

**The Longevity and Effectiveness of Celebrity
Conservation: Mutualism Versus Dominion**

By

Gretchen Scout Weeter

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Abstract

Unprecedented biodiversity loss calls for improved conservation methods. Celebrity conservationists, public figures who advocate for the protection of biodiversity and imperiled species through their developed public platforms, offer part of the solution. Such pseudo-celebrities are effective at bridging the knowledge gap between lay people who have the power to enact change and scientists that hold the solutions to biodiversity loss. A celebrity conservationist typically employs one of two methods: mutualism or dominion. While both emphasize the importance of education, mutualism targets the protection of a species by restricting human behaviors while dominion prioritizes human pursuits by restricting wildlife behavior. Analysis conducted on three conservation celebrities, Jane Goodall, Steve Irwin, and Dian Fossey reveals variations in the longevity and effectiveness of their conservation efforts. Goodall and Fossey's mutualistic approach to conservation has contributed to the success of their subsequent conservation organizations. Unlike Irwin, Jane Goodall and Dian Fossey's efforts have improved species populations, preserved significant acreage of land for target species, and donated millions to conservation efforts of target species. This analysis is important as it highlights areas in which we can improve and expand conservation efforts to save species biodiversity.

The world is experiencing a rapid loss of biodiversity, which is exacerbated by ongoing climate change. Biodiversity loss threatens ecosystem services that provide benefits to human communities. A divide in knowledge exists between lay people and the scientists who hold the solutions to biodiversity loss. We need effective communication to bridge this gap in knowledge to better allow every-day people to make effective, positive environmental change. Part of the solution lies in what I coin “conservation celebrities.” A conservation celebrity is a public figure who takes action and advocates for conservation and environmental protections. Public figures like Jane Goodall, Steve Irwin, and Dian Fossey are well known for their conservation work. Jane Goodall is famous for her work with chimpanzees, Steve Irwin for his work with crocodiles, and Dian Fossey for her work with gorillas. Their use of television and film has brought awareness and inspired empathy for the need for conservation of their target species to the general public. In the age of social media and television, these pseudo-celebrities are an important tool to bridge the gap between scientists and the public, to educate the public about the importance of biodiversity to the planet’s health and our own well-being, and to inform the public on what they can do to assist in the survival of animal species to further our own survival.

My thesis aims to answer three questions: 1. Which of the aforementioned celebrity conservationists has had the most meaningful impact on species conservation; 2. What method or approach used by these conservationist celebrities appear to be most effective in furthering their chosen species, and 3. What can be improved moving forward to empower the public to contribute to reducing biodiversity loss? A critical analysis of each conservationist's methods reveals two main approaches to celebrity conservation: mutualism and dominion. A mutualist approach favors education and imposing control on humans in order to protect wildlife.¹⁸ Dominion, while also favoring education, attempts to control and manage wildlife to enhance

human pursuits. Jane Goodall and Dian Fossey practice mutualism, which I believe has the more effective, lasting impact on protecting species while educating the global audience.

Jane Goodall

Jane Goodall is a celebrity conservationist who has successfully employed mutualism to further the conservation of chimpanzees. Jane Goodall was born in London, England in 1934.⁵ From a young age, Goodall was fascinated by the natural world; many stories recount the hours she spent in chicken coops waiting for the hens to lay eggs purely out of curiosity. She was enthralled by Disney's Tarzan and dreamed of going to Africa throughout her childhood. Goodall did not initially attend college due to a lack of funds. However, she followed her dreams and went to Kenya to visit a friend's farm. Through this same friend she met the paleoanthropologist, Louis Leakey, who worked with the great apes (gorillas, orangutans, and chimpanzees). Goodall secured a position working as his secretary. Impressed by her sense of curiosity, patience, and passion for wildlife, he saw Jane Goodall as a fresh set of eyes to research, which had long been dominated by formally-educated, male scientists.²² Leakey believed she may be open minded to scientific discoveries that trained professionals would not. Leakey hired Goodall to conduct the first ever long-term study of chimpanzees in the wild, and after securing funding for her trip from the Wilke Foundation, he sent her to Gombe Game Reserve in Tanzania on July 14th, 1960. Goodall's trip to Gombe was initially complicated. The British government forbade her to travel to Africa as a solo female, so as a loophole, she was accompanied by her mother. She was also forbidden to stay in Gombe without an escort, so she brought a cook named Dominic. She lived in a small, secluded camp with tents. Goodall overcame malaria in her first few days and initially struggled to find any chimpanzees though she would walk for miles. Eventually, she located a troop and began recording observations from afar. Armed with only a pair of sneakers, a book,

and a pencil, it took over a year for the chimpanzees to allow her within 100 yards of them.⁵ When trust was eventually gained, Goodall spent sunrise to sunset with her chimps. She observed individual personalities and, contrary to scientific methodology, gave the chimpanzees human names rather than numbers. She emulated their behavior, vocalizing and walking like them, playing with them, and even participating in hair grooming with them. Goodall's unorthodox approach allowed her to physically approach chimpanzees closer than anyone had before. As the chimpanzees acclimated to her and realized she wasn't a threat, they accepted her into their social dynamics. Goodall recalls her favorite chimpanzee, David Greybeard, and others of the troop, including Flint, Flo, and Goliath.

Goodall was heavily criticized by the scientific community for this approach to research.¹² It was seen as unprofessional to name subjects and to ascribe human qualities to them. She was also criticized for being a woman. However, Goodall's very controversial techniques are what allowed her to make three previously unrecorded discoveries: 1. Chimpanzees make and use tools; 2. Chimpanzees participate in organized warfare; and 3. Chimpanzees exhibit altruism – the selfless concern for other beings. These discoveries were revolutionary, especially that of tool use as this had been the previous metric to define man. In response to her discovery, Louis Leakey famously said, “now we must redefine ‘tool,’ - redefine ‘man’, or accept chimpanzees as humans.”⁴

In 1967, after pursuing a doctorate degree (without an undergraduate) at Cambridge University, Goodall wrote her first book.⁵ Her true story titled, *My Friends, the Wild Chimpanzees*, simultaneously upset the scientific community and launched her into the public eye. This book gained traction outside of academia, spreading her findings and observations to the world. *My Friends, the Wild Chimpanzees* was more like a diary than a scientific paper as it

recounted Goodall's own experience and observations. This made it accessible and relatable to everyday people. By comparing her subjects to humans, she captured the imaginations of people around the world and made chimpanzee behavior relatable. Rather than using scientific jargon, mathematical equations, and tables and tables of data, her unique approach allowed people to identify with her work. Then in 1965, Goodall established the Gombe Research Center, which amassed over 1,490k acres of protected habitat for chimpanzees.¹³ Her accomplishments landed her on the cover of the December 1965 National Geographic magazine as seen in figure 1.⁵ Goodall's appearance on the cover of National Geographic launched her even further into the public eye, solidifying her as a household name.

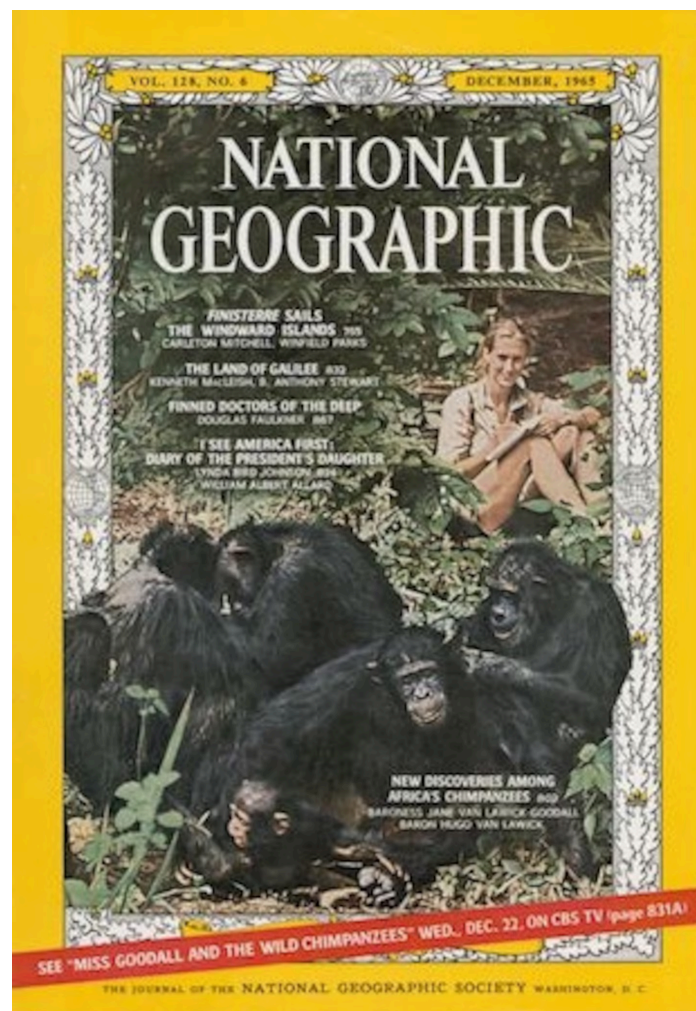


Figure 1: Jane Goodall on the 1965 December issue of National Geographic.⁵

One of Jane Goodall's most significant discoveries from the Gombe Research Center was that deforestation is the main threat facing chimpanzees. This discovery and "the worldwide attention gained by Goodall's research led to the upgrading of Gombe from a Game Reserve to a National Park in 1968," which ultimately increased the amount of protections within Gombe. To further target these threats, Goodall established the Jane Goodall Institute (JGI) in 1977. The JGI is a global community-centered conservation organization that later gave rise to the Roots and Shoots organization in 1991.¹³ This subset of the JGI organization encourages youth worldwide to enact change to safeguard wildlife and the environment. The Roots and Shoots program implemented 3,113 chimpanzee habitat protection promotions since its founding. Also stemming from this organization is the Tchimpounga Chimpanzee Rehabilitation Center, which was created in 1992 as part of the JGI and the Republic of Congo collaboration.²¹ It remains the largest sanctuary in Africa today. Tchimpoungo serves 140 chimpanzees through 108,160 hours of annual care. This rehabilitation center continues to protect chimpanzees and aims to release young chimps back into the wild to increase populations. Together, these organizations have protected more than 6,465 square kilometers; specifically, these include forest reserves managed at district levels and village forest reserves managed on local levels. Today, over 5,000 chimpanzees and gorillas live within JGI protected habitats.¹³ Protected areas in Tanzania and the extent of Gombe National Park are shown in figure 2.

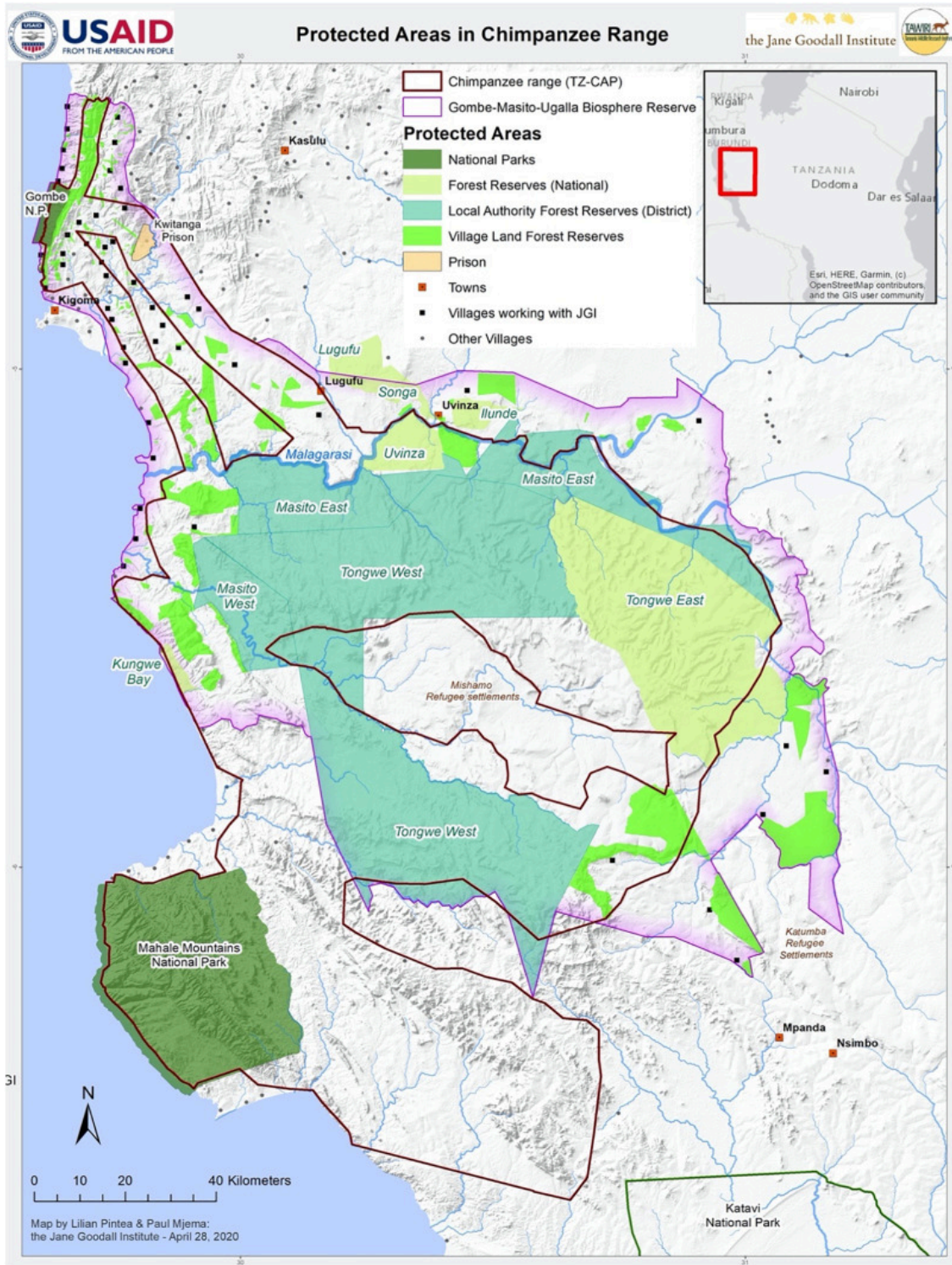


Figure 2: Provided by the Jane Goodall Institute website, this image shows the location of Gombe National Park in accordance with other protected areas in chimpanzee habitat ranges. Various colors represent different classifications of protected areas. Human populations are also represented by the locations of towns or villages.¹³

Over the last 60 years, more than 600 scientific publications have come from the Gombe National Park, illustrating just how long-lasting Goodall's legacy is. Her initial research paved the way for other scientists to publish their findings. Today, the Gombe Stream Research Center, run by local Tanzanians, continues to be the longest run field study of any species.⁵ Goodall herself, though removed from Gombe physically, continues to be very hands-on. She is considered Gombe's global ambassador, traveling 300 days of the year giving talks about her life and research. Her topics cover threats to chimpanzees, the importance of prohibiting the use of chimpanzees in laboratories, and the plight of the illegal wildlife trade and animal trafficking. Her work has banned chimpanzees from laboratory testing in many countries, and "one of the most successful outcomes of her advocacy was the 2015 decision by the United States to reclassify captive chimpanzees as endangered species, affording them the same protections as their wild counterparts."⁵ Goodall regularly collaborates with the World Wildlife Fund and the United Nations to reduce illegal trafficking of chimpanzees. She has published more than 10 books as well as appeared in many television shows and movies. This presence in popular culture has solidified Jane Goodall's legacy as being a continual symbol of compassion, hope, and environmental rights. Before Gombe, science was rigid and strict, adhering to steps preventing scientists from observing emotion and altruism in animal behaviors, but Goodall's work began conversations surrounding animal consciousness and rights.



Figure 3: Photograph obtained from The Jane Goodall Institute. Jane Goodall interacting with a baby chimpanzee in Gombe sometime during her research in the 1960's.¹³

Steve Irwin

Steve Irwin is a celebrity conservationist who employed dominion to further the conservation of crocodiles. Steve Irwin was born in Upper Ferntree Gully, Victoria, Australia on February 22, 1962.¹ His mother and father opened the Beerwah Reptile Park in 1970 and raised Steve Irwin as a part of the family operation. His upbringing around reptiles fostered a love for wildlife and, more specifically, crocodiles. As early as age nine, Irwin was jumping on small crocs to capture them. He was so good at this technique that he volunteered with the Australian government while working under his parents to capture and relocate problem crocodiles in the area. Steve Irwin never attended university or participated in research, but he took over operation of Beerwah Reptile Park on October 4th, 1991, with his wife, Terri. The two eventually had a daughter, Bindi Irwin, and son, Robert Irwin. Rather than taking the traditional honeymoon

route, the Irwins elected to film a wildlife documentary after their wedding; this documentary showcased them relocating problematic crocodiles, eventually becoming the first episode of Steve Irwin's television series, *The Crocodile Hunter*. The series ran for five seasons from 1997 to 2004 for a total of 64 episodes.¹⁵ It was aired in 150 countries and had over 200 million viewers. Its primary message was animals are dangerous to humans, but humans are always more dangerous to animals. Peak earnings from this television show are estimated to have been \$16.3 million dollars in 2001, and this made the Irwins the highest paid Australian entertainers through the end of the series. Alongside their series, they expanded the Beerwah Reptile Park in 1998 and changed the name to the Australia Zoo.¹ The Australia Zoo's vision is "conservation through education," reflecting Steve Irwin's long-standing love for wildlife and entertainment.

Irwin's next biggest celebrity accomplishment was the release of his movie, *The Crocodile Hunter: Collision Course*, which generated \$33 million worldwide.¹⁷ After this movie, Irwin had guest appearances in other films like *Dr. Dolittle* and various television ads. Across all of his movies and shows, he reached an estimated audience of 500 million people worldwide. At what seems like the peak of his fame and the accelerated growth of the Australia Zoo, Steve Irwin died in a tragic accident.⁷ On September 4th, 2006, Steve Irwin was filming a new series when a stingray barb pierced his heart while snorkeling on the Great Barrier Reef. Following his death, the Irwin family continued operating the Australia Zoo while also undertaking many new conservation projects and partnerships.

Steve Irwin's legacy continues through his show, *The Crocodile Hunter*. The series believed in conservation through exciting education, but there were both positive and negative outcomes of his messaging. This show provided an easily accessible and digestible way for millions to interact with animals and learn about species beyond where they live. The show's

ability to reach millions of people in over a hundred different countries meant that people lacking access to nature and the outdoors could still experience it. Having watched his films and tv series, I can attest to the fact that he is an exciting and energetic entertainer. His classic catchphrase “Crikey!” is equally catchy and memorable. Irwin had a passion for making conservation cool and conveying his love and excitement for nature to people through their tv screens. However, he showcased much of this wildlife by physically capturing and forcefully handling them, particularly seeking out dangerous species like venomous cobras or large crocodiles as seen in figure 4.¹



Figure 4: Photograph obtained from the Australian Zoo website. Steve Irwin films a crocodile in close proximity at the Australia Zoo.¹

While he successfully garnered an audience's attention, I would argue he incited more fear than adoration for wildlife, ultimately undermining his desired take-home message to save animals. When he handled an animal, he usually threw out lines such as “don’t try this at home.”⁷

Though he followed this with something like “isn’t this animal a beauty,” the feeling and message that sticks with the audience is the sense of danger that Irwin is in. Simply stating that the animal is beautiful does not do enough to instill passion in an audience, especially when Irwin plays to people’s fears.¹⁴ Further, Irwin failed to teach his audience much about the animal or the role it plays in surrounding ecosystems. I watched Steve Irwin’s film, *The Crocodile Hunter: Collision Course*, which focused primarily on an action-filled plot rather than the animals presented throughout.⁷ In viewing this movie, I noticed the over sensationalization of dangerous animals, which left me feeling further removed from them. Instead of a desire to learn more about them, I felt a sense to avoid them completely. Throughout the film, Steve Irwin describes the animals he’s handling with words like “beautiful” or “gorgeous,” but these words juxtapose the caution and fear with which he handles spiders, snakes, and crocs. With each animal he presents, he captures it to take back to the Australia Zoo “for study.” This potentially leaves the audience with the message that animals are to be conquered, captured, and evaluated rather than appreciated or observed in their natural habitats. This approach to conservation is that of dominion. While he values education, he asserted control over wildlife for his own pursuits for entertainment. Critics have pointed out that his technique of jumping on animals, capturing them, and handling them for an audience puts emphasis on danger and adventure and fails to convey to the general public the interdependence of people and nature as the protection of animals is crucial to humans.¹² Popular images of Irwin likewise place emphasis on the danger of his work as seen in figure 5.⁶

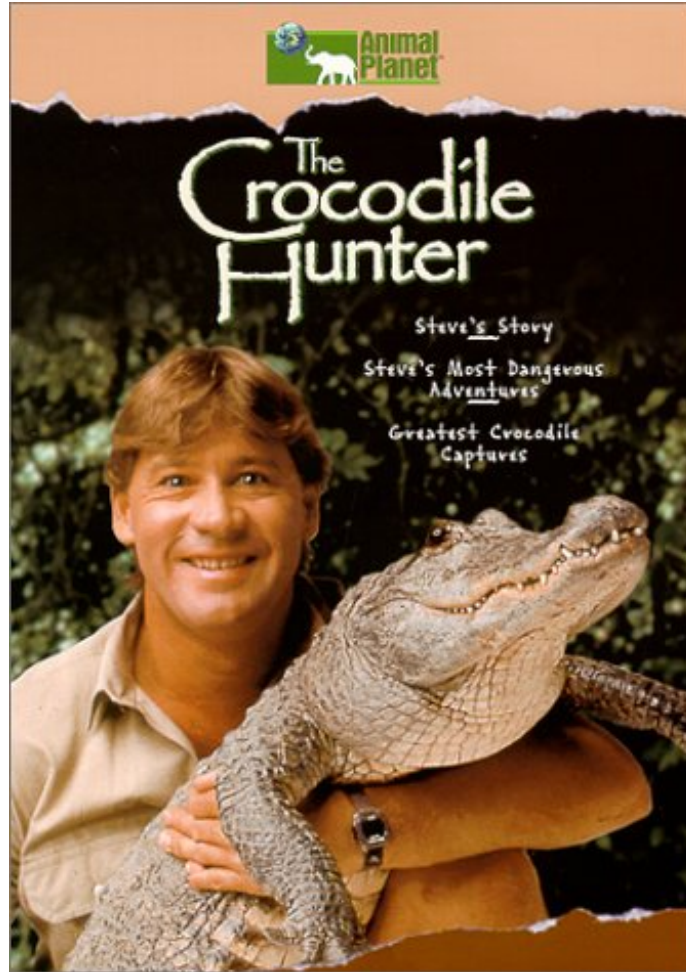


Figure 5: An episode thumbnail for Animal Planet's *The Crocodile Hunter*.⁶

Irwin's technique has resulted in a cult following of *him* rather than the wildlife. This is further illustrated by the public's response to Steve Irwin's death. According to BBC news, in 2006, there was an uptick in killings and mutilations of stingrays on the Queensland coast.² The Irwin organization condemned these seemingly "retaliatory killings" but did nothing else to stop them. This response proves that Irwin's desired messaging to protect and conserve wildlife was lost through the cracks of his fame. Irwin's death led to a sort of martyrdom in which people sought revenge against wildlife. Bradshaw's *Dangers of Sensationalizing Conservation Biology*, stresses the need for charismatic champions of conservation, but oversentimentalization can tip the scale of conservation into dangerous territory.³ While it is impossible to say if these revenge

killings were done by fans of his or not, it does highlight that education, understanding, and appreciation of dangerous animals was not a primary result of *The Crocodile Hunter* series. Rather, it may have over emphasized the dangers of Australia's wildlife.

Steve Irwin should be given credit for the positive effects his show had on wildlife, however, as it raised millions of dollars for conservation. While his show may have failed to educate global audiences, his work raised crucial funds for the expansion of the Australia Zoo. The zoo has 1,200 animals under its care today, and each dollar raised goes back to worldwide conservation efforts.¹ Irwin is also attributed with the largest, most successful crocodile research project in the world that is continued by the partnership of the Australia Zoo, the University of Queensland, and his nonprofit organization "Wildlife Warriors." Wildlife Warriors currently tracks 241 estuarine crocodiles, which has led to a better understanding of preferred habitats and overall behaviors of crocodiles. Wildlife Warriors also funds additional conservation initiatives such as the Australia Zoo Wildlife Hospital, the Australia Zoo Rescue Unit, Women for Wildlife, crime fighting against Australian wildlife, and the Steve Irwin Reserve.²⁰ The Steve Irwin Reserve has established 330,000 acres of protected land for crocodiles and threatened species like the Woma Python and koalas, saving the land from a once-proposed mining operation. What started with a television show has now expanded to 13 global conservation projects, 3 conservation properties, and millions of supporters, donors, and fans.

Dian Fossey

Dian Fossey is a celebrity conservationist who successfully employed mutualism to further the conservation of Mountain Gorillas. Dian Fossey was born in San Francisco in 1932 to a tumultuous family.⁸ Fossey's difficult upbringing was plagued by an alcoholic father, her parents divorce at age 6, and continuous bullying in school. Though she kept to herself, a passion

and love for animals brought her solace. She enrolled in the pre-veterinary track at the University of California, but she struggled with math and chemistry, influencing her to switch to occupational therapy at San Jose State College where she graduated in 1954. After graduating, she took out a loan and spent her savings on a month-long visit to Kenya, Tanzania, Congo, and Zimbabwe to see wildlife. On her trip, she had the opportunity to visit Dr. Louis Leakey in Olduvai Gorge where they discussed Jane Goodall's research on chimpanzees in Tanzania. Fossey then traveled to the Congo to meet with wildlife photographers Joan and Alan Root who took her to see Mountain Gorillas for the first time. This wildlife encounter solidified her decision to pursue Mountain Gorilla research. Prior to her, Dr. George Schaller, an American zoologist, had conducted the only known field study of Mountain Gorillas in 1959. Fossey returned to America to save money and compile photos and articles from her trip. Louis Leakey happened to be in Louisville, Kentucky on a lecture tour in 1966 just as Fossey had taken up residence there. She seized this opportunity to show him her written works. Leakey was searching for inexperienced and impassioned people to study the great apes, and Fossey was the natural fit for the Mountain Gorillas as she lacked a scientific background yet possessed a skill for patience and observation. Leakey secured her funding and Fossey arrived in Nairobi in 1966. After a visit to Gombe Stream Research Center to meet Jane Goodall, she was accompanied by Alan Root and two local men to port her belongings to Kabara Meadow in the Virunga Mountains of the Democratic Republic of Congo (DRC). Fossey was isolated in the mountains, driving once a month to restock provisions and accompanied only by a gorilla tracker named Sanwekewe. Her studies restricted her to the slopes of Mt. Mikeno, where she identified three gorilla troops. Her research process unfolded just as Goodall's had. Initially, the gorillas were fearful of her, but over time, she gained their trust by mimicking their behavior. She would walk

on her knuckles, copy their vocalizations, chew on celery sticks, and scratch at her body. “Where Schaller and other male primatologists stressed their removal and detachment from the animal objects of study, Fossey sought out connections.”¹⁶ Her behavioral assimilation to the troop eventually led to their acceptance of her as they would lay with each other, grooming one another.

Upon overcoming the challenges of research among the troops, she was faced with threats of political unrest in the country. On July 9th, 1967, she was escorted by armed rebellion soldiers from her camp to a prison in Rumangabo where she was held under military guard for two weeks.⁸ Eventually, she bribed her guards to let her return to her car, and she fled to the Ugandan military. The soldiers who initially captured her were arrested, and she returned safely to camp. Against the advice of the United States embassy, she continued her research but moved from the DRC to the Volcanoes National Park of Virunga in Rwanda. She continued to habituate gorillas to her presence, and by September 24th, 1967, she established the Karisoke Research Center (KRC). The following year Bob Campbell, a wildlife photographer, was sent by National Geographic to record her work. One of his photos made the January 1970 cover of National Geographic as seen in figure 6, launching Fossey into fame. This magazine cover portrays her as a sort of “modern madonna figure caring for her gorilla children.”¹⁶

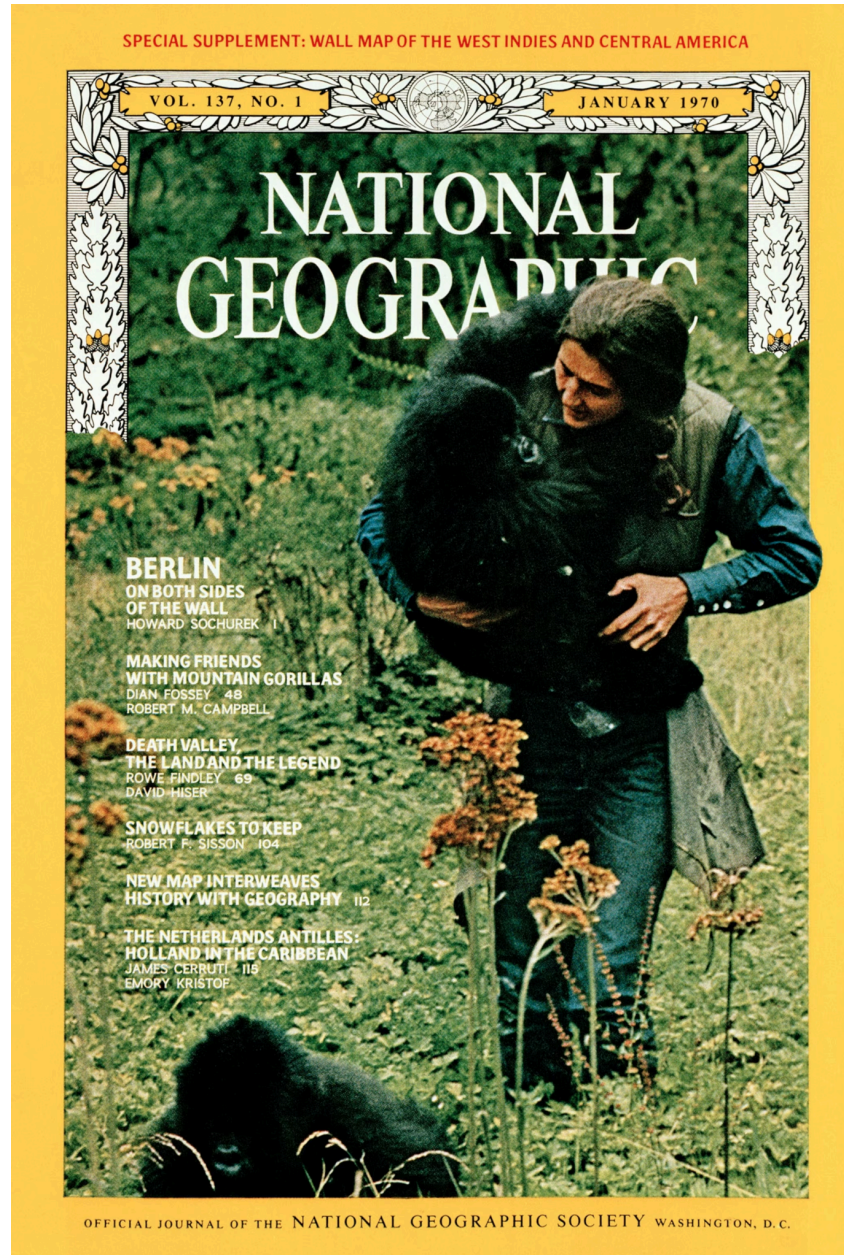


Figure 6: The 1970 January cover of National Geographic showcasing Dian Fossey working with the Mountain Gorillas in Virunga.¹⁶

Also in 1970 she enrolled in the department of Animal Behavior at Darwin College, Cambridge and completed a PhD in Zoology.⁸ With a PhD in her field, Fossey secured more funding for future research and garnered respect within the scientific community. Upon returning to Virunga, she coined the term “active conservation” to define methods of anti-poaching.⁹ This methodology received much criticism as it ranged from undoing poaching traps to scaring

poachers with masks and forced confrontations. Fossey built a reputation for poor treatment of locals and specifically, poachers. Though she faced many challenges as a researcher (civil war, kidnapping, and threats from international poaching and wildlife traffickers), she pushed back in often violent ways. She was known for terrorizing poachers by wearing halloween masks and pretending to perform witchcraft. She went as far as to humiliate known poachers in the area. In one instance, researchers who worked with her recalled her bringing a poacher back to her cabin, stinging him with nettles, and smearing gorilla feces on him during interrogation. This behavior is in stark contrast with her gentle nature with animals, and it illustrates Fossey's lack of knowledge of Rwanda's complex social-ecological systems. By placing the blame of declining gorilla populations entirely on poachers, Fossey failed to understand the combination of political unrest and poverty that forced many into wildlife trafficking.

Fossey was dedicated to saving gorillas from the brink of extinction, and the need for constant monitoring or active conservation, was highlighted when her favorite gorilla, Digit, was murdered in 1977.⁸ Digit was beheaded and his hands were severed and sold for a total of \$20 in the illegal wildlife trade. Digit's murder marked the onslaught of many other murders in the troop. Motivated by deep sadness and the fear of extinction, Fossey created the Digit Fund, later named the Dian Fossey Gorilla Fund, to raise money for active conservation. Additionally, Digit's murder was broadcast in the news, projecting the plight of the gorilla to an international audience. This inspired many to donate to the Digit Fund.

In 1980, Fossey published an account of her time with the mountain gorillas called, *Gorillas in the Mist*.⁸ While the book furthered her fame and communicated the need for conservation to a global audience, it made Fossey a target of violence. On Christmas day of 1985, she was murdered. She was struck twice in the head and face by a machete. While two

men were sentenced for the murder, both researchers working at the center, it is believed that the true killers have never been found. Those who knew Dian Fossey were not surprised by her murder as she had built a negative reputation in the area for protecting gorillas so ferociously.⁹ It is speculated that her murder was actually ordered by Rwandan authorities as she had been threatening to expose illegal animal trade rings, but this has never been confirmed. Her death inspired the transformation of her book into the film, *Gorillas in the Mist*.

According to Shaffer, *Gorillas in the Mist* capitalized “on more than a decade of American media fascination with Fossey and her work.”¹⁶ While the film dramaticized and romanticized her life in unrealistic ways, it also allowed lay people to see gorillas for the gentle giants they really are rather than violent beast they were portrayed as in the news and Hollywood films like *King Kong*. The shift in perception of these animals made them a more amicable species and thus, easier to garner support for. The film was 3rd in the box office with over \$4 million earned in the opening week. Dian Fossey’s celebrity status positively increased the visibility of Mountain Gorillas, increasing donations to her fund and launched the tourism industry in Rwanda. Tourism continues today thanks to Fossey with revenue topping \$202 million, far outperforming all other Rwandan industries in the years after the film's release.

Dian Fossey’s establishment of the Karisoke Research Center in 1967 resulted in a 55 year legacy study with hundreds of resulting publications that contribute directly to mountain gorilla repopulation.⁸ When Fossey first arrived, there were an estimated 240 gorillas. Today there are over 600 gorillas in Volcano National Park and 400 in Uganda. Without Fossey, Mountain Gorillas would likely be extinct. Gorillas are now the only great ape with an *increasing* population. Two major discoveries helped save the species: 1. Daily protections are vital to Mountain Gorilla survival; and 2. To specifically reduce poaching, alternative livelihoods

must be established. The Karisoke Research Center offers conservation training, scientific method training, and operates community education programs that affect tens of thousands in the region each year. Over 18,675 days of daily protections to the gorillas have been provided by 20 tracker teams. These protections entail veterinary monitoring, removing snares, censusing, and armed patrols. In 2023, these teams removed more than 3,000 snares, recorded 500,000 hours of acoustic recordings, and directly monitored 252 individual gorillas. This hands-on approach is the result of Fossey's push for active conservation. This direct monitoring technique has also expanded to the Grauer's Gorilla in the DRC through a 2,400 square km community managed forest. The intersection of the Mountain Gorilla and the Grauer's Gorilla can be seen in figure 7.¹⁶

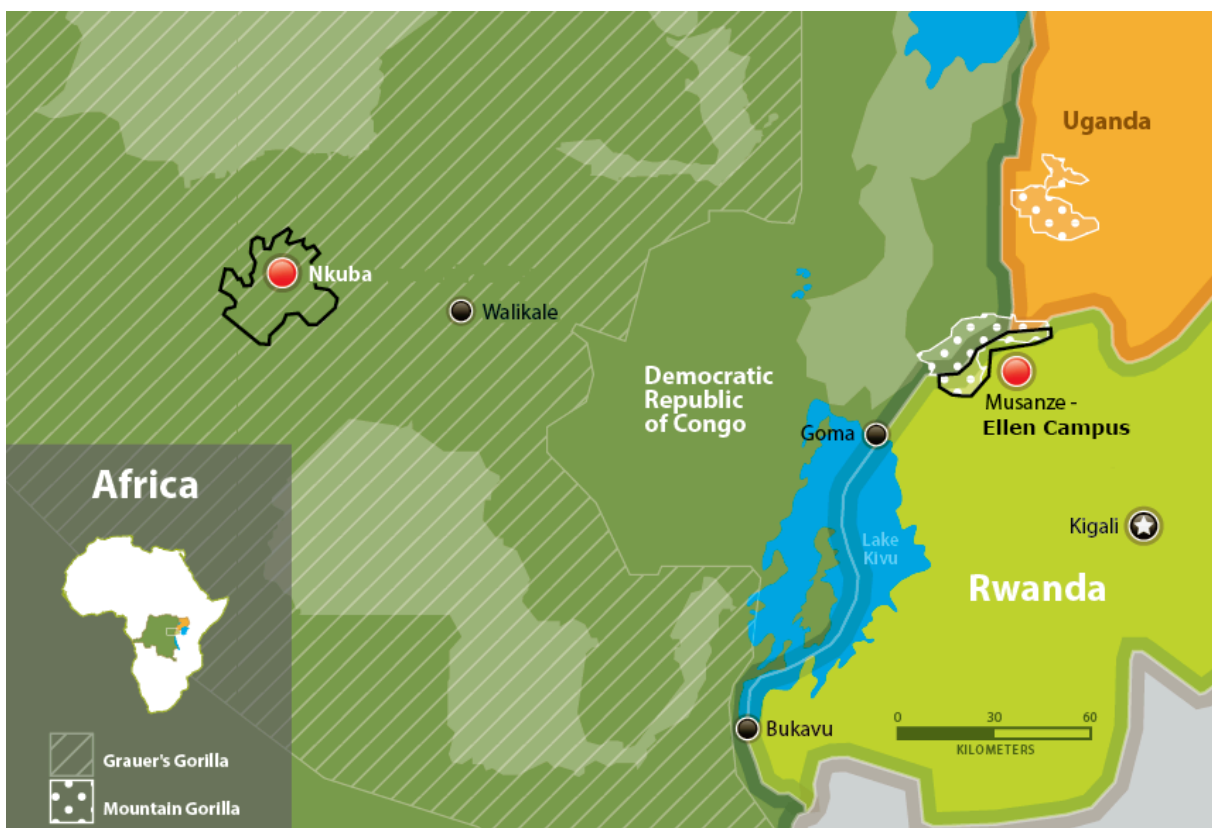


Figure 7: This map is from the Dian Fossey Gorilla Fund and illustrates the ranges of Grauer and Mountain Gorillas. In the Democratic Republic of Congo, Nkuba is a community-owned forest protecting endangered species. In Rwanda, Musanze is one campus of the Dian Fossey Gorilla Fund. The Mountain Gorilla population in Uganda is in the Bwindi Impenetrable National Park where Dian Fossey conducted much of her research.¹⁶

In addition to daily protections, the Dian Fossey Gorilla Fund invests in education and training to offer poachers an alternative livelihood as gorilla trackers. One anonymous ex-poacher stated, “Before becoming a tracker, I didn’t even have a place to live. Now I have a house and enough money to pay for all of my children’s schooling and for health insurance. My oldest child is attending university, and others are in secondary and primary schools.”¹⁶ Fossey’s impact continues to positively affect people and animals long after her death.

Mutualism Versus Dominion

Jane Goodall, Steve Irwin, and Dian Fossey have all had profound positive impacts on species conservation. Their methods of conservation fall into what I believe are two categories: mutualism or dominion. Mutualism favors education and imposes controls on humans to benefit wildlife. Dominion, which also values education, attempts to control and manage wildlife to enhance human pursuits. Jane Goodall and Dian Fossey practiced mutualism while Steve Irwin employed dominion. I argue mutualism is the more successful approach and thus, Jane Goodall and Dian Fossey are the most impactful celebrity conservationists. Measuring the relative success of each celebrity conservationist's work is not a precise science and is somewhat subjective; however, I have attempted to focus on the following three metrics to analyze each conservationist's impact: 1. Population changes or changes in the rate of decline in populations of chimpanzees, gorillas, and crocodiles since the beginning of the conservationist’s work; 2. Number of preserves or acreage of land set aside for the preservation and safety of the species, as well as number of animals served in these preserves; and 3. Monies raised and spent in the field on conservation work.

Jane Goodall has had massive conservation success in two of these categories. The IUCN classifies chimpanzees as Critically Endangered, and the average annual rate of decline of their

species is 2.41%.^{11,4} Though Goodall's impact has not increased chimpanzee populations over time or necessarily slowed the rate of population decline, I believe that without her research, chimpanzees would likely be extinct today. Chimpanzees are primarily threatened by deforestation, which the JGI has targeted by establishing over 1,490,000 acres of protected habitat serving over 5,000 chimpanzees and gorillas.⁵ In the Tchimpounga Chimpanzee Rehabilitation Center, 151 chimpanzees were treated in 2022, and the numbers are increasing. In addition to helping the chimpanzees, the Jane Goodall Institute supports local communities, generating \$4,477,888 from sustainable alternative livelihoods. These sustainable alternative livelihoods are ways of working and living near chimpanzee populations that protect the species while improving local incomes; these include things such as agroforestry and beekeeping. The most recent years of financial statements posted from the Jane Goodall Institute is 2022. Of the \$22,556,507 raised, 79% (\$17,769,030) went towards conservation. In 2022, \$14,240,010 was allotted to animal welfare and conservation. An additional \$1,566,641 went towards education, \$1,962,379 towards communication, \$2,188,289 toward fundraising, and \$2,599,188 to management.⁵ Both the protected acreage and monies raised by the JGI far exceeds that of both Steve Irwin and Dian Fossey.

While Steve Irwin's Wildlife Warriors had the potential to raise money for conservation following his death, the organization raises very little money today. There is both an American and an Australian branch of this organization. The American branch lacks financial reports, so I have only examined the Australian branch. A total of \$1,500,000 was donated after Irwin's death, but financial statements from 2022 indicate a revenue imbalance.¹⁰ Wildlife Warriors, which primarily funds the Australia Zoo Veterinary Hospital, only generated \$3,924,730 while total expenses were \$6,149,226. Over half of the total expenses (\$3,972,564) went to employees,

illustrating how little the organization has left for veterinary care and actual conservation initiatives.¹⁹ Land allotted to conservation also pales in comparison to the JGI and Dian Fossey Gorilla Fund as Irwin's Wildlife Reserve only set aside 450,000 acres of land in Queensland. While Wildlife Warriors claims to protect species such as the Woma Python, koala, and Palm Cockatoo, there is no estimated number of each of these species being protected in the reserve.²⁰ Saltwater Crocodiles in Australia are ranked as Least Concern by the IUCN.¹¹ The initial decline of Saltwater Crocodiles in Australia dates back to 1900, long before Irwin's time. However, crocodile population numbers have been increasing since strict protections were enacted in the 1970s. Steve Irwin would have been only around age ten when Australia started conserving crocodiles, illustrating how he did not play a crucial role in their repopulation. Rather than serving as a springboard for conservation, Steve Irwin's fame did little to further it. His work seemed to be for fame's sake as he sought it out rather than the fame simply being a result of his work, like was the case for Jane Goodall and Dian Fossey.

Dian Fossey and her legacy organizations have had profound positive impacts on Mountain Gorilla conservation. Dian Fossey scores the highest in success on all three metrics. Fossey has saved the Mountain Gorilla from the brink of extinction, and they remain the only great ape with increasing population numbers to date.⁸ When Fossey first arrived in the DRC, there were fewer than 300 gorillas. Today, there are over 1,000. The Dian Fossey Gorilla Fund has set aside over 600,000 acres of forest in the DRC Nkumba Conservation Area. In addition to protecting gorillas, this habitat also overlaps with chimpanzees, elephants, and leopards. Further, the Rwandan Karisoke Research Center protects 39,536 acres, and the Ellen DeGeneres Campus (a continuation of the KRC) in Northern Rwanda protects an additional 12 acres. Across these three campuses, the Dian Fossey Gorilla Fund has established 639,548 acres of protected land for

the conservation of gorillas, which has positive spillover effects on other endangered species. Fossey also raised millions for conservation. The most recent financial statements from 2023 show revenues of \$9,496,949 and expenditures of \$7,513,119. More importantly, 76% (\$5,690,643) of all funds raised in the DRC and Rwanda went to protection, science education, and community development. Only 9% was allotted to general management (\$683,329). More dollars go to actual conservation and education than administrative costs.

Based on the three metrics, Dian Fossey and Jane Goodall prove to be the most successful celebrity conservationists. What sets them apart from Steve Irwin is their commitment to mutualism. Moving forward, we must employ celebrity conservationists as part of the solution to biodiversity loss. Jane Goodall and Dian Fossey were experts of bridging the gap of knowledge that exists between lay people and scientists. They made chimpanzees and gorillas visible to a global audience. By bringing these animals to people through shows, movies, and books, they made science accessible and digestible to people without a scientific background. Much of their work focused on the similarities between animals and humans, ultimately inspiring empathy for the species and deepening global understanding of the threats they face. In the age of social media and television, these pseudo-celebrities are an important tool to continue educating and empathizing everyday people. Whether these everyday people then decide to donate money to a cause, book a trip to a reserve, or study something similar themselves, there is potential for positive cascading effects. I know personally if it weren't for watching *The Crocodile Hunter* and doing book reports on Jane Goodall and her chimps as a child, I probably would not be pursuing a degree in science today. These conservation celebrities have had profound impacts on me and my interests as I know they have for many others.

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