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Elephants in Nepal: Correlating disease, tourism, and welfare

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ABSTRACT

Asian elephants and humans have long shared their lives, but recent changes in human perspectives on animal use have created ripples through the small country of Nepal. Captive elephants are caught in the crossfire between local communities, elephant owners, mahouts, and NGOs in debates over their treatment, health, welfare and use in tourism. In addition, zoonotic disease, natural disasters and political strife affect the lives of captive elephants and mahouts. For example, during the COVID-19 pandemic, elephants, caregivers and owners found themselves facing income loss, decreased welfare from housing and husbandry issues, and food shortages. Many owners sold elephants, fired mahouts, and “quit” the tourism industry. Others sought help from outside organizations, community members, and governmental agencies to retain ownership of what they viewed as valuable commodities. NGOs and grassroots organizations assisted in the hopes of keeping elephants in Nepal, thus preventing them from long, treacherous walks across the border and into situations where they might face further welfare decreases. This article combines elephant stable visits and interviews with mahouts, owners, NGO, and government staff between January 2019 and December 2021. It highlights the ongoing health and welfare challenges faced by elephants and mahouts in Nepal.

KEYWORDS

Nepal; covid-19; welfare; elephant; disease

Introduction

The small south Asian country of Nepal is a hotbed of biodiversity and boasts an extreme number of ecosystems supporting a wide variety of endangered, threatened, and vulnerable species (GoN, 2015). Nepal’s Terai Arc Landscape (TAL) is one of the “world’s most diverse landscapes” (Wikramanayake et al., 2010, p. 79) and runs along the country’s southern border with India. Interestingly, the ability for large-scale human habitation of this area only occurred following the annihilation of an indigenous species which the Centers for Disease Control and Prevention (CDC) (2021) call “the world’s deadliest animal:” the malaria-bearing *Anopheles* mosquito.

After the 1960s eradication of malaria, human migration into this fragile ecosystem resulted in the loss or drastic reduction of populations of many other species, along with 65% of the area’s forest cover (GoN, 2015; Mishra, 2008). Thanks to decades of hard work, Nepal has seen the successful rebound of several critically endangered species in the TAL, such as the greater one-horned rhinoceros (*Rhinoceros unicornis*) and Bengal tiger (*Panthera tigris tigris*). Unlike the rhino, numbers of wild Asian elephants (*Elephas maximus*) have not rebounded, with approximately the same number of wild individuals (~150) as those held in captivity remaining (GoN, 2015). It is these elephants who will form the basis for the following discussion on anthropogenic pressures, potential disease transmission via the captive-wild interface and animal welfare during both natural and manmade disasters.

As is often the case in areas of conservation focus featuring charismatic species such as elephants, conservation- or nature-based tourism is an expanding commodity in the area surrounding Nepal’s

busiest protected area – Chitwan National Park (henceforth Chitwan) (Kharel & Dhungana, 2018; Nyaupane & Poudel, 2011). Tourist numbers cycle seasonally based upon weather, and during the monsoon season (May–August) visitor numbers in Chitwan dip by approximately 50% (Banskota, 2012). Tourism throughout the country also cycles in response to both political and natural disasters; for example, foreign visitors to Chitwan dropped to just over 87,000 following 2015’s earthquake and economic blockade (GoN, 2019a, p.49). Tourism (including nature-based and pilgrimage tourism, Nepal’s key sectors) slowly rebounded through 2018, with over a million tourists visiting Nepal and over 118,000 heading to Chitwan (GoN, 2019a). Nepal was projected to hit at least two million tourists in 2020 thanks to a targeted campaign sponsored by the government (GoN, 2019a–b). Instead, COVID-19 forced Nepal to close its borders from March to September 2020, and total tourist visits to Nepal peaked at just over 230,000 (GoN, 2020b; Nepal Tourism Board, 2020). Both national and international flights were again grounded in the spring of 2021, but the impact of these reoccurring lockdowns has yet to be fully documented (CAAN, 2021 c–d).¹

This paper examines the interplay of national lockdowns, nature-based tourism, and disease transmission on the welfare of captive tourism elephants. It is part of an ongoing project focused on assessing and improving the overall health and welfare of elephants in Nepal, and includes data collected during interviews and written communications with 80 mahouts, owners, non-governmental organization members and other stakeholders between 2019 and 2021 (see Szydlowski, 2021). These data, coupled with observations undertaken in 24 private elephant stables, form the basis of an examination of captive elephant health and welfare both before and during the COVID-19 pandemic.

The effects of tourism

Nature-based tourism revenues in the Chitwan area, the majority of which come from entry fees into the national park and its buffer zones, equaled over 8.6 million USD over the period between 1972 and 2011 (GoN, 2015). By the 2017–2018 fiscal year, Chitwan tourism was responsible for nearly 2.2 million USD (GoN, 2018). The small town of Sauraha, the main entry for Chitwan National Park, is highly reliant upon these tourism dollars for its continued survival. Tourism in areas of conservation focus, such as Chitwan, can have major effects on biodiversity, local communities, and individuals – both positive and negative (Newsome & Hughes, 2016, p. 13; Ogletorpe & Crandall, 2009). Some types of tourism may financially support conservation programs, promote biodiversity, expand income diversification, and empower local communities (Nyaupane, Poudel, & York, 2020; Stronza & Gordillo, 2008). In addition, skill development training, such as sewing, beekeeping or tour guiding may allow economically disadvantaged communities to increase their household earnings (Nyaupane et al., 2020).

However, academic literature also reports numerous negative effects for local households, biodiversity conservation and park management efforts (Nyaupane & Poudel, 2011; Puri, 2019; Subedi, 2010). For example, while members of Nepalese forest users’ groups felt that eco- or nature-based tourism generally contributed to social development and conservation efforts, the majority saw no increase in their own household income (Kandel, Harada, Adhikari, & Dahal, 2020). In addition, distribution to households is often inequitable, especially between members of different castes and ethnic groups (Kandel et al., 2020; Puri, 2019, p. 78; Sullivan, 2006). Continued promotion of nature-based or ecotourism within areas of socio-economic disparity may instead widen the divide between household incomes (Kandel et al., 2020; Puri, 2019), and members of marginalized communities were regularly excluded from opportunities to administrate these community development programs (Kellert, Mehta, Ebbin, & Lichtenfeld, 2000). In addition, benefits were dependent upon the proximity of households to park entry points, with benefits decreasing with distance (Dhakal & Thapa, 2015; Puri, 2019).

Conservation-based tourism’s strong negative impacts are felt inequitably by landless households and other financially disadvantaged families who are highly dependent upon forest resources for

survival, and who may have their access to these resources limited or completely removed in the name of conservation (Campbell, 2007; Kandel et al., 2020; Mehta & Heinen, 2001). For example, Nepal's landless people have historically been forcibly relocated from their homes as these areas become part of protected conservation zones (GoN, 2015; McLean, 1999, p. 40). Villagers evicted from these areas are then forced to illegally enter protected zones in search of survival provisions and materials to reconstruct or maintain their homes. Human-wildlife conflict in these areas is a major cause of injury and fatality among poor and landless people reliant upon forest provisioning or cattle grazing in unauthorized protected areas (Acharya, Paudel, Neupane, Köhl, & Yue, 2016; Dhungana, et al., 2017; Lamichhane et al., 2018). Injuries, fatalities, and livestock losses which take place in protected areas are not compensated by the government reimbursement schemes, placing an even greater burden on these families (Dhungana, et al., 2017).

Tourism and elephants

The welfare of endangered Asian elephants is also heavily impacted by nature-based tourism practices, which place these elephants in a strange dichotomy. On the one hand, they are excitedly sought-after wild animals, inspiring days-long hikes just to see them in their natural habitat (GoN, 2009, np; Szydlowski, 2021). Wild elephants are passionately protected by local and national legislation, global activism, and international funding (GoN, 2009; see also AERSM, 2017; Menon & Tawari, 2019; Sukumar, 2006). However, rapid human population growth in elephant range areas has created competition for resources, narrowing natural corridors and increasing elephant-human conflict (Choudhary, 2004; GoN 2009; Kharel, 1997). Despite the dangers of living near wild herds, local communities and the Nepalese government are dedicated to promoting their conservation (GoN, 2009).

Captive elephants, on the other hand, have no such legislative protections in place. These individuals are viewed instead as vehicles for anti-poaching patrols and forest maintenance, tourist transport or human entertainment (Kharel, 2002; WAP, 2020). While anti-poaching patrol and forestry elephants face numerous welfare challenges, it is the privately-owned elephants who face the greatest ones. These individuals are used solely for tourist safaris, and will serve as the focus for the following discussion of animal welfare under changing conditions, including during the COVID pandemic.

Elephant use and health in Nepal

Since its advent in the 1960s, elephant-backed tourism has been a source of income for residents of Sauraha, Nepal (GoN, 2015; Mishra, 2008; Szydlowski, 2021). For example, each person entering the national park or its buffer zones must pay a park entry fee. These fees are collected by national park administration, which then redistributes 30–50% of this income to buffer zone communities surrounding the park (GoN, 2015).² This income is meant to reduce the reliance of local families on forest provisioning and provide incentives which may then inspire conservation practices. However, it is the United Elephant Owners' Cooperative (UEOC) which sets the final price for these tourist safaris, oversees the sale of tickets, and distributes the profits (above the entry fees) among its members (Szydlowski, 2021). The UEOC is a private organization comprised of elephant owners, typically hoteliers and businessmen, who represent some of the highest socio-economic tiers within Sauraha. Unlike other countries in which mahouts may own their elephant, or where elephant responsibilities are shared among community members (see Lainé, 2019), tourism elephants in Nepal are typically owned by individuals.³ These elephants are purchased at prices up to 10.5 million Nepalese rupees (about 90,000 USD), or 90 times the average annual income in Nepal (GoN, 2019; Szydlowski, 2021). The ability to purchase these elephants, and the high income provided by elephant safari, represents one area where the socio-economic divide is clearly demarcated between Sauraha's pro-poor (mentioned above) and the area's elephant owners.

These commodity elephants are not removed from Nepalese wild herds (which has been illegal for over 60 years; see Bibhag and Durbar, 1986), but rather purchased from India and walked or trucked into the Sauraha area (GoN, 2009; Locke, 2009; NepalNews, 2019; Szydlowski, 2021). Elephants are CITES appendix I animals, making this trade for commercial use illegal (CITES, 1973). However, the process is widely accepted, with government documents even suggesting to owners the specific cattle fairs where elephants can be most conveniently purchased (GoN, 2009). Other elephants enter the country as gifts (Locke, 2011) or with forged documents listing them as captive born (Szydlowski, 2021). Elephant owners in Chitwan area openly discuss these illegal practices, while police and other officials deny the existence of any illegal trade (NepalNews, 2019).

The health and welfare of captive tourism elephants has been the subject of growing debate throughout range countries, with experts agreeing that illegal trade, harsh management techniques, a lack of veterinary care and disease transmission are major concerns surrounding the health and welfare of working elephants (see Bansiddhi, et al. 2020a; Kontogeorgopoulos, 2009; Sarma, et al., 2003; Varma, 2008). However, the welfare of Nepal's tourism elephants has been largely undocumented in academic literature until recently, thanks to the relatively small numbers of captive individuals in comparison to countries such as Thailand (Szydlowski, 2021). There have, however, been private studies of welfare in the area, one which described 82% of elephants in Sauraha as living in "unsuitable conditions" (deVries, 2014). A study by World Animal Protection (WAP) examining captive elephant conditions throughout Asia, including Nepal, found that 77% of these elephants are kept in "severely inadequate conditions" (Schmidt-Burbach, 2017). Recent fieldwork with captive elephants in Sauraha found that of 24 stables, only three (12.5%) met even half the welfare benchmarks as described in academic literature and those derived from interviews with elephant carers and other stakeholders (Szydlowski, 2021).

During peak tourism months, privately-owned elephants carry their mahout, a *howdah* (a wooden platform for transporting humans), and two to four tourists into the jungle up to nine times a day (Szydlowski, 2021). Each safari lasts between one and two hours. While experts recommend that elephants carry no more than 200 kg at a time (Kontogeorgopoulos, 2019), the weight of the *howdah* used in Nepal hovers around 100 kg unoccupied (de Vries, 2014; Szydlowski, 2021). These heavy *howdahs* coupled with the weight of a mahout means that the addition of a single guest places the elephant at or near their safe carry limit. In addition, the structure of the *howdah* is such that elephants suffer from abrasions, abscesses and rope burns from the platform and its associated strapping (Magda, Spohn, & Angkawanish et al., 2015; Varma & Ganguly, 2011). In addition, each safari leaves from one of three "tourist gates," which for some elephants means a long walk along congested asphalt roads just to arrive at work. These safaris and their associated concerns are not the only impactor of elephant welfare in Nepal.

Zoonotic concerns⁴

The National Trust for Nature Conservation (NTNC) has developed a management plan which suggests that the husbandry needs of captive elephants, such as space, food, vaccinations, and deworming should be (at minimum) considered by private owners (GoN, 2015).⁵ But a lack of legislation regarding these health and husbandry suggestions leaves no real recourse for enforcement. The NTNC plan also recommends regular health exams for all elephants and mahouts, including veterinary care for elephants testing positive for tuberculosis (GoN, 2009), but these suggestions have been ignored. Previous studies have indicated that at least 23% of the captive elephants in Sauraha carry tuberculosis, but due to difficulties with owner compliance regarding treatment, unreliable testing methods, and overall concern for the cost of treatment means that elephants remain undiagnosed and contagious (Gairhe, 2012; Mikota et al., 2015; see also Paudel & Sreevatsan, 2020). More than 12 captive elephants have died of tuberculosis since 2002 (Mandal & Khadka, 2013; Thapa, et. al, 2017, Szydlowski, 2021), yet infected individuals remain within shared spaces, increasing the risk of further transmission (Gairhe, 2012).

While the Department of National Parks and Wildlife Conservation (2011) has prioritized minimizing tuberculosis transmission at the captive-wild interface, both government patrol and private safari elephants regularly pass through landscapes shared with humans and other animals. A lack of tuberculosis testing, quarantine or treatment places captive herds, livestock who share stables and grazing lands, and wild animals at risk (GoN, 2009; Mikota et al., 2015; Szydlowski, 2021). Tuberculosis, which has been documented in other rhino species for nearly two centuries in other parts of the world, is now suspected in the rapidly increasing number of wild rhino deaths in Nepal (Thapa et al., 2016; Sadaula and Gaihre interviews, 2019). Tuberculosis is also endemic among humans in Nepal, with 45% of the population affected (GoN, 2016). The presentation of tuberculosis in elephants is similar to that of humans, leading researchers to believe that elephant tuberculosis likely mutated from a human pathogen centuries ago (Michalak, et. al, 1998; Paudel & Sreevatsan, 2020). The bacterium is zoonotic in both directions, and rates among both elephants and mahouts in Nepal remain high (GoN, 2016; Paudel & Sreevatsan, 2020). This ongoing passage of bacterium between species is even more concerning considering the current Covid-19 (henceforth C-19) pandemic (see below).

Tuberculosis is not the only highly transmissible disease of concern within Nepal. Several Elephant Endotheliotropic Herpesviruses (EEHV) have emerged as a major threat to calves globally and were first documented within Nepal during the early 2000s. EEHV has killed 45 calves within Asia and is symptomatic in around 20% of all Asian elephant calves (Clubb & Mason, 2002; Hayward, 2014). EEHV has made the jump to western zoos, resulting in the deaths of at least 50 more calves. In Europe, nearly 10% of the captive elephant population is now infected (Clubb & Mason, 2002; Hayward, 2014). EEHV is undetectable in its latent form, making it impossible to cure and allowing it to become active and transmissible even years after infection (Smithsonian, n.d.; EEHV advisory group, n.d.). EEHV is considered zoonotic and represents a threat to both wild elephant populations and humans (Clubb & Mason, 2002; Hayward, 2014). The human desire for larger populations of captive elephants for tourism practices, the transport of these individuals across geographic and political borders, and the ongoing interface between captive and wild elephant ranges may create the perfect storm for expanding disease.

The anthropause⁶

A *lack* of tourism may also affect these human and elephant populations in both positive and negative ways. For example, when international flights to Nepal ceased during the initial COVID-19 wave, visitor numbers to Chitwan plummeted and remained low throughout 2021 (see above). Prior to spring of 2020, 112 captive elephants resided within Sauraha in government, non-governmental organization (NGO) and private stables. Approximately 60 of these elephants belonged to private owners, with all but eight used in tourist safari (Szydlowski, 2021).⁷ During the first C-19 wave, these safari elephants and their mahouts were faced with sudden “down time” beyond the degree they normally face in the off-season. According to interlocutors, this anthropause was a much-needed break from the stresses of constant howdah wear, long work hours, and tourist interactions (DB, RT, SU, PC, 2020).⁸ Despite being chained all day in their stables (like humans, elephants were not allowed out during the initial phases of the lockdown, see Mandal, 2020a), elephants were able to enjoy longer periods in which to rest and eat.⁹ Wild elephants normally spend up to 20 hours a day browsing and grazing, and food consumption involves a great deal of both physical and mental stimulation (Kurt & Garai, 2006; Poole & Granli, 2008). In captivity, elephant eating periods are shortened to a few hours at intervals throughout the day, with periods of high tourist traffic resulting in shortened hours devoted to this important activity (Kontogeorgopoulos, 2009). Elephants working on safari are discouraged from grazing while carrying passengers, meaning that more frequent safaris reduce their access to a variety of plant materials and the necessary time to manipulate and consume them. Allowing for longer, more natural eating patterns has been linked to increased positive

wellbeing, and thus the initial lockdown period appeared beneficial to elephants (Carlstead, Mench, Meehan, & Brown, 2013; Kontogeorgopoulos, 2009; Sukumar, 2006).

Changes during this period were not all positive, however. For example, elephants were disconnected from their larger social groups, as traditional privately-owned Nepalese facilities house elephants singly or in pairs without the opportunity for physical contact while stabled. Without daily safaris, many individuals did not have tactile, olfactory, or visual contact with conspecifics. In addition, only a few stables have a water supply, and only one offered free-choice access for drinking (Szydlowski, 2021). This meant that elephants were reliant upon their mahouts to carry in water and missed their daily opportunities for bathing in the river on the way to or from safaris. This created further hardship for mahouts, who already work up to 17 hours per day (Yadav, 2003). These mahouts had to transport water by hand or hold hoses for long periods of time to allow elephants to rehydrate.¹⁰ According to interlocutors, mahouts were further impacted when owners reduced personnel, leaving a single mahout for each elephant (or occasionally, sharing mahouts among multiple elephants) (see below; PC, 2020).

Appropriate nutrition soon suffered as lockdowns continued. Captive elephants typically consume around 70% provisioned items, but thanks to lockdown restrictions, became reliant on entirely provisioned fodder (PC, 2020). However, locating appropriate food items and finding ways to transport them presented challenges. Pre-COVID, working elephants spent a few hours each morning grazing while their mahouts collected grass for use later in the day, and were allowed to graze on the way to and from the safari gates. Without grazing opportunities during these morning walks or before safari, owners quickly depleted their grain stores and had to locate and purchase other types of fodder; a difficult prospect with shops closed and people forbidden to leave their homes (DB, RT and MB, PC, 2020).

Local owners took to the newspapers asking for help, requesting grasses from the national park, which they claimed were being cut and disposed of rather than offered to starving elephants (Acharya, 2020; OnlineKhabar, 2020). Owners decried their lack of income, and soon requested permission to graze within the national park buffer zones (see Mandal, 2020b). Eventually, local authorities relented, and allowed mahouts and elephants to leave their stables for grazing and drinking (Mandal, 2020a). According to the UEOC, elephants were granted permission to graze on protected lands in April and May of 2020, but this permission was again rescinded by June (DB and RT, PC, 2020). However, officials claimed this request was denied, explaining that grass and forest products were readily available throughout town and that elephants had no need to enter protected areas (Mandal, 2020b). The story is much more complex than it first appears. I reached out to UEOC leadership and other private owners in June of 2020. They denied that they asked for or required help, instead describing stables with plenty of food and staff to care for their elephants. In fact, they reported that the elephants were spending most of each day off their chains grazing and were much healthier and happier than pre-COVID (DB & RT, PC, 2020). World Animal Protection also reached out to offer elephant feeding support (Gautam PC, 2020), but apart from one facility, were told no help was needed.

Despite these claims, by the fall of 2020 ten elephants leased from foreign owners were returned “home,” and at least eight others were offered for sale to Indian buyers. These numbers are naturally hard to confirm, given the illegality of these sales (CITES, 1973), but were provided by NGOs in the Sauraha area and by owners themselves (AM, RT, SU, PC, 2020). Veterinary staff and animal welfare advocates reported concern with the transfer and sale of any elephants to India, given the much harsher conditions faced by elephants there (AM, AS, SU, PC, 2020; AS 2019). Even before C-19, elephants in India faced numerous welfare challenges including a lack of veterinary oversight, injuries, parasites, etc (Vanitha, et al., 2010). While these challenges also face elephants in Nepal, those sold to India are not sent to forestry camps where they might experience an improvement in welfare, but rather become “beggar elephants.”¹¹ These elephants travel 30 to 40 km a day in hot conditions seeking “donations” for their care (Vanitha, et al., 2010, pp. 118–120; Varma, 2008, pp. 7–12). According to Vanitha, et al., (2010), these beggar elephants (and their mahouts) face the worst

welfare conditions, including a lack of shade, rest, appropriate substrate or bathing, and high potential for injury and heat-related illnesses (Vanitha, et al., 2010). Thanks to their age or condition, others are sold as “temple” elephants and instead kept chained in one place on unsuitable substrates (Vanitha, et al., 2010; AM, AS, SU, PC 2019 and 2020). These living statues are only allowed an hour of exercise daily, and are controlled via dominance and beating, despite their status as godly embodiments (Vanitha, 2010). For these reasons, Nepalese veterinary staff, NGO personnel and community members are reluctant to see elephants “sold back” to India. To that end, NGOs stepped in to provide food items, mahout salaries, support, and elephant care during the lockdown (MG, AM, SU, PC, 2020).

Some of these organizations are also seizing the opportunity to work with owners in transitioning the ~35 remaining working elephants to chain-free facilities or retirement homes (AM and SU, PC 2020). These NGOs hope that the lack of tourism income will encourage owners to consider other options. One owner has already transitioned his six elephants to chain-free stables with support from local community members and INGOs (although he intends to return them to safari, but not chains, once C-19 abates), and several others have leased or sold elephants to INGOs for use in non-contact elephant activities (OR, SU, PC 2020). C-19 may present the unique opportunity for larger organizations who have previously expressed an interest in Sauraha (such as World Animal Protection or the Jane Goodall Institute – Nepal) to renew negotiations with the UEOC to turn Sauraha into a ride-free destination (see Szydlowski, 2021). It may also allow smaller organizations active in the area to connect with owners in more positive ways and support those owners and mahouts who express an interest in, and now have time for, transitioning their management styles to those which might offer improved welfare. However, if elephant prices remain high (prices range, but sales during C-19 have reached over 90,000 USD, according to interlocutors), it seems unlikely that owners will resist selling to Indian buyers.

Changing relationships

Another impactor of captive elephant welfare stems from changing elephant-mahout relationships. Historically, mahout positions and elephant-handling knowledge were passed down from one generation to the next, but this is no longer the case (Hart, 2000; Kontogeorgopoulos, 2009, 2020; Lipton and Bhattari; Varma, 2008). Mahouts are now often inexperienced youths or hop from stable to stable, and many training methods have become disassociated from traditional cultural elephant practices and instead institutionalized toward the commodification of elephants (Hart, 2000; Kontogeorgopoulos, 2009, 2020; Lipton and Bhattari; Saha, 2017; Varma, 2008). Elephants in Nepal are currently intensively managed using dominance-based physical and mental control (see Kurt, 2005; Locke, 2009). This control is purportedly to maintain mahout and tourist safety, and often involves mental abuse and beatings (Desai, 2008; Lehnhardt & Galloway, 2008; Rizzolo & Bradshaw, 2018). This style of management can result in lasting aggression or violence toward humans – both caregivers and tourists alike (Clubb & Mason, 2002; Lehnhardt & Galloway, 2008; Yadav, 2003); it may also result in elephants’ experiencing “maladaptive passivity” or even stress-related death (Peterson & Seligman, 1983, p. 104). Mahouts are not immune to these stressors, either, performing a great deal of emotional labor (Coulter, 2016) as they are forced (Locke, 2009) to use exclusively dominance-based management methods despite their personal preferences.

During the initial C-19 wave, mahouts were freed from this “requirement” for constant control over their elephant coworkers (PC, 2019, 2020). This reduction in both physical and emotional stress reportedly improved both mahout and elephant welfare, at least in the short-term (PC, 2020). Studies have shown that well-bonded elephant caregivers report higher levels of job satisfaction and remained in their positions longer (Bradshaw, 2015; Carlstead, et al., 2019; de Vries, 2014; Kontogeorgopoulos, 2020; see also Bansiddhi, et al., 2020; Szydlowski, 2021). Long-term and strong, positive bonds are linked to decreased fear and stress among elephants (Carlstead, et al., 2019; Desai, 2021). Positive human-elephant bonds may improve elephant health, as more-bonded mahouts may

recognize illness or injury earlier and use fewer violent or dominant control methods during daily care tasks (Kontogeorgopoulos, 2020). More relaxed and bonded pairs may lead to elephants who suffer fewer physical and mental wounds (Kontogeorgopoulos, 2020). Finally, well-bonded pairs improve mahout health; mahouts more familiar with an individual's behaviors can respond more quickly to changing elephant emotional states, thus preventing potential injuries (Kontogeorgopoulos, 2020). The chance to develop these bonds in less stressful environments can perhaps lead to improved welfare for both species.

As the pandemic continued, some owners were forced to send mahouts away, while others simply stopped paying salaries (FB, MB, AM and RT, PC, 2020). The loss of tourists resulted in an exacerbation of the already chronic problems of low pay, little respect, high turnover, and lack of job security among mahouts (Kontogeorgopoulos, 2020; Yadav, 2003). Many elephant caregivers became ill or simply returned home to be with their families as C-19 continued, leaving no one to feed and clean elephants (AM and RT, PC, 2020; Mandal, 2020a). Understaffing can result in increased stress due to time constraints surrounding bond-building, less job satisfaction, even higher turnover rates and more injuries due to overworked and exhausted mahouts (Gautam & Khatiwada, 2011).

Further fieldwork in Nepal during December of 2021 revealed changes to the operating procedures in Sauraha's stables. Owners received food supplements from the NTNC, but many also had to turn to friends and family for financial help in maintaining elephants. These owners were dedicated to maintaining their elephants, despite the cost and lack of tourist income. Many stables were now reliant upon their grass stores for fodder (winter in Nepal means there is less natural material available), and some turned to collecting browse materials from within town. At the request of the UEOC, local forest users' groups (tasked with management of the buffer zone forests) opened the Kumroj community forest to private elephants. Elephants can now graze, and mahouts may cut grass for later use. According to owners, elephants initially benefitted from this extra exercise and grazing time. However, the situation has now returned to "normal." Rather than using the community forest, many owners have instead retained elephants in their stables, up to 24 hours a day on foot chains. Owners explained that elephant feet and joints are beginning to suffer from the chronic standing and suggested that the small uptick in safari rides (one or two a week) is beneficial to elephant feet and legs. When asked why they were not taking advantage of the opportunities for exercise and grazing offered by access to the community forest, many simply explained that the community forest was too far away, and that elephants would have to cross asphalt roads to get there.

Conversations with owners and mahouts at these stables revealed unexpected results. Mahouts appeared calmer and explained that the lack of tourists meant they did not have to be always in such tight control of their elephants. However, they also explained that this meant elephants expressed their agency more when outside the stable. Elephants were described as "naughty" and "not listening" to mahouts while grazing. In addition, elephants appeared to have fewer wounds or abscesses than during previous fieldwork (likely due to the absence of *howdah* wear), and many had gained weight during COVID. Perhaps these visually apparent increases in elephant health will encourage owners to embrace a lighter safari schedule and more rest and feeding time once tourism levels return to normal.

Conclusions and the way forward

Human-pachyderm and captive-wild disease transmission has become a major concern in Nepal. Tuberculosis, EEHV and other transmissible and zoonotic diseases are spreading thanks to the interactions of captive elephants with both humans and wild habitats. With low levels of testing or treatment in captive animals (and little testing of deceased wildlife), tuberculosis demonstrates the potential for catastrophic spread between humans and captive elephants, and from captive to wild populations of both rhino and elephant.

Additionally, the COVID-19 pandemic created significant health and welfare impacts on both humans and elephants in Sauraha, Nepal. While at first it appeared that the anthropause might

positively impact both elephants and mahouts, it soon became clear that added pressures due to financial concerns, a lack of food supply, job loss and illness created an untenable situation. While NGOs and community members stepped in to assist owners, elephants, and mahout alike, owners were reluctant to retain their costly “property” while elephants were providing no income.

NGOs, advocates, and some owners in the area are embracing the chance to create positive changes for captive tourism elephants. What remains to be seen is if changes can occur quickly enough to prevent the rest of Nepal’s captive population from being sold into presumably worse conditions in India. Perhaps the first step is to embrace the suggestion of the UEOC and advocacy NGOs to move the elephant stables closer to the community forest and consolidate management into a more “camp-like” structure until further decisions can be made. Having these stables closer together may also increase options for chain-free facilities in the future.

Notes

1. Apart from two Delhi-Kathmandu flights weekly, which were allowed to continue for undisclosed reasons via an “air bubble” agreement (Civil Aviation Authority of Nepal/CAAN, 2021). Domestic flights resumed at the end of June 2021 (CAAN, 2021a-d).
2. Protected areas alongside Chitwan National Park set aside for community use, local peoples’ collection of forest provisions, agriculture and livestock grazing. Each buffer zone is separated into three use areas: a conservation zone (which serves as a wildlife corridor), a sustainable use zone (for forest provisioning and regulated tourism), and an intensive use zone (for the use of community members to reduce reliance on forest products) (GoN, 2015). It is within the buffer zone that elephant safaris take place.
3. Mahout is the commonly used term for one who provides daily care for and “drives” an elephant in Nepal.
4. Transmissible between animals and humans.
5. The NTNC is the quasi-governmental agency responsible for wildlife oversight in Nepal.
6. This term was coined by Rutz et al. (2020) in reference to the “considerable global slowing of modern human activities.”
7. This is an approximation, given that elephants are illegally brought into Nepal it is difficult to obtain exact numbers.
8. Interlocutors for this paper are noted as PC for *personal communication*.
9. Sauraha took the lockdowns very seriously in an attempt to stop the spread of C-19. According to interlocutors, those found on the streets during restricted times were beaten by police (PC, 2020).
10. Elephants are not left alone with these hoses, lest the hoses be destroyed.
11. Although the welfare of elephants in these conditions is also the subject of much debate. See Miller, et al., 2015; Sarma, et al., 2003; Harrie, et al., 2008; Menon & Tawari, 2019; etc.).

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DB: Member of the UEOC
KG: Veterinarian of the Government of Nepal
OR: Elephant Owner
RT: Member of the UEOC
SU: INGO2