbance* and redirected its power to advance an appreciation of burned forests. The film opens dramatically with stark images of a smoldering forest underscored poignantly by dramatic music. This scene is intended to invoke the vision of the "marvelous scene after the fire" that Disney spoke of in 1940, a "very desolate scene, devastated—a no man's land" (Walt Disney Home Entertainment 2005). The accompanying commentary

by Larry Higginbotham underscores this feeling: “Seven miles in 35 minutes, and it left everything on fire at once. The place is just rock and ash. You go in there and look, and just shake your head. Why?” The film deliberately omits pre-fire Eden scenes, so that viewers bring their own preconceived notions to this dramatic opening. I placed such strong dramatic emphasis on the implied destruction of Eden so that I could spend the rest of the film constructing a new version of Eden from ground zero; an Eden borne of fire and that includes people. Unlike in *Bambi*, *Perri*, and *Jeremiah*, my Edenic destruction scene appeared at the beginning rather than at the end of the film.

*Disturbance* represents a new model for wildfire where the apparent devastation *is* the beginning of the story.

Later, when the film shows the first clear shots of real flames, the sequence lasts only long enough to show how the black-backed woodpecker finds what it requires to fulfill its life cycle. The scene contains no animal chase scenes, no orphans, and no islands. I also eliminate the musical score under the image of the flames. This presentation reduces the ability of the flames to conjure and propagate old values that viewers may bring with them to the image of forest fire.

Stephen King, arguably the master of horror stories, recalls that of all the childhood films he watched, *Bambi* frightened him the most (King 8). The research of Sylvester (1994), Weiss (2000), and Cable and Ernst (2003) illustrates that drama creates an emotional response that makes facts more memorable, so the accuracy of the facts accompanying drama is of utmost importance. When producers of films that are purportedly based on science forsake scientific accuracy for the sake of the dramatic

narrative often employing orphans and chase scenes they risk enhancing the public's retention of misinformation. This side effect makes the use of drama in nature-based films dangerous. Producers of natural history films have portrayed fire as a dramatic killer and destroyer of Eden and evidence indicates that fire damning in natural history films has helped to misalign public perception of wildfire with the reality of science.

The power of drama to enhance memory, however, also puts filmmakers in an excellent position to help advance conservation biology (Tolisano 1135–36) because drama can be used to facilitate the retention of scientifically accurate facts. Drama has ultimately led public perception of fire away from science, but may ironically be the key to realigning it. *Disturbance* is my attempt to avoid the pitfalls of Disney's formula and simultaneously commandeer the myth of Eden and the power of drama to educate the general public about fire ecology. Ultimately, the development of an ecologically and economically sustainable fire policy may depend in large part on future science and natural history films pursuing wildfire with a model similar to *Disturbance*.

*Disturbance* represents a new model for the portrayal of wildfire in science and natural history films, but it also represents a new model for conservation-based science and natural history films in general. Conservation issues are as much political and social as they are biological. Conservation efforts that do not incorporate political and social considerations are bound to be ineffective (Uncommon Ground 1996). Similarly, conservation films that do not incorporate political and social considerations will remain largely ineffective.

Most natural history filmmakers typically create films that fit cleanly within recognizable filmmaking modes and styles. These modes and styles have benefits and

drawbacks. Blue chip films are highly entertaining, they potentially reach millions of viewers, and they are also educational to varying degrees, but they do not deal well with politics and society. Observational films, by contrast, are well suited to dealing with society and politics, but not necessarily educating viewers about wildlife and ecology. Like most science and natural history filmmakers, my aspirations are to entertain and educate but I also seek to create a discourse of political and social issues to advance conservation. By combining the expository and the observational, the Edenic with the mundane, *Disturbance* creates a fresh documentary approach which allows for the combination of the biological and the political, a style that incorporates society into nature, and conservation into society.

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