CHAPTER

1

A Brief History of Cheetah Conservation

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INTRODUCTION

The cheetah (*Acinonyx jubatus*), the most unique of the 41 species of felids, (Kitchener et al., 2016) is at the crossroads of its survival. With an estimated population of 7100 adult and adolescent cheetahs in their natural habitat (Durant et al., 2017), long-term conservation research programs are collectively working on strategies to ensure their survival. Over the past 4 decades, a small but prolific group of international researchers and conservation biologists has emerged, all dedicated to solving the problems that threaten cheetah survival. Their collective research is presented in the chapters of this book and brings together what we currently know about the cheetah, the challenges it is facing, and the solutions that have been developed. Many of the cheetah conservation strategies that currently are being undertaken have a unique and interesting history of how they began. Here we endeavor to offer a historical overview and timeline that ties together the information presented in the chapters of this book.

HISTORICAL CONTEXT

Ancient History—Challenges for the Cheetah Populations

The cheetah is a survivor; its challenging evolutionary history has shaped a unique physiology, optimized for speed (Chapter 7). The first fossil records of cheetah (*Acinonyx*) date from approximately 4 million years ago and evidence of related species was retrieved in America, Europe, Asia, and Africa (Chapter 3). Following a founder effect approximately 100,000 years ago, the cheetah escaped extinction in the Pleistocene, which left the species with both reduced numbers and diminished genetic diversity (Chapter 6).

Modern History—Human Pressure on the Cheetah Populations

For the past 5000 years, humans throughout Asia, Europe, and Africa have revered the cheetah (Chapter 2); however, humans' fascination

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with the cheetah has manifested in ways that have contributed to the species' near demise (Wrogemann, 1975; Chapters 2, 14, and 22).

The first recognized use of the word cheetah was in 1610, but it wasn't until 1775 that a German naturalist, Johann Christian Daniel von Schreber, published the first description of the species, which at that time was commonly found throughout Asia and Africa. Cheetahs were appreciated as hunting companions in India, and in Hindu, cheetahs were known as "Chita" or the "Spotted One," and were often referred to as "hunting leopard." The pressure on the wild cheetah populations due to the harvest of cheetahs for Maharajahs' hunting parties, and later for safari hunting, contributed to the decline and eventual extinction of cheetahs from the wild in India (Chapters 4, 5, and 22).

In Africa, the first nationally protected area, Kruger National Park, was established in the 1890s. Measures to protect wildlife were in part motivated by plummeting wildlife populations, as over exploitation, habitat loss, and human persecution (Schreber, 1775) arose as a result of a shift from traditional lifestyle to agriculture under colonial influences. However, large carnivores were viewed as vermin, and until the 1970s, cheetahs and other predators were killed in many African national parks to protect game (in addition to their persecution on farmland) (Linnell et al., 2001; Woodroffe and Ginsberg, 1997).

In addition, during the 1960s, cheetahs, along with other exotic wildlife species, were in high demand to stock the world's zoos. Due to poor captive breeding success, most zoo-bound cheetahs were captured from wild populations, putting big pressure on populations in East Africa and Namibia (Chapter 22). As a consequence, game dealers showed farmers how to catch cheetahs with cage traps. From the late 1960s through the 1970s several thousand cheetahs were caught for the world's zoos (Marker-Kraus et al., 1996). Cage traps typically were set at cheetah marking trees, visited primarily by males; but zoos preferred females. For every female cheetah caught, up to 20 males were captured, many of which were killed by the farmers (Marker-Kraus et al., 1996).

As a result of human development, cheetah numbers are estimated to have dropped from 100,000 in 1900 to 7,100 in 2016 (Durant et al., 2017; Myers, 1975; Chapters 4 and 29).

1960s—THE BEGINNING OF KNOWLEDGE

In the 1960s, the first reports of concern over declining populations of cheetahs emerged when the East African Wildlife Society began an investigation into the species' status (Graham, 1966). A couple of years later the results of the first study of cheetahs in the wild was published, where George Schaller shared his findings from Tanzania's Serengeti National Park (Schaller, 1968). His work described the unique hunting style of the cheetah, illuminating traits and strategies (Chapter 9). In 1969, Joy Adamson wrote about raising an orphaned cheetah, which she reintroduced into the wild in Kenya's Meru National Park (Adamson, 1969). Adamson's reports included the first close observations of birthing, cub behavior, and development (Adamson, 1972).

1970s—THE NEED FOR CONSERVATION ACTION IS RECOGNIZED

Learning About the Cheetah—Early Research Studies in Africa

In the 1970s, Randal Eaton shared additional insight into cheetah behavior, describing breeding and hunting behaviors, social structure, and prey preferences he observed in Kenya (Eaton, 1974; Chapters 8 and 9). In the Serengeti, George and Lory Frame studied behavioral

ecology to evaluate the status and survival of cheetahs. They recorded hunting methods, social interactions, maternal behavior, family structure, mother–cub interactions, coexistence with other predators, and developed a methodology for identifying cheetahs by spot patterns on the face (Chapter 32). Their method of weighing carcasses after meals and noting the portion consumed became the norm for many cheetah feeding ecology studies (Frame and Frame, 1981).

In 1975, Norman Myers was the first to publish about the range wide decline in cheetah due to habitat loss and human-wildlife conflict (Myers, 1975). While there were perhaps 40,000 wild cheetahs in 1960, there were reportedly fewer than 20,000 by 1975, and of those, fewer than 3,000 in Africa's protected areas (Myers, 1975; Chapter 19). The reduced numbers were attributed to conflict with larger predators inside protected areas and conflict with the growing human populations outside protected areas (Myers, 1975). It was recognized that the mere existence of protected areas was insufficient to guarantee the long-term survival of this wide-ranging carnivore. Myers reported that cheetahs occurred at low densities with a limited distribution in only a small portion of sub-Saharan Africa and was the first to call for action "in the near future to reverse this decline."

Myers voiced his concerns over a growing African human population and the human disturbances impacting Africa's wildlife. In particular, carnivores like the cheetah were under pressure due to the potential threat they posed to livestock. In 1975, Africa's population was 450 million people and growing by 3.5%–4.5% per year, exerting unsustainable pressures on wild lands and wildlife. He reported that livestock farmers in Kenya, Namibia, and Zimbabwe were motivated to engage in cheetah persecution as they were receiving "compensation revenue" through the sales of skins (Myers, 1975). The countries Myers considered having the greatest potential for cheetah conservation initiatives were Botswana, Kenya, Namibia, Tanzania, and Zimbabwe, and sustainable land management was encouraged to balance the needs of wildlife, people, livestock, and the land (Myers, 1975).

Conflict with African Farmers Acknowledged

When CITES (1975) put an end to the export of wild cheetahs, Namibian farmers no longer had a market for trapped cheetahs (Marker-Kraus et al., 1996). As a result, trapped cheetahs generally were killed, but a few were translocated to national parks and game reserves (Marker-Kraus et al., 1996; Chapter 20). To provide care for cheetahs captured in conflict with farmers, the Pretoria Zoo, in partnership with Anne Van Dyk, developed the De Wildt Cheetah and Wildlife Centre in South Africa in 1971 (renamed Anne Van Dyk Cheetah Centre in 2014). In the years to follow, they also became the most successful breeding center in the world, providing captive bred cheetahs to the world's zoos (Marker-Kraus, 1990; Chapter 22).

Conflict between the farmers and cheetahs continued (Chapter 13). During the 1980s, Namibian game and livestock farmers reported killing over 800 cheetahs per year (CITES, 1992). The problems facing wild cheetahs were brought forward to the US conservation community in 1977, when Marker conducted research in Namibia on cheetah rehabilitation, and learned firsthand about the cheetah and farmer conflict (Marker-Kraus and Kraus, 1990). Cheetahs in South Africa and Zimbabwe were confronted with similar issues (Marker-Kraus and Kraus, 1990), while those in Kenya and Tanzania faced habitat loss, illegal snaring, and poaching (Myers, 1975).

Cooperative Captive Cheetah Programs Begin

In response to the world's declining biodiversity, the United States (US) Endangered Species Act (ESA, 1973) and the World Conservation

Union's (IUCN) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1975) were passed (Chapter 21). As a result, sourcing wild cheetahs for zoo exhibits stopped, and zoos began to collaborate through managed breeding programs to maximize genetic diversity, promote conservation, and educate the public (Chapters 22 and 23).

By the early 1970s, after returning from Kenya, Eaton began developing safari parks in the United States. His recommendation was for large habitats to foster better environments for breeding cheetahs. With this plan, he helped develop several safari parks in the United States, including the Wildlife Safari in Oregon, where Laurie Marker began working with cheetahs in 1974. Wildlife Safari became one of the first successful breeding facilities in the United States. During the same period, the San Diego Wild Animal Park in California and Whipsnade Safari Park in the United Kingdom also were developed. These facilities were some of the few facilities in the world to begin breeding cheetahs successfully.

1980s—GENETIC RESEARCH AND CAPTIVE MANAGEMENT

Reproductive Difficulties and Genetic Discovery

In the 1980s, zoos were struggling to breed cheetahs (Chapter 22). In 1983, groundbreaking research identifying the remarkable genetic uniformity of cheetahs was published by Drs. Stephen O'Brien and David Wildt from the US National Institute of Health, and Dr. Mitch Bush from the Smithsonian Institution's National Zoo. The cheetah's loss of genetic diversity was attributed to a historic bottleneck that was postulated to have occurred over 10,000 years earlier (O'Brien et al., 1983; Chapter 6). During this initial study, sperm samples that were collected showed 70% abnormalities and were considered an effect from the limited genetic diversity (Wildt et al., 1983; Chapter 27). Since then, multiple studies, ranging from skin graft acceptance to whole genome analysis, have supported the findings of low genetic diversity (Chapter 6). And extensive research on reproductive physiology has since tackled major breeding-related questions (Chapter 27).

In 1983, a male cheetah traded from another zoo introduced a feline corona virus causing feline infectious peritonitis (FIP) to the population of the Wildlife Safari in Oregon (Chapters 6 and 25). The resulting high morbidity and mortality was believed to be facilitated by the genetic vulnerability (O'Brien et al., 1985). This alerted the captive managers to additional risks for the species and a need for increased clinical management (Chapter 24).

Captive Cheetah Management and the Cheetah Species Survival Plan® (SSP)

In 1982, Wildlife Safari hosted the first US national cheetah meeting, bringing together zoos willing to cooperate on breeding. The foundation for managing demographic structure in captive cheetahs began with the first regional cheetah studbook for North America (Marker, 1983), followed in 1988 with the first International Cheetah Studbook (Marker-Kraus, 1990). The studbook is a registry that lists all known animals belonging to zoos and private facilities, thus creating the preconditions for selecting breeding animals. Marker has maintained the International Cheetah Studbook since its inception (Chapter 22).

In 1984, the North American Cheetah Species Survival Plan® (SSP) of the American Association of Zoos and Aquariums (AZA) was developed (Chapter 23). The SSP brought collaborative research and management to the forefront and helped develop comprehensive plans to conserve captive and wild cheetahs.

In 1987, under the leadership of the Cheetah SSP Species Coordinator, Jack Grisham, and Dr. Ulysses Seal, founding chair of IUCN's

FIGURE 1.1 (A) Dr. Stephen O'Brien, geneticist, National Cancer Institute; Dr. Linda Munson, veterinarian pathologist, University of California at Davis; Jack Grisham, AZA SSP Cheetah Coordinator, St. Louis Zoological Gardens; Dr. Laurie Marker, International Cheetah Studbook Keeper and Director, Cheetah Conservation Fund, Namibia; Dr. David Wildt, reproductive physiologist, Smithsonian Institution's National Zoological Park worked closely in collaborative cheetah research. (B) Participants at the first Global Cheetah Meeting in South Africa. (C) Cheetah census workshop meeting participants in Tanzania. (D) Participants at the Southern Africa Rangewide Cheetah and Wild Dog Regional Meeting, Botswana, 2007.

Conservation Breeding Specialist Group (CBSG), a national meeting on cheetahs convened. Here, the Cheetah SSP designated the US captive cheetah population as a research population (Grisham and Lindburg, 1989), and the first systematic research plan was designed and implemented. The initial 3-year, multidisciplinary research project provided a basic understanding of cheetah biology and was a critical step in forming conservation strategies for *ex situ* populations. Its results appeared in a special edition of *Zoo Biology* (Wildt and Grisham, 1993). Fig. 1.1A shows some of the research collaborators involved in designing and implementing the research plan.

Cheetah Studies in Africa

In 1980, photographer and tour guide David Drummond reintroduced 3 orphaned cheetah cubs in the Maasai Mara National Reserve (Drummond, 2005). The female cub started a long lineage of cheetahs that were resident at the Governor's Camp area of the Maasai Mara. Drummond was one of the first to present the issues of poaching, wildlife interactions, and challenges of pastoral communities in terms of predators.

Tanzania—The Serengeti Research Project

In 1980, Dr. Tim Caro and his students continued the longitudinal study of cheetah behavior initiated by the Frames in the Serengeti National Park. Today, the research program is overseen by the Zoological Society of London (ZSL) through Dr. Sarah Durant, making it the longest-running cheetah research project. Caro's team also was interested in understanding wild versus captive behavior and used the Serengeti population

to provide baseline data on breeding behavior and mother cub interactions (Chapter 9). *Cheetahs of the Serengeti Plains: Group Living in an Asocial Species* (Caro, 1994) has been the primary reference book on cheetah behavioral ecology since its publication.

During the same time frame, Hamilton studied the ecology of cheetahs in sub-Saharan Africa. His findings showed that, albeit in low densities, cheetahs were persisting even in areas where they were predicted to be extinct due to rising human populations. He reported cheetahs to be remarkably successful predators, well adapted to coexistence with nomadic pastoralists in arid and semiarid lands over large areas (Hamilton, 1986).

1990s—POPULATION RESEARCH STUDIES, AFRICAN CONSERVATION PROGRAMS, HEALTH ANALYSES OF WILD CHEETAHS, AND POPULATION VIABILITY ANALYSES

Range-Wide Population Studies

At the end of the 1980s there was little understanding of the population distribution or the ecology and biology of healthy, free-ranging cheetahs outside of protected areas. In the 1990s, Paula Gros undertook cheetah population surveys in East Africa (Gros, 1996, 1998, 2002; Gros and Rejmanek, 1999) and provided a rich insight into population distribution. During the same period, the cheetah's global status was summarized using country specialist information gathered in the 1980s from all range countries (Marker, 1998).

The Beginning of African Conservation Programs

Namibia—The Cheetah Conservation Fund (CCF)

In response to accumulating evidence about the cheetah's habitat and population decline and to gain knowledge on cheetahs in nonprotected areas, Laurie Marker founded the Cheetah Conservation Fund (CCF) in 1990 and set up an international field research and education center along with a model farm in Namibia. Marker began working with Dieter Morsbach, research scientist from the Namibian Ministry of the Environment (MET), and the livestock farming communities who were trapping and killing high numbers of cheetahs each year (Chapter 13). In 1991 an extensive survey of Namibian rural farming communities provided a better understanding of the threats to the cheetah and the techniques employed to prevent livestock depredation by cheetahs (Marker-Kraus et al., 1996; Marker et al., 2005). This community survey—along with health, disease, reproduction, genetic, and ecological surveys on Namibian cheetahs—provided the groundwork for many cheetah-range country programs (Marker et al. 2010).

CCF also launched national and international outreach and education programs to raise awareness of the cheetah's vulnerable status (Marker and Boast, 2015; Chapter 18). In 1994, CCF launched the first of many African livestock guarding dog programs in cooperation with Dr. Ray Coppinger and the Livestock Guarding Dog Association of America (Chapter 15).

South Africa—Cheetah Outreach

In 1997, Cheetah Outreach (CO), near Cape Town, was founded by Annie Beckheling and Mandy Schumann. Launched as an educational cheetah encounter facility, its focus is conserving South Africa's wild cheetahs. Adapting CCF's educational outreach programs, Cheetah Outreach began to educate school children and the public and developed a cheetah ambassador program (Chapter 28) working closely to develop nutritional guidelines for captive cheetahs (Chapter 26). In addition, they developed a livestock guarding-dog program and work closely with livestock farmers to help reduce conflict.

Systematic Biobanking and Reproductive Research

In 1994, an international research collaboration between the Namibian MET, a SSP research team, and CCF initiated the investigation of links between reproductive traits, nutrition, and diet. CCF's Genome Resource Bank, which included the first "field banked" sperm samples, was initiated (Crosier et al., 2007; Chapter 27). At the same time, reproductive research on cheetah males was being conducted at a few zoos in the United States (Wildt and Grisham, 1993) and in South Africa at the De Wildt Cheetah and Wildlife Center (Bertschinger et al., 2008; Chapter 27). Data on the basic biology of the female cheetah took longer to complete, with the first results in 2011 bringing insight into ovarian development and reproductive cycling (Crosier et al., 2011; Wachter et al., 2011; Chapter 27).

In 1996, Dr. Linda Munson, cheetah SSP veterinarian pathologist, trained Namibian veterinarians and field biologists in systematic sample collection and assisted in developing sample collection research protocols that led to long term, collaborative global disease studies (Chapter 25). Further training brought together pathologists from the United States, Europe, and South Africa.

Population, Habitat, and Viability Analysis (PHVA)

In 1996, the cheetah SSP sponsored a Population, Habitat and Viability Assessment (PHVA; Chapter 38) for the Namibian Cheetah and Lion. It was hosted by CCF and gathered the IUCN CBSG, the IUCN Cat Specialist Group, the MET, and members of the Cheetah SSP. The workshop provided a platform for Namibian farmers, wildlife officials, international scientists, and other stakeholders and set forth a strategy for managing cheetahs in Namibia while addressing issues affecting neighboring cheetah-range countries (Berry et al., 1997). The first comprehensive conservation plan for managing the wild Namibian cheetah (Berry et al., 1997), and the first National Cheetah Plan followed (Nowell, 1996).

2000s—CHEETAH CONSERVATION PROGRAMS, RANGE-WIDE WORKSHOP, AND PROGRAMS, OFF THE BEATEN TRACK

Expansion of Cheetah-Specific Conservation Programs Across the Cheetah's Range

The new millennium saw the development and expansion of cheetah conservation programs and new areas of research.

Kenya—CCF, Kenya/Action for Cheetah, Kenya (ACK)

In 2001, the Kenyan government and its citizens voiced concern about the decline of their cheetah population. The decline was attributed to a reduction in wild prey caused by poaching and the transition from large, collective ranches to smaller farms (Chapter 11), and also to habitat fragmentation (Chapter 10). Although cheetahs had been photographed extensively in the Maasai Mara (Ammann and Ammann, 1984; Scott and Scott, 1998), there was no cheetah conservation work being undertaken in the country. To address the void, Mary Wykstra and Laurie Marker developed CCF Kenya in 2001, which later became Action for Cheetahs in Kenya (ACK).

Iran—Iranian Cheetah Society (ICS)

In 2001, Mohammad Farhadinia, Kaveh Hobeali and Morteza Eslami founded the Iranian Cheetah Society (ICS), an NGO at the forefront of cheetah conservation in Iran (Chapter 5).

Zimbabwe—Cheetah Conservation Program and Cheetah Conservation Project

In 2002, following long-term cheetah studies from Vivian Wilson, in Zimbabwe, a cheetah conservation program was developed under the leadership of Netty Purchase, the carnivore project coordinator from the Marwell Zimbabwe Trust, and Verity Bowman from the Dambari Trust. In 2012, Dr. Esther van der Meer launched the Cheetah Conservation Project Zimbabwe.

Namibia—Cheetah Research Project

In 2002, the Leibniz Institute of Zoo and Wildlife Research (IZW) from Germany established the Cheetah Research Project in the southeast of Namibia under the direction of Dr. Bettina Wachter.

Botswana—Cheetah Conservation Botswana (CCB)

In 2004, Rebecca Klein, Anne-Marie Houser, and Dr. Kyle Good established Cheetah Conservation Botswana (CCB) with the assistance of the Mokolodi Wildlife Foundation and CCF. Their first research camp, at Jwaneng Diamond Mine's game reserve, monitored the reserve's cheetah population, and conducted outreach, education, and research on nearby farmland. CCB developed an administration and education base at Mokolodi Nature Reserve near Gaborone, followed by a field station, model farm, and education center on farmland near Ghanzi.

Carnivore Projects

In addition to the afore-mentioned cheetah projects, several carnivore projects have put a strong emphasis on cheetah conservation. These programs include: Endangered Wildlife Trust (EWT, South Africa), The Africat Foundation and N/a'an ku sê (Namibia), Botswana Predator Conservation Trust, Tanzanian Wildlife Research Institute, and Ruaha carnivore project (Tanzania).

Range-Wide Workshops and Collaboration

In 2001, the Cheetah SSP joined with *in situ* cheetah conservation efforts and sponsored the first Global Cheetah Action Plan Workshop in cooperation with the CBSG, CBSG South Africa, and CCF. Over 50 people from 11 countries attended the workshop in South Africa presenting on *in situ* and *ex situ* cheetah research (Fig. 1.1B). Working groups convened to discuss census research, protection of cheetahs outside protected areas, education and communication, and health and viability of the *ex situ* population. The findings provided the basis for the first Global Cheetah Action Plan that helped link research initiatives and enhance collaborations (Bartels et al., 2002a). This group called itself the "Global Cheetah Forum" (GCF).

Keeping the momentum, a second GCF took place in 2002. Participants included collaborators working on the Asiatic cheetah and members of the IUCN Cat Specialist Group. The highest priority was completing a census of free-ranging cheetahs to determine how and where range-wide conservation efforts could be implemented (Bartels et al., 2002b). In addition, the Forum members determined that conservation education and training programs should continue to be a top priority in range countries (Chapter 18).

Following this meeting in 2002, cheetah conservation organizations and representatives of the South African farming community met formally for the first time and developed the National Cheetah Conservation Forum (NCCF). Led by a team from the De Wildt Cheetah and Wildlife Centre, EWT, several universities, the National Research Foundation, the Agricultural Research Council and other governmental institutions, new research

and conservation initiatives were launched, including a census of the South African cheetah populations.

Part of South Africa's approach to reducing conflict with livestock and game farmers was to begin a large-scale reintroduction program into private game reserves (Chapter 20). The cheetah populations on these game reserves needed to be artificially connected through animal movement. To achieve this, the cheetah metapopulation strategy was launched in 2009, and is managed by the EWT. In addition, these private reserves allowed for additional ecological studies on cheetah in these protected areas (Chapter 8).

The next GCF meeting took place in 2004, in the Serengeti in Tanzania with over 30 delegates from 7 countries (Fig. 1.1C). The SSP-sponsored "Cheetah Census Technique Development Workshop" was hosted by Dr. Sarah Durant from the ZSL and Wildlife Conservation Society (WCS). Census techniques for acquiring reliable, quantitative information on cheetah distribution and their numbers across Africa were discussed, and a cheetah census technique manual was developed to standardize "best practice" guidelines (Bashir et al., 2004).

Building on this collaboration, in 2005 a southern African Cheetah Regional Workshop brought over 30 people from 6 countries to CCF in Namibia (Dickman et al., 2006). This workshop was facilitated by IUCN CBSG southern Africa and moderated by cochair of IUCN's Cat Specialist Group, Dr. Christine Breitenmoser. The aims were to assess and evaluate accomplishments in the southern African region and to set new objectives. Key determinations appeared in a special issue of Cat News (Breitenmoser and Breitenmoser, 2007).

Following the 2005 workshop, the Cat Specialist Group in Switzerland undertook the Cheetah Compendium (http://www.catsg.org/cheetah/20_cc-compendium/index.htm). It is a web-based communication tool that houses a library of information, data, documents, maps, and other material relevant to the conservation of the cheetah.

Range Wide Cheetah Program

The Range Wide Conservation Program for Cheetah and African Wild Dogs (RWCP) was established in 2007 through a collaboration of Canid and Cat Specialist Groups of IUCN, and led by Drs. Sarah Durant and Rosie Woodruff. Under this program, regional cheetah workshops for southern and eastern Africa took place in 2007 (IUCN/SSC, 2007a,b; Figs. 1.1D and 1.2A), with initial meetings for central, northern, and western Africa in 2012 (IUCN/SSC, 2012; Fig. 1.2B) and a follow up meeting for southern Africa in 2015 (RWCP and IUCN/SSC, 2015; Fig. 1.2C). Range-wide priority conservation plans were developed with government officials for both the cheetah and African wild dog, drawing on the similarities of these species' conservation requirements (Chapter 39).

Drawing on regional plans, national workshops developed country-specific plans in many cheetah-range states (Chapter 39). These workshops led to increased government awareness and support throughout the cheetah's range—as well as ongoing census research allowing for mapping of cheetah populations by national and regional experts—and an understanding of the threats the species was facing and will likely face in the future (Durant et al., 2017).

The lack of local capacity was a key finding of regional plans. To address this challenge, CCF, in cooperation with the Howard G. Buffett Foundation and the RWCP, trained more than 300 government wildlife officials, university professors, scientists, conservation managers, conservation NGO officers, and community extension officers from 15 cheetah-range countries between 2008 and 2011. The aim of the courses was to teach research techniques (Chapters 29–38) and to promote a unified and systematic approach to cheetah research and conservation (Marker and Boast, 2015).

FIGURE 1.2 (A) Participants at the East African Rangewide Cheetah and Wild Dog Regional meeting, Kenya, 2007. (B) North, West, and Central Rangewide Cheetah and Wild Dog Regional meeting participant in Niger, 2012. (C) Southern Africa Rangewide Regional Cheetah and Wild Dog meeting participants in South Africa, 2015. (D) International researchers and government officials at the International Workshop on the Asiatic Cheetah in Iran.

Off the Beaten Track—Other Cheetah Populations

Iran

Cheetahs were known to still be present in Iran after the Iranian Revolution ended in 1979 (Joslin, 1984), although little information was available on their population size or distribution before 2000. The current population is estimated at less than 50 adult and adolescent individuals (Durant et al., 2017; Chapter 5).

In 2001 the Iranian government arranged two separate meeting one headed by Dr. George Schaller from the Wildlife Conservation Society (WCS) and the other headed by Dr. Laurie Marker from the CCF to discuss options to save Iran's small population of Asiatic cheetah (*Acinonyx jubatus venaticus*). Attendees included government officials from the Department of Environment (DOE), the United Nations Development Program (UNDP) and various Iranian researchers involved with the Iranian cheetah. The outcome of the meetings provided support for Iran to begin working under a multiyear UNDP grant aimed at saving the critically endangered Asiatic cheetah population.

Two important meetings followed. In 2004, the Iranian Centre for Sustainable Development (CENESTA) hosted an International Workshop on the Conservation of Asiatic Cheetah, with participation by Asiatic cheetah conservation partners and local communities to discuss conservation strategies with stakeholders throughout the cheetah's Iranian range (Fig. 1.2D); and in 2010, an Iranian Cheetah Strategic Planning meeting reviewed the previous decade of work and planned Iranian's cheetah survival strategies for the following 5 years (Breitenmoser et al., 2010). An overview of the Iranian cheetah situation is found in Chapter 5.

NW Africa—Algeria

The first survey of cheetahs in Algeria was undertaken in 2005 in the Ahaggar National Park, Central Sahara (Busby et al. 2009; Wacher et al., 2005). Interviews with nomadic herders helped assess the nature of interactions between nomads, cheetahs, and other wildlife. A year later, the North African Region Cheetah Organization (Observatoire du Guépard en Régions d'Afrique du Nord (OGRAN) met in Tamanrasset, Algeria, for a 3-day conference to discuss conservation strategies in Algeria highlighting data collection, census techniques, training and education needed to conserve this critically endangered cheetah population. As a result, PhD fieldwork began in the Ahaggar National Park, collecting the region's first camera trap evidence of cheetahs (Belbachir et al., 2015).

India

The cheetah disappeared from India in 1956 (Divyabhanusinh, 1999). For some time, there have been discussions on reintroducing cheetahs to India (Ranjitsinh and Jhala, 2010). In 2009, the Wildlife Trust of India (WTI), headed by Chairman Dr. M.K. Ranjitsinh, hosted a team of experts including representatives from the IUCN (including its Cat Specialist Group, Reintroduction Specialist Group, and Veterinary Specialist Group), Oxford University's Wild-CRU, Cheetah Outreach, and CCF, along with Indian authorities and forestry directors from various regions.

They concluded the following: The original cause of the extinction of the cheetah in India had been adequately addressed; a network of protected areas had been established; and effective wildlife legislation, change in the conservation ethos, and nationwide awareness could lead to a successful cheetah reintroduction (Ranjitsinh and Jhala, 2010). However, the reintroduction project has been stalled indefinitely due to political issues concerning what subspecies could or should be used (Laing and Nelson, 2012; O'Brien, 2013).

International Attention to Illegal Wildlife Trafficking of Cheetahs—UAE/North Africa

By 2006, it was evident that there was need for a long-term plan for combatting illegal wildlife trafficking and for cheetah conservation awareness in Ethiopia. The Ethiopian Wildlife Conservation Authority assigned a task force to develop guidelines and recommendations for a sanctuary for wild orphan animals, and in 2010, the Born Free Foundation in Ethiopia built a sanctuary to hold cheetahs, lions, and other confiscated animals.

The first solicited report on illegal trade was compiled by Nowell to CITES in 2015 (Chapter 14). In 2016, at the CITES Convention of the Parties (CoP17), several resolutions were accepted to work toward the reduction of supply and demand for illegally trafficked cheetah cubs (CITES, 2016; Chapter 14). Work continues between the Horn of Africa and the Gulf States.

2015 ONWARDS—THE RECENT YEARS

In 2015, the AZA launched their Saving Animals From Extinction (SAFE) program to focus on conservation of the cheetah along with nine other species. The goal of SAFE is to restore healthy populations in the wild by connecting scientists with stakeholders and to identify threats, launch action plans, find new resources and engage the public (Chapter 23).

In mid 2015, the RWCP met again to update the southern African regional cheetah plan and population maps (RWCP and IUCN/SSC, 2015). This time the meeting was supported by SAFE with representatives from the AZA community, IUCN SSC Cat Specialist Group, seven national governments, and a multitude of cheetah research and conservation NGOs.

In December 2016, a 54 coauthored paper was published presenting the current estimate on cheetah numbers and distribution (Durant et al., 2017; Chapter 39). It highlighted that the cheetah populations continue to decline in range and number in addition to the need for further investment into their conservation. With 77% of the remaining 7100 adult and adolescent free-ranging population found outside protected areas, it is being recommended the species be uplisted to endangered status on the IUCN red list (Durant et al., 2017; Chapter 39).

CONCLUSIONS

The survival of the cheetah needs to be the responsibility of everyone, not just governments and conservationists. In light of largely human-caused global changes in the environment (Chapter 12), people have the responsibility to help ensure the availability of wide-ranging spaces for cheetah conservation (Chapter 17). This is only possible if the livelihoods (Chapter 16) of local populations living in the same habitat as the cheetah are also taken into consideration in a holistic conservation approach. We hope that the passion and cooperative efforts of active cheetah conservationists will be augmented by the world at large—everyday people who care about wildlife and cheetahs—to help the cheetah reverse indefinitely its fragile march toward extinction. The last chapters of this book Chapters, 39 and 40) will help define the way forward to help secure a future for the cheetah.

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