Online Resource 1
Asian elephants in Cambodia: a comprehensive national assessment of conservation status, distribution, threats and negative human–elephant interactions
Biodiversity and Conservation
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Appendix 1. Historical spatial data assessment and inclusion

To enable direct comparison among sources using different coordinate formats (decimal degrees, degrees-minutes, and easting/northing values), all historical spatial records (both precise and approximate) were converted to the World Geodetic System 1984 (WGS84; UTM Zone 48N; EPSG:32648).

Historical records from Duckworth and Hedges (1998), which synthesised location information from earlier reports, were spatially reviewed according to their original evidence category (confirmed or provisional), locational precision (precise locations versus approximate, "ca.", locations), and spatial overlap with other historical sources, including Maltby and Bourchier (2011), unpublished government and NGO datasets, and records provided by individual researchers. Records located outside Cambodia or whose mapped coordinates were inconsistent with the accompanying locality description were excluded as probable typographical or coordinate errors.

For a small number of Duckworth and Hedges (1998) records, the published coordinates did not correspond to the locations shown on the original distribution map, likely reflecting coordinate rounding or transcription errors. In these cases, the mapped location from the original figure was provisionally retained for review during the national review workshops, particularly where no corroborating historical records were located nearby.

Historical records from Maltby and Bourchier (2011), together with additional locations subsequently provided by the authors, were considered previously verified, with spatial datasets collated and/or supplied by government agencies, NGOs, and individual researchers. During the first national workshop and subsequent validation workshop, all historical records were reviewed, with particular attention given to isolated, approximate, or provisional records. Locations confirmed through workshop discussions were retained, while records considered unverifiable, inaccurate, or insufficiently precise for confident spatial assignment were excluded. Additional historical locations identified during the workshops were incorporated into the final dataset using newly provided spatial information or, where precise locations were unavailable, mapped at the grid-cell level and classified as anecdotal.

Following the validation workshop, all additional historical records were cross-checked against the Duckworth and Hedges (1998) database to identify duplicate, overlapping, or conflicting records, with amendments, consolidation, or exclusion undertaken where necessary before producing the final map.

Appendix 2. Cambodian mtDNA haplotype sequences gathered to assess suitability for inclusion/ exclusion in haplotype assessments. Sites marked with an asterisk were excluded from national-level haplotype and diversity analyses, with justification below.

Author/Report	Protected Area	Location in Cambodia	Year samples collected	Source	# Unique sequences
Crouthers *et al.,* 2026	*Keo Seima[1]	East	2015	PhD/Genbank	15
Crouthers *et al.,* 2026	Phnom Prich	East	2015	PhD/Genbank	49
Crouthers *et al.,* 2026	Srepok	East	2015	PhD /Genbank	35
Crouthers 2024	*O'Yadav [2]	East	2021	PhD Thesis	2
Crouthers 2024	*Phnom Samkos [2]	Southwest	2021	PhD Thesis	1
Sinovas *et al.,* 2025	Prey Lang	Central	2020–2021	Publication/Author	20
Sinovas *et al.,* 2025	Chhaeb-Preah Roka	North	2020–2021	Publication/Author	8
Fauna & Flora/RZSS	Cardamoms	Southwest	2016	Organization	43
Eggert and Ruiz-Lopez 2012	*Northern Plains[3]	North	2010	Report/Author	4
Eggert and Ruiz-Lopez 2011	Keo Seima	East	2010–2011	Report/Author	55
Total					**232**
Total excluding					**210**

*Sample sets excluded from final analysis

[1]Small sample size and potential individual overlap with previous samples collected in 2010–2011, as such only the former larger sample set (Eggert and Ruiz-Lopez, 2011) was used in analyses.

[2] Insufficient sequence overlap

[3] Uncertain protected area attribution & small sequence set

References

Crouthers, R. (2024) Using genetic methods and an integrative multi-stakeholder approach to understand small fragmented Asian elephant populations in Cambodia. (Doctoral dissertation, Te Herenga Waka-Victoria University of Wellington). Available at: 10.26686/wgtn.26367643.

Crouthers, R.Ritchie, P.Linklater, W.Nuttall, M.Sieng, D.Srey, C.In, V.and Ball, A. (2026) 'Globally important diversity discovered in Cambodia's largest remaining elephant population', Global Ecology and Conservation. Elsevier B.V., 68, p. e04264. Available at: 10.1016/j.gecco.2026.e04264.

Duckworth, W. and Hedges, S. (1998) Tracking tigers : a review of the status of tiger, Asian elephant, gaur, and banteng in Vietnam, Lao, Cambodia, and Yunnan (China). Available at: 10.5962/bhl.title.104747.

Eggert, L. S. and Ruiz-lopez, M. J. (2011) Analysis of fecal DNA samples to estimate size and sex ratio of the elephant population at Seima Biodiversity Conservation Area in Cambodia using capture-recapture methods. Report to the Wildlife Conservation Society, Cambodia.

Eggert, L. S. and Ruiz-lopez, M. J. (2012) Analysis of fecal DNA samples to estimate size and sex ratio of the Northern Plains elephant population in Cambodia using capture-recapture methods. Report to the Wildlife Conservation Society, Cambodia.

Sinovas, P.Smith, C.Keath, S.Chantha, N.Kaden, J.Ith, S.and Ball, A. (2025) 'Giants in the landscape: status, genetic diversity, habitat suitability and conservation implications for a fragmented Asian elephant (Elephas maximus) population in Cambodia', PeerJ, 13, p. e18932. Available at: 10.7717/peerj.18932.

Appendix 3. Protected areas (PAs) with current or historical Asian elephant presence in Cambodia, showing the PA identification numbers used in figures (ID), the commonly used names adopted in this study, official English names and designations (2023), and previous or alternative names, under Ministry of Environment and/or Ministry of Agriculture, Forestry and Fisheries

ID	Name used in this study	Official name (2023)	Designation	Previous or alternative names
1	Kirirom	Preah Suramrit Kossamak "Kirirom" National Park	National Park	Preah Soramrit-Kosomak "Kirirom" National Park
2	Bokor	Preah Monivong "Bokor" National Park	National Park	Preah Monivong National Park (Bokor)
4	Botum Sakor	Padum Sagar National Park	National Park	Botum Sakor National Park
5	Phnom Kulen	Preah Jayavarman-Norodom "Phnom Kulen" National Park	National Park	Phnom Kulen National Park
6	Virachey	Virajay National Park	National Park	Virachey National Park
7	Veun Sai-Siem Pang	Vern Sai-Siem Pang National Park	National Park	Veun Sai-Siem Pang Conservation Area, Veun Sai-Siem Pang National Park
8	Cardamoms	Phnom Kravanh National Park	National Park	Central Phnom Kravanh (Cardamom Mountains) National Park (formerly Central Cardamoms Protected Forest) and Southern Phnom Kravanh (Cardamom Mountains) National Park (merged in 2023)
9	O'Yadav	O'Ya Dav National Park	National Park	O'ya Dav Protected Forest, O'Yadav National Park
11	Preah Sihanouk Ream	Preah Sihanouk Ream Marine National Park	Marine National Park	Ream National Park
12	Phnom Aural	Phnom Aural Wildlife Sanctuary	Wildlife Sanctuary	–
14	Phnom Samkos	Phnom Samkus Wildlife Sanctuary	Wildlife Sanctuary	Phnom Samkos Wildlife Sanctuary
15	Kulen Promtep	Kulen Brahmdeb Wildlife Sanctuary	Wildlife Sanctuary	Kulen Promtep Wildlife Sanctuary
16	Beng Per	Boeng Paer Wildlife Sanctuary	Wildlife Sanctuary	Beng Per Wildlife Sanctuary
17	Lomphat	Lomphat Wildlife Sanctuary	Wildlife Sanctuary	–
18	Phnom Prich	Phnom Prech Wildlife Sanctuary	Wildlife Sanctuary	Phnom Prich Wildlife Sanctuary
19	Phnom Namlear	Phnom Namlier Wildlife Sanctuary	Wildlife Sanctuary	Phnom Namlear Wildlife Sanctuary
20	Prey Lang	"Prey Lang" Wildlife Sanctuary	Wildlife Sanctuary	–
21	Chhaeb-Preah Roka	Chhaeb-Preah Roka Wildlife Sanctuary	Wildlife Sanctuary	Chhaeb Wildlife Sanctuary (formerly Preah Vihear Protected Forest) and Preah Roka Wildlife Sanctuary (merged in 2023)
22	Tatai	Tatai Wildlife Sanctuary	Wildlife Sanctuary	–
23	Keo Seima	Keo Sima Wildlife Sanctuary	Wildlife Sanctuary	Keo Seima Wildlife Sanctuary; Seima Protection Forest; Seima Biodiversity Conservation Area
24	Srepok	Srae Pok Wildlife Sanctuary	Wildlife Sanctuary	Srepok Wildlife Sanctuary; Mondulkiri Protected Forest
25	Siem Pang	Siem Pang Wildlife Sanctuary	Wildlife Sanctuary	Siem Pang Protected Forest; Siem Pang WS and Western Siem Pang WS (combined 2019)
26	Phnom Thnout-Phnom Pok	"Phnom Tnot-Phnom Pok" Wildlife Sanctuary	Wildlife Sanctuary	Phnom Thnout-Phnom Pok Wildlife Sanctuary
31	Banteay Chhmar	Banteay Chhmar Protected Landscape	Protected Landscape	–
32	Preah Vihear	Preah Vihear Protected Landscape	Protected Landscape	Preah Vihear Temple Protected Landscape (expanded)
42	Dong Peng	Dong Peng Multiple Use Area	Multiple Use Area	–
43	Samlaut	Sam Lout Multiple Use Area	Multiple Use Area	Samlaut Multiple Use Area
44	Tonle Sap	Tonle Sap Multiple Use Area	Multiple Use Area	Tonle Sap Biosphere Reserve
72	Snoul	–	Degazetted	Snoul Wildlife Sanctuary

ID = PA identification number used in this study and figures. Official names follow Ministry of Environment Prakas No. 64 (MoE 2023), except Phnom Kravanh National Park and Chhaeb-Preah Roka Wildlife Sanctuary, established by Sub-decrees No. 173 and No. 174. Snoul Wildlife Sanctuary was degazetted and is excluded from PA counts.

Appendix 4. Estimated timing and likely drivers of local elephant extirpation by protected area (PA), based on questionnaire responses and/or workshop discussions. Three PAs with subsequent evidence of confirmed or possible elephant reappearance are greyed-out.

Area	PA	Absence (Years)	Targeted hunting	Hunting - dispersion	War/civil unrest: Targeted poaching	War/ civil unrest: Disturbance	Live Capture: War/ local use/ trade	Persecution Retaliatory killing	Agro-industry: Farming/	Mining Exploitation /Extraction: Commercial	Linear infrastructure: Fragmentation	Logging: Deforestation & disturbance	Unknown
Southwest	[1] Dong Peng**	Unknown–											Y
	[2]Preah Sihanouk Ream*	21-50*	**	**									Y
Central	[1] Beng Per	21–50	Y	Y	Y				*		*		
	[1] Phnom Thnout-Phnom Pok	21–50; >50	Y	Y	Y	Y						Y	
	[2]Tonle Sap*, **	21–50; >50							Y		Y	*	Y
North	[1] Kulen Promtep	11–20; 21–50			Y	Y			*			Y	
	[1] Phnom Kulen	21–50				Y						Y	
	[2]Preah Vihear*	11–20; 21–50	*						Y			*	
Northeast	[1] Veun Sai-Siem Pang	11–20, 21-50*	Y	Y					*			Y	
East	[1] Snoul	11–20					**					Y	
	[1] Lomphat***	11–20; 21–50	**						Y			Y	
	[1] O'Yadav***	11–20		Y				Y	Y			Y	
	[1] Phnom Namlear****	11–20; 21–50	Y	Y	Y		Y		Y			Y	

[1] Questionnaire response(s) provided
[2] No questionnaire response, additional information provided during workshop discussions (2022 or 2023)
*Additional information provided from workshop discussions
** Where potential causes of decline were unknown from questionnaires and workshop discussions, information was extracted from Duckworth and Hedges (1998).
*** Initially identified as elephants no longer present, subsequent data confirmed reoccurrence after ≥ 10 years of absence.
**** Initially identified as elephants no longer present, subsequent information suggested possible unconfirmed reoccurrence.

Additional Information:

This table was compiled primarily from questionnaire responses. Where responses were missing, reasons for local absence were unclear, or cross-checking against other data was needed, additional information was taken from earlier reports, as described below.

Of all the responses, two PAs (Dong Peng Multiple Use Area and Peam Krasop Wildlife Sanctuary), were reported to have never supported elephants. However, historical spatial records confirmed former elephant occurrence in Dong Peng, which was subsequently corroborated at both national workshops, along with associated causes. No historical or workshop evidence supported elephant occurrence in Peam Krasop, thus it was mapped as never present.

Four PAs (Beng Per Wildlife Sanctuary, Phnom Kulen National Park, Preah Sihanouk Ream National Park, and Veun Sai–Siem Pang National Park) lacked spatially verifiable historical records, and two of these also lacked questionnaire responses. Duckworth and Hedges (1998) and other historical sources provided only approximate locations (eastern Preah Sihanouk Ream; outside the southern boundary of Veun Sai–Siem Pang), which could not be verified at either workshop or through follow-up enquiries. Nonetheless, based on the combination of questionnaire responses, workshop discussion, and historical evidence, all four PAs were considered to have historically supported elephants.

Workshop participants could not confidently determine the timing or drivers of elephant absence around Tonle Sap. However, Duckworth and Hedges (1998) reported elephants as relatively common in Kampong Thom Province during the 1940s–1950s, becoming rare by the 1990s.

Additional information on the subsequent reappearance of elephants in Lomphat Wildlife Sanctuary and O'Yadav National Park, and their possible but unconfirmed reoccurrence in Phnom Namlear Wildlife Sanctuary, is provided in Appendix 5.

Appendix 5. Confirmed and unconfirmed elephant reoccurrence information from surveys and workshops

Additional information regarding the confirmed reoccurrence of wild elephants after more than a decade of absence in three PAs, and unconfirmed presence in one PA, is provided below. These PAs were previously identified in the National Elephant Action Plan as either lacking elephant presence or being locally extirpated.

O'Yadav National Park (Eastern Cambodia): Anecdotal reports of reoccurrence were first recorded in December 2019, with presence confirmed during the 2020 dry season. Repeated reports suggested group sizes ranging from 1–25 individuals. Rapid assessments in 2021 recorded elephant occurrence and/or negative human elephant interactions (NHEIs) across most central and southern parts of the PA. However, eastern sections were not surveyed due to COVID-19 restrictions and limited border accessibility. PA personnel have reported elephant presence close to the border with Vietnam. One resident attributed the prolonged absence of elephants to the intentional killing of three elephants during the mid-2000s.

Banteay Chhmar Protected Landscape (Northwestern Cambodia): Direct sightings were first reported in the 2022 dry season, when military border officials reported six wild elephants crossing from Thailand into their compound near Chob Korkir village. NHEIs continued throughout the 2022 and 2023 dry seasons, with reports of 6–10 elephants. Prior to this, no confirmed reports of wild elephants were documented, although anecdotal information suggested elephants may have occurred in the area > 30 years ago.

Lomphat Wildlife Sanctuary (Eastern Cambodia): Wild elephant reoccurrence was first suspected in 2021 and confirmed in May 2023. PA officials recorded indirect signs (dung and footprints) of at least four elephants, and residents reported a small group near a settlement along the southwestern boundary. Subsequent patrol data confirmed elephant presence near the adjacent PA (Phnom Prich Wildlife Sanctuary), and these individuals were considered to be a small transient group. Changes in movement patterns were attributed to disturbance and habitat modification associated with agricultural concessions in northern Phnom Prich.

Phnom Namlear Wildlife Sanctuary (Eastern Cambodia): Questionnaire responses suggested wild elephants had been absent for 11–20 years (n=1) or 21–50 years (n=1), the latter based on third-party interviews across seven communities. This was also agreed during the 2022 workshop. However, one recent unconfirmed report from a government official in 2023 suggested possible presence near the northern boundary, possibly originating from the adjacent PA (Srepok Wildlife Sanctuary) or Vietnam. Further research is required to verify elephant presence.

Appendix 6. Summaries of current distribution, fragmentation, and potential connectivity

Southwest: This PA complex supports several fragmented elephant populations. Limited survey effort, poor accessibility, unsuitable habitat (e.g. elevation and slope), and anthropogenic disturbance were identified as key factors contributing to apparent distribution gaps and uncertainty, particularly within Phnom Samkos Wildlife Sanctuary, Bokor National Park, and the Cardamoms National Park.

Bokor and Samlaut Multiple Use Area were considered to represent isolated populations. Elephants previously moved between Kirirom National Park and Bokor, but major transport infrastructure, including National Road 4 and the construction of Cambodia's first multi-lane high-speed expressway (Phnom Penh–Sihanoukville), alongside expanding roadside settlements, are considered to now restrict connectivity. Although elephants still occur close to National Road 4, available data and anecdote evidence suggest crossings no longer occur. The limited current distribution shown for Bokor largely reflects areas surveyed during rapid assessments, as no additional elephant data were available after 2010. Discussions suggested two fragmented populations may persist within Bokor: a confirmed central population and a possible northern population. Extensive habitat modification was identified as a likely cause of the apparent absence of elephants from southern and western areas. Historical movement between Samlaut and Phnom Samkos was reported, although no spatial records were available to confirm this. Samlaut may form part of a larger transboundary population extending into Thailand, although recent border-road improvements could affect connectivity. Key movement corridors and crossing points could not be identified.

Camera-trap surveys by NGOs confirmed elephant movement between the Cardamoms and Tatai Wildlife Sanctuary. However, such surveys were lacking across other sites. Spatial data and workshop discussions further suggested historical or possible contemporary movement between: (i) southeastern Phnom Samkos and northwestern Cardamoms, (ii) northeastern Cardamoms and western Phnom Aural Wildlife Sanctuary, (iii) southwestern Cardamoms and Kirirom, (iv) Tatai and Botum Sakor National Park, and (v) transboundary movements between Phnom Samkos and Thailand. Continued habitat modification and infrastructure development may further reduce connectivity across these areas.

Central and North: Factors contributing to elephant absence across six PAs are summarised in Appendix 4. Historical movement was reported between Phnom Kulen, Chhaeb–Preah Roka Wildlife Sanctuary, and Prey Lang Wildlife Sanctuary. Extant populations only remain in the latter two sites, where habitat modification and fragmentation associated with agricultural expansion, land concessions, and road development were considered the primary causes of isolation. Participants further suggested that habitat restoration and corridor designation could improve connectivity between these PAs, as well as the adjacent Kulen Promtep Wildlife Sanctuary, where elephants previously occurred.

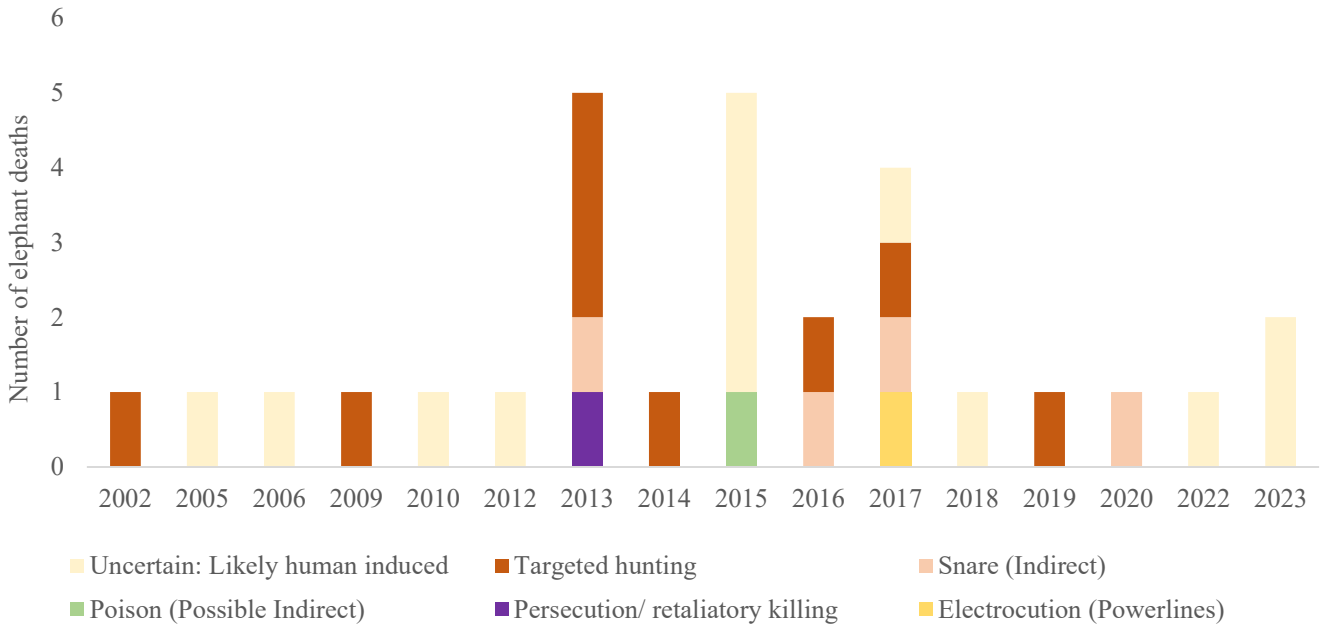
Northeast: Questionnaire responses and workshop discussions suggested elephants historically moved between Virachey National Park, Veun Sai–Siem Pang, and Siem Pang Wildlife Sanctuary. However, elephants were generally considered absent from Veun Sai–Siem Pang for 15–30 years (reasons provided in Appendix 4).

Virachey and Siem Pang remain among the least-studied elephant areas in Cambodia. Limited monitoring, difficult terrain, restricted accessibility, and small population sizes were identified as major constraints to data collection. Available records were largely restricted to patrol and biodiversity surveys, and limited camera-trap records from Virachey. Elephants in Virachey may occur as two fragmented subpopulations, and transboundary movement into Laos may persist, although increasing road development and other disturbances could further restrict connectivity. In Siem Pang, no confirmed elephant records were obtained after 2015 despite an additional rapid assessment. However, army and border personnel reported possible elephant presence within an inaccessible military concession in the northeastern section of the PA.

East: Recent changes in elephant distribution were particularly evident in eastern Cambodia, with reoccurrence reported in O'Yadav and Lomphat, and possible reoccurrence in Phnom Namlear. However, the factors driving these changes remain unclear. In O'Yadav, habitat modification and increasing anthropogenic pressures in Vietnam were most commonly identified as potential drivers, which may have altered elephant movements within Vietnam and across the international border into O'Yadav. Recent border-road improvements were also suggested to have reduced transboundary movement between Srepok and Yok Đôn National Park, potentially contributing to these distributional shifts, although this could not be verified. Reoccurrence of a small transient group in Lomphat is discussed in Appendix 5 and was generally attributed to increasing disturbance within agricultural concessions along the northern boundary of Phnom Prich. Elephant presence in Phnom Namlear remains unconfirmed and was considered unlikely by several participants, as captive elephants were previously known from the area.

Confirmed movement was reported between O'Yadav and Srepok, and recent movement of a small transient group between Phnom Prich and Lomphat, although the permanence of the latter movements remains uncertain. Movement between O'Yadav and Lomphat was also considered possible but remains unconfirmed. Workshop discussions and data suggested no movement between Keo Seima and Phnom Prich for >15 years, and more recently between the western and eastern sections of Srepok, which are separated by National Road 76. The apparent absence between Keo Seima and Phnom Prich was attributed to habitat modification within former Economic Land Concessions along the southwestern boundary of Phnom Prich, together with road development and settlement expansion between Sen Monorom and Memong. Within Srepok, improvements to National Road 76, increased traffic, and disturbance associated with mineral exploration concessions were identified as the principal factors restricting movement.

Appendix 7. Total number of reported human-caused elephant deaths (2002–2023) and the confirmed cause, if known.



Questionnaire responses and consolidated workshop discussions identified 29 non-natural elephant deaths between 2002 and 2023. Mortalities were recorded in 16 of these 22 years, with single deaths reported in 11 years. Although reported mortalities became more frequent after 2013, there is no clear increasing trend over time. Five deaths were reported in both 2013 and 2015, four in 2017, and two in both 2016 and 2023, all of which were considered human-related. For 13 cases, the specific cause was uncertain, but the deaths were believed to be human-associated or otherwise non-natural. Known reported causes included targeted hunting (n=9), snares set for other wildlife (n=4), poisoning (n=1), retaliatory killing (n=1), and electrocution from a powerline (n=1).

Subsequent online searches and meetings between August 2023 and December 2025 identified at least four additional suspected non-natural deaths: one calf shot in Phnom Prich in January 2024; one adult male suspected of poisoning in Botum Sakor in August 2025; and one adult female found dead with bullet wounds alongside her newborn calf in Chhaeb-Preah Roka in December 2025. The cause of death of the calf was unknown, but attributed to the shooting of the mother.

Appendix 8. Ministry of Environment ranger densities per 100 km² for the 18 protected areas currently harbouring elephants and one protected area (*) with unconfirmed possible elephant reoccurrence.

Protected area	Ranger density per 100 km²
Banteay Chhmar	0.4
Srepok	0.6
Lomphat	0.8
Keo Seima	0.8
O'Yadav	0.9
Cardamoms	0.9
Phnom Prich	1.0
Virachey	1.1
Tatai	1.2
Phnom Samkos	1.5
Phnom Namlear*	1.5
Botum Sakor	1.7
Prey Lang	2.1
Siem Pang	2.4
Phnom Aural	2.4
Chhaeb-Preah Roka	2.5
Bokor	2.6
Kirirom	7.1
Samlaut	7.7

Appendix 9. Provinces and Protected Areas (PAs) with Negative Human Elephant Interactions (NHEIs) since 2010.

Geographical Area	Province	PAs
East & Northeast	Mondulkiri	Keo Seima, Phnom Prich*, and Srepok
	Ratanakiri	Lomphat*, O'Yadav, Virachey
Central	Stung Treng	Prey Lang
Northwest	Oddar Meanchey	Banteay Chhmar Protected Landscape
Southwest	Battambang	Samlaut
	Pursat	Phnom Aural and Phnom Samkos
	Koh Kong	Botum Sakor, Cardamoms (including villages south of the PA) and Tatai
	Kampong Speu	Bokor and Kirirom (including villages east of the PA)
	Preah Sihanouk	Cardamoms and Kampong Seila District

PAs often span one or more provinces; in this table they are only listed for NHEIs recorded in that province
*No spatial data

Appendix 10. Protected Areas reporting cessation of Negative Human–Elephant Interactions (NHEIs).

Since 2018, no direct NHEIs have been reported within three protected areas (PAs). Additional information and reasons for cessation of NHEIs are described below.

Bokor National Park: Only one spatial NHEI location was available (<2018; exact year unconfirmed), and knowledge and anecdotal information were also limited. It was suggested that NHEIs likely occurred in a relatively new settlement at that time and now no longer occur due to increased anthropogenic disturbance and habitat modification, particularly the expansion of linear infrastructure, including road upgrades and construction of a new express highway, which likely altered elephant movement patterns.

Prey Lang Wildlife Sanctuary: Historical NHEIs primarily involved crop damage to rice paddies in forested areas far from settlements. Crop damage occurred between 2005 and 2011 in areas referred to as Sekhas, with no incidents in that area since. Two additional crop damage incidents were reported in 2018, the first involved a single, isolated incident involving a lone juvenile female elephant near Olang, following another in Krobeymouy. Anecdote suggested that NHEIs primarily stopped following the cessation of swidden farming in forested high-risk elephant use areas away from their villages and changes in elephant movements.

Tatai Wildlife Sanctuary: Most NHEIs were located in On Dong Tik village and reported to cease in 2012 following the capture and relocation of an individual elephant to the Phnom Tamao Rescue Centre, undertaken to reduce collision risk along National Road 48. Occasional incidents near Chi Phat reportedly ceased by 2015. No further NHEIs have been reported since.

Appendix 11. Protected Areas (PAs) with either isolated Negative Human Elephant Interactions (NHEIs) or incidents solely located within economic or military concessions inside the PA.

NHEIs in several PAs were either limited to a small number of incidents or occurred exclusively within remote forested areas, agricultural or extractive concessions or international border-post locations.

Banteay Chhmar Protected Landscape: Since 2022, annual crop damage has been reported within and near an international military border station, coinciding with the first confirmed records of elephants entering the area from Thailand. There was no documented evidence of elephant presence in the area before, although workshop discussions suggested that elephants may have occurred in the wider area before the civil war. Information from Thailand indicates that these elephants may originate from the wider Huai Thap Lan–Huai Samran Wildlife Sanctuary complex (A. Jitvijak, WWF-Thailand, pers. comms., 2023).

Lomphat Wildlife Sanctuary: Only one or two instances of crop damage were reported during the 2021/2022 dry season. However, no spatial or detailed information was available.

Phnom Aural Wildlife Sanctuary: Rapid assessment observations and information gathered identified minor structural damage and disturbance within an extractive concession near the PA's western boundary. At least two groups and one large male were reported to use areas extending at least 20 km around the concession.

Phnom Prich Wildlife Sanctuary: Minor crop damage, disturbance and possible structural damage were reported in a cashew plantation concession in the northeastern section of the PA. Incidents were presumed to be ongoing, although no spatial data or information on current events were available.

Phnom Samkos Wildlife Sanctuary: Limited reports of crop damage incidents were recorded within an agricultural concession. The rapid assessment survey information indicated that one group and a large male regularly visited cassava farms leased to residents within the MDL concession boundary, with most damage attributed to trampling rather than consumption.

Samlaut Multiple Use Area: A single incident was reported to have occurred in 2019, when transboundary elephants from Thailand entered the expanded International Border Outpost 400 and damaged structures near housing on the base. Officials fired warning shots to deter the elephants and prevent casualties. No further incidents had been reported in the area as of August 2023.

Virachey National Park: A single incident involving a human injury was reported in a remote forested area of Kok Lak Commune. The incident occurred away from settlements, and no further incidents have been documented. The exact year is unknown, although government officials estimated that it occurred around 2018.

Appendix 12. Reported or documented human fatalities associated with encounters with wild and captive elephants

Year	Region	PA	District	Elephant Status	Location	Activity / context	Reported Circumstances
2008 [1]	Southwest	Cardamoms – Tatai (?) [1]	Thma Bang [1]	Wild	Forest	Unknown	A man was reportedly killed by an elephant in the forest; no further details were available.
≈2014 [1]	Southwest	Tatai (?)[1]	Koh Kong	Wild	Forest	Fishing	A young girl was reportedly killed by an elephant while fishing near Okey/Chiphat, Koh Kong Province.
2017	East	Keo Seima	Ou Reang	Wild	Forest	Collecting NTFPs	Two men were reportedly collecting mushrooms with several dogs. When a herd of elephants chased the dogs, both men ran and one was killed.
2024	East	Keo Seima	Keo Seima	Wild	Forest	Collecting NTFPs	A woman encountered elephants unexpectedly while collecting mushrooms. She reportedly ran, tripped and was subsequently trampled by an elephant.
2025	East	Keo Seima	Keo Seima	Wild	Forest	Snaring	A man was reportedly setting snares for birds. Anecdotal accounts suggest that he was killed when he unexpectedly encountered one or more elephants, and his body was found the following day.
2010 *	Southwest	n/a	Samraung Tong	Captive	Village	Bystander (proximity)	A man reportedly provoked the captive elephant by touching its face/head, despite warnings from the owner; the elephant reacted aggressively and killed him.
2010/11 [3]	East	n/a	Pech Chreada	Captive	Unknown	Owner/mahout	An elephant reportedly killed its owner/mahout; the reasons are unknown, but stress and/or an excessive workload was suggested.
2011–2014 [3]	East	n/a	Pech Chreada – Romnea	Captive	Unknown	Owner/mahout	A male elephant reportedly killed an owner/mahout; no further details were available.
2012/2013 [3]	East	n/a	Pech Chreada	Captive	Unknown	Owner/mahout	The same Bousra elephant reportedly killed its owner/mahout a second time; it died in 2019/2020.
2016 [2,3]	East	n/a	Pech Chreada	Captive	Forest	Owner; injured elephant	A male reportedly attacked and killed its owner while being returned to the village; a nail was later found lodged in its trunk (musth was ruled out). After roaming for several days with two captive females, it was darted, then purchased and relocated to a sanctuary in Ratanakiri. The same male was involved in the 2017/2018 fatality.
2017 [2,3]	East	Keo Seima	Romnea	Captive	Village	Owner; musth/ tourism activity	A male in musth was reportedly brought out of seclusion early for a tourism A male in musth was reportedly brought out of seclusion early for a tourism activity alongside two other captive females, and the owner was killed while trying to separate them. The male then entered the village, destroying multiple houses and charging at people and vehicles. To prevent further harm, police shot it in the leg and it reportedly died from blood loss.
2017/2018	East	Unknown	Lumphat (?)	Captive	Unknown	Young boy	A young boy (~12–13 years) was killed while following the captive male Bak Mai and his mahout (possibly his uncle) on a motorbike. This was the same male involved in the 2016 fatality; he was found dead about three months later..

[1] Year and location based on participants' recollections during the workshops; supporting records could not be located.
[2] Mixed sources: workshops, databases and media reports.
[3] Information based on recollections of ELIE (pers. comm.) or an internal database; dates are approximate and supporting records could not always be located.
** Additional information in reported circumstances was derived from media reports and could not be independently verified; these circumstances should be interpreted with caution.*