



DEFENDERS OF WILDLIFE CONSERVATION IN SRI LANKA: A CAUTIONARY NOTE FOR THE FUTURE OF RANGERS

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ABSTRACT

Providing physical protection to wildlife is among the most high-risk professions in the conservation sector as it is directly associated with the prevention of wildlife crimes. In Sri Lanka, the Department of Wildlife Conservation is the primary government agency responsible for the long-term conservation and protection of biological diversity. Since the establishment of the department in October 1949, there have been casualties in the line of duty among field officers of DWC. Here, we examine the nature and the conditions that led to the demise of these field officers whilst on duty. From October 1949 to December 2020, at least 80 have been killed and one reported missing while on duty. The death rate averaged one officer per year. The major cause of death was terrorist attacks followed by encounters with free-ranging Asian Elephants, and confrontations with wildlife criminals. Providing physical protection to the wildlife and prevention of environmental crimes are critical pillars in conservation, therefore preventing untimely death of wildlife officers is paramount. Providing rigorous training for wildlife officers, protective gear, firearms, and other logistic resources and capacity building is imperative to boost the morale and career commitments of Sri Lanka's wildlife officers.

Key words: firearm violence, game guards, poaching, wildlife attacks, wildlife crimes

INTRODUCTION

Biodiversity is vital for both the Earth's life-supporting system and to sustain a multitude of socio-economic benefits to the human society (Wilson, 1992). Nonetheless, increasing human population growth and heightening demands for natural resources have amplified biodiversity erosion worldwide (Cardinale et al., 2012). While protected areas mitigate biodiversity loss, without adequate physical protection, due to poaching, illicit extraction for the pet trade and other purposes (medical, cultural), habitat encroachment and vengeful killing, anthropogenic defaunation can continue even inside protected landscapes, which is particularly notable in tropical biodiversity hotspots of the developing world (Mittermeier et al., 2000; Young et al., 2016).

Wildlife rangers – also known as game/wildlife wardens, forest/game guards, field enforcement officers, environmental police officers – are wildlife

professionals tasked with safeguarding the natural, cultural and historical heritage, and protecting the rights and prosperity of current and future generations with respect to natural resources. Bounded by legal and institutional frameworks, rangers oversee the protection of state, communal, Indigenous or private conservation landscapes or seascapes (International Ranger Federation, 2021). They provide a variety of services, including law enforcement, to prevent environmentally harmful activities, maintain a safe and secure environment for humans and wildlife, monitor wildlife and their habitats, manage environmental risks, and empower and engage with local communities, collaborate with key stakeholders of conservation, and assist with tourism, education and public awareness (Warchol & Kapla, 2012; Eliason, 2011). Ranger duties may include working under gruelling field conditions for prolonged time spans despite insufficient logistic support and minimal infrastructure. They are underpaid, undertrained and frequently encounter



Victoria, Randenigala, Rantambe Sanctuary; a wildlife rich area in the intermediate zone of Sri Lanka © Ranga Wijerathna

poachers as well as wildlife, resulting in considerable safety concerns (Belecky et al., 2019; Singh et al., 2020). In developing nations, anthropogenic pressures on wildlife are disproportionately high, which heightens the demands on wildlife rangers (Warchol & Kapla, 2012). Likewise, the socio-economic and political challenges characteristic of developing nations also plague the ground-deployed conservation professions (Eliason, 2011).

Sri Lanka is a small island (65,610 km²) in the Indian Ocean between 5°55' – 9°51' N and 79°41' – 81°54' E and recognised as a global Biodiversity Hotspot (Myers et al., 2000). Sri Lanka has a long legacy in wildlife conservation, even predating the European colonial era. Currently, Sri Lanka's biodiversity receives satisfactory legislative protection (De Zoysa, 2001). There are 660 protected areas which protect nearly a third (19,897 km²) of Sri Lanka's land area (UNEP & WCMC, 2021). The establishment of the Department of Wildlife Conservation (DWC) in October 1949 was a milestone in conservation and management of Sri Lankan biodiversity (Ministry of Land and Land Development, 2014). Since its inception, the field officers of the DWC (hereafter, "field officers") deployed in remote wilderness have encountered exigent and risky circumstances, sometimes resulting in deaths while on duty (DWC, 2017). In this study, we analysed the

circumstances that led to field officers' deaths to identify causes and trends in mortality. Our study will help identify proactive interventions to minimise risk associated with field officers and improve their career standards.

METHODS

We accessed data on field officer mortality from numerous archives of the DWC from October 1949 to December 2020 and informally interviewed retired and active field officers (21 in total) to validate the archive data and fill in missing information. The DWC does not maintain a single database on officer deaths. Therefore, we examined multiple sources and unpublished reports (incidental reports, personnel files) produced by the DWC to amalgamate data on casualties. Through these interviews, we clarified the circumstances of the field-officer casualties, particularly with respect to the cause and location of deaths when that information was not available from the archives. We tabulated the name and designation of the officer involved, along with the date, cause and location of death, and other information on the circumstances of death to illustrate causes, patterns and trends in mortality. To approximate locations of fatalities, we used the DIVA-GIS gazetteer portal (<https://www.diva-gis.org/gdata>) and Google maps. The tabulated data were georeferenced as shapefiles using ArcMap version 10.8.1 (ESRI, Redlands, CA) and

spatially superimposed on data layers for protected areas, bioclimatic regions, and administrative provinces/districts of Sri Lanka to determine geospatial patterns of these casualties.

RESULTS AND DISCUSSION

We identified 80 fatalities among field officers, all males, in the period 1949–2020, plus one officer remains missing. This approximates a net loss of one officer per year (mean 1.32 yr⁻¹). The number of fatalities differed among administrative districts and provinces, bioclimatic zones, as well as between inside and outside protected areas (Figure 1). Nearly two-thirds of the fatalities occurred inside protected areas (59 deaths) while only a third (22 deaths) occurred outside protected areas. Most casualties within protected areas (58 cases) happened in national parks while only one case was reported from sanctuaries. Less than a fifth (18 deaths) of all casualties were reported within the intermediate zone (annual average precipitation: 1,750 to 2,500 mm) while casualties within the dry zone (annual average precipitation: <1,750 mm) were nearly four time greater (63 deaths). Terrorist attacks were the leading cause of death (36 incidents, 44.4 per cent of all deaths), followed by Asian Elephant attacks (*Elephas maximus*) and encounters with wildlife criminals (Figure 2). The North-central (Anuradapura and Polonnaruwa districts) and Eastern administrative provinces (Ampara district) suffered a substantially greater proportion of mortality (57 deaths) than the rest of the country (Figure 1).

Throughout the 72-year period, fatal incidents were limited to only 32 years (Figure 2, Supplementary Online Material). The greatest number of casualties was reported when 24 officers were massacred by terrorists at the headquarters of the Wilpattu National Park (NP) on the 14 May 1985. In the same year, another officer died in a misfire while on foot patrol in Ruhuna National Park. The Liberation Tigers of Tamil Eelam (LTTE) were solely responsible for the terrorist attack.

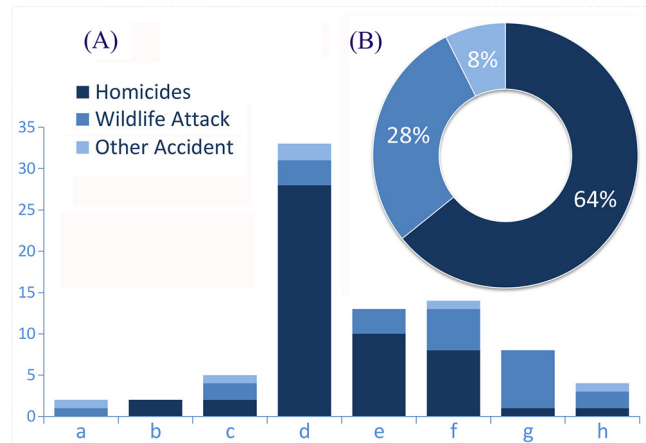


Figure 2. Number of deaths of field officers in DWC, (A) by decade (a) 1950-1959, b) 1960-1969, c) 1970-1979, d) 1980-1989, e) 1990-1999, f) 2000-2009, g) 2010-2019, and h) 2020, (B) by cause of death (Homicides – terrorist attacks, poaching, rebel attacks; Wildlife Attack – attacked by wild animals such as Elephants; Other Accident – misfire, motor accident, missing, and drowning).

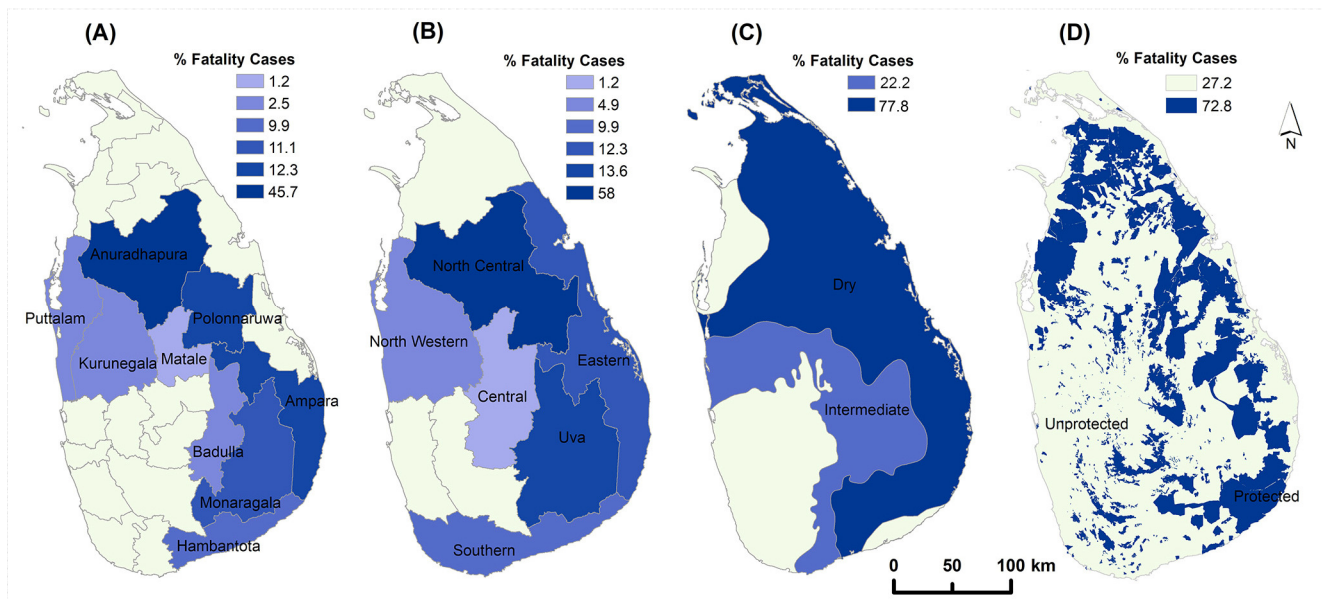


Figure 1. Geographic locations of fatalities among the field officers of the Department of Wildlife Conservation from July 1957 to December 2020 (percentage fatality cases with respect to (A) administrative districts, (B) administrative provinces, (C) bioclimatic zones, (D) inside and outside protected areas).

An anti-government militant organisation, the LTTE operated mostly across the north and eastern parts of Sri Lanka where most of the extensive protected areas exist. If deaths due to terrorist attack in 1985 are left out of calculations, the death rate would drop to 0.77 officers per year, both poaching and Asian Elephant attacks would outnumber terrorist attack as the leading causes of death, and 1985 would rank among years with lowest fatalities. The geographic location of the Wilpattu NP (North-central Sri Lanka) where LTTE operations were concentrated and its greater area (largest NP in Sri Lanka, 1,317 km²) could have contributed to the severity of these attacks. After the 1985 massacre incident, fatalities due to terrorist attacks were also reported in 1988, 1989, 2006 and 2007. However, terrorist operations have ceased in all parts of the county since 2009 and field officers have resumed their duties as usual since then.

The second leading cause of death was Asian Elephant attacks which resulted in 20 deaths (24.7 per cent of fatalities). Most casualties from Elephants, 13 officers (65 per cent) occurred outside the protected areas, while only seven fatalities originated within protected areas. Deaths resulting from Elephant attacks have increased in recent decades (Figure 2), which highlights that human–Elephant conflict (HEC) is a serious wildlife management issue. It is the leading cause of Elephant deaths in Sri Lanka; Elephant raids have also resulted in substantial property damage, deaths and severe injuries among local communities (Prakash et al., 2020). Elephants range across 59.9 per cent of Sri Lanka's land area and human settlements cover 69.4 per cent of the Elephant range (Fernando et al., 2021), intensifying the HEC over time in this shared landscape. The DWC is the prime state agency responsible for both Elephant conservation and the management of HEC, which requires officers to care for injured Elephants, translocate problematic Elephants, and conduct Elephant drives, predisposing them to Elephant attacks. Elephants aside, deaths resulting from attacks by other wildlife remain minimal (Sloth Bear (*Melursus ursinus*): 1 case, Wild Buffalo (*Bubalus arnee*): 1 case and Marsh Crocodile (*Crocodylus palustris*): 1 case).

The third leading cause of death was attack by wildlife criminals while patrolling. Fifteen field officers (18.5 per cent) have been killed in this way where gunfire, physical assaults and stabbing have claimed 10, 3 and 2 lives, respectively. Most perpetrators were poachers (13; 86.6 per cent), while illegal gem miners killed one field officer, and another is unknown. In general, rangers worldwide have identified wildlife criminals as a serious threat to their lives (WWF, 2018). Although historically less prevalent, our analyses indicated a minor yet steady

increase in field-officer deaths due to encounters with wildlife criminals (Figure 2). The officer deaths due to accidents were less frequent (misfiring firearms: 2 cases, vehicular accident: 2 cases and drowning: 1 case). Officers killed on duty belong to 10 designations in the DWC hierarchy. The majority were wildlife guards (34 guards, 42 per cent of casualties), followed by 11 wildlife ranger assistants and 10 wildlife rangers (Table 1). The highest-ranked officer killed on duty was a regional assistant director. Other deceased officers included support staff (bungalow keepers, assistant bungalow keepers, drivers, wildlife field assistants, volunteer guides and casual labourers) that aid in conservation and tourism management.

One Wildlife Ranger employed at the Wilpattu NP was murdered and another Wildlife Guard affiliated with the Udawalawa NP was reported missing during an insurrection of a radicalised youth movement which attempted to overthrow the government through armed violence in 1987–1989 in Sri Lanka. The second JVP insurrection (1986–1990) of having caused the deaths and disappearances between 40,000 and 60,000 people (Gunaratna, 1990). Many of these victims were not killed in open conflict, rather were kidnapped by the rebels, government armed forces, police or militias from their homes or workplaces and remain missing since then (Watkins, 2005). The two aforementioned DWC officers are likely victims of this political turmoil.

CONCLUSION

While terrorism no longer threatens Sri Lanka field officers, Asian Elephant attacks and wildlife criminals are emerging as major causes of death. The existing approved cadre of the DWC is limited to 1,200 while

Table 1. Designations of the officers killed on duty from July 1957 to December 2020

| Designation | Deaths |
|-----------------------------|-----------|
| Regional Assistant Director | 1 |
| Wildlife Rangers | 10 |
| Wildlife Ranger Assistants | 11 |
| Wildlife Guards | 34 |
| Bungalow Keepers | 2 |
| Assistant Bungalow Keepers | 1 |
| Drivers | 6 |
| Wildlife Field Assistants | 3 |
| Volunteer Guides | 2 |
| Casual Labourers | 11 |
| Total | 81 |

only ~750 officers are currently employed in field duties. The maximum efficiency of the field staff can only be achieved by creating a secure working environment, increasing the total cadre, and filling the existing vacancies to enhance their collective capacity. We recommend a comprehensive, island-wide assessment to quantify additional labour inputs as the present cadre is evidently insufficient to manage intricate issues of wildlife conservation and management. Science-based formal education should also be imparted to officer training. For example, resolving HEC might require officers trained in megafauna conservation, wildlife behaviour, and human dimensions.

Given the risk exposure, presently available remunerations for field officers should be revised to include a better medical insurance and financial support in case of long-term injury on duty. The infrastructure in field offices should also be reinforced with 4WD vehicles, modern firearms, other equipment, technological applications (wildlife tracking systems, cyber infrastructure for information sharing), training facilities, and standard living quarters. Risks encountered by field officers will change both with time and across geographies. Casualties among field officers, other serious injuries they suffer, and novel threats they encounter (such as emerging zoonotic infections) should be documented and explored in order to plan corrective actions.

SUPPLEMENTARY ONLINE MATERIAL

Appendix 1

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RESUMEN

La protección física de la fauna silvestre es una de las profesiones de mayor riesgo en el sector de la conservación, habida cuenta de que está directamente relacionada con la prevención de los delitos contra la fauna silvestre. En Sri Lanka, el Departamento de Conservación de la Vida Silvestre (DWC, por sus siglas en inglés) es el principal organismo gubernamental responsable de la conservación y protección a largo plazo de la biodiversidad. Desde la creación del departamento en octubre de 1949, se han producido bajas en el cumplimiento del deber entre los funcionarios de campo del DWC. En este artículo examinamos la naturaleza y las condiciones que condujeron al fallecimiento de estos oficiales de campo en el cumplimiento de sus funciones. Desde octubre de 1949 hasta diciembre de 2020, al menos 80 han sido asesinados y uno ha sido reportado como desaparecido en el ejercicio de sus funciones. La tasa media de mortalidad fue de un oficial por año. La principal causa de muerte fueron los atentados terroristas, seguidos de los encuentros con elefantes asiáticos en libertad y los enfrentamientos con autores de delitos contra la fauna silvestre. La protección física de la fauna silvestre y la prevención de los delitos contra el medio ambiente son pilares fundamentales de la conservación, por lo que es primordial evitar la muerte prematura de los oficiales responsables de la preservación de la fauna silvestre. La capacitación rigurosa de dichos funcionarios, la provisión de equipos de protección, armas de fuego y otros recursos logísticos y de desarrollo de capacidades es imperativo para aumentar la moral y los compromisos profesionales de los oficiales responsables de la fauna silvestre de Sri Lanka.

RÉSUMÉ

La protection physique de la faune est l'une des professions les plus risquées du secteur de la conservation car elle est directement associée à la prévention des délits liés aux espèces sauvages. Au Sri Lanka, le ministère de la conservation de la nature est le principal organisme gouvernemental responsable de la conservation et de la protection à long terme de la diversité biologique. Depuis sa création en octobre 1949, le département a subi plusieurs pertes parmi ses agents de terrain dans l'exercice de leurs fonctions. Nous examinons la nature et les conditions qui ont conduit au décès de ces agents. D'octobre 1949 à décembre 2020, au moins 80 agents ont été tués et un a été porté disparu alors qu'il était en service. Le taux de mortalité était en moyenne d'un agent par an. La principale cause de décès était des attaques terroristes, puis des rencontres avec des éléphants d'Asie en liberté et des confrontations avec des criminels qui s'attaquent aux espèces sauvages. La protection physique de la faune et la prévention des crimes contre l'environnement sont des piliers essentiels de la conservation. Il est donc primordial de prévenir la mort prématurée des agents de terrain. Pour cela il s'avère impératif de fournir une formation rigoureuse aux agents ainsi que des équipements de protection, des armes à feu et d'autres ressources logistiques y compris le renforcement des ressources, afin de stimuler le moral et l'engagement professionnel des agents de terrain du Sri Lanka.