

Document Title	Technical Commentary on the Welfare of Reindeer Used in Public Festive Events in 2025: Review of Video Evidence
Programme/Project	Reindeer welfare
Purpose	To review video materials relating to a number of public festive events involving reindeer and to provide written technical commentary on observable welfare indicators within the footage.
Primary Author	Dr Tayla Hammond Animal Insights Consulting info@animalinsightsconsulting.com
Commissioned by	 Animal Aid
Version + Status + Date	FINAL 30/03/2026

TECHNICAL COMMENTARY ON THE WELFARE OF REINDEER USED IN PUBLIC FESTIVE EVENTS IN 2025: REVIEW OF VIDEO EVIDENCE

Prepared by Dr Tayla Hammond BSc (Hons) MSc PhD, Animal Insights Consulting, March 2025.

Commissioned by Animal Aid.

KEY FINDINGS

- Reindeer were displayed in busy public environments including garden centres, markets, town centres and parades, often surrounded by crowds, noise and unpredictable activity.
- Temporary enclosures were often small and restrictive, and reindeer had limited ability to move away from people, noise or other potentially threatening stimuli, such as dogs. Within enclosures, reindeer were frequently restrained using head collars, ropes and/or harnesses and prevented from moving away from public interaction.
- Reindeer were most commonly exhibited in pairs, despite being herd animals, and enclosure space or control by handlers did not allow for normal social behaviour.
- In several events, reindeer did not have sufficient dry bedding to rest or lie down comfortably.
- In parade events, reindeer were required to walk through busy town centres sometimes pulling carriages. A slip and fall and partial loss of control was seen during one such event, highlighting the risks associated with these activities to both the animals and public.
- Reindeer are stoic prey animals, and signs of pain or illness may not always be obvious. However, there were notable health concerns, including abrasions, low body condition and possible lameness. Several reindeer observed in the footage were in velvet, indicating active antler growth. During this stage, antlers are covered in highly vascularised and innervated tissue and are sensitive to injury and pain from trauma. Broken antlers were observed in several reindeer in velvet, indicating that antler trauma had occurred prior to or during the event.
- Across multiple events, reindeer showed prolonged vigilance behaviour, including scanning, startle responses and attempts to move away from people or other stimuli, which is associated with perceived threat, anxiety and stress.
- Overall, the footage reviewed suggests that the mismatch between the biological and behavioural needs of reindeer and the environments in which they are used during festive events make it difficult to consistently meet their welfare. The conditions and behaviours observed across multiple events indicate that reindeer are exposed to multiple potential stressors in environments that present risks to both their physical welfare and mental state. On this basis, the use of reindeer in public festive events should be reconsidered until it can be demonstrated that these activities are fully compatible with the welfare needs of reindeer and compliant with relevant animal welfare legislation.

1.0 INSTRUCTION AND SCOPE

Reindeer (*Rangifer tarandus*) have long been a feature of festive celebrations across the UK, where they are displayed in garden centres, retail outlets, and used in Christmas-themed entertainment events. For over a decade, veterinarians and animal welfare organisations have raised concerns regarding the suitability of reindeer for these environments¹⁻³. The following report provides technical commentary on video footage of reindeer used at public festive events commissioned by Animal Aid. Footage of ten events from the 2025 festive season were collected by supporters and staff of Animal Aid, Freedom for Animals, OneKind and BornFree. The purpose of this commentary is to identify observable environmental conditions, human-animal interactions, and behavioural indicators relevant to reindeer welfare within the footage supplied, and to consider their implications in light of established principles from animal welfare science.

This work builds on previous research and analysis undertaken by the author in 2023 examining the welfare of reindeer used in festive events in the UK⁴. This earlier work identified a number of potential welfare concerns and highlighted the need for further research into the specific welfare needs of reindeer kept and used in captivity and public entertainment contexts in the UK. Further work in this area is ongoing, and this report forms part of a wider programme of work examining the welfare, management and legal position of captive reindeer in the UK.

2.0 APPROACH

This commentary is based on qualitative review of video footage of reindeer exhibited at public festive events. The analysis focuses on environmental conditions, enclosure design, ground conditions, feeding provision where visible, handling and restraint methods, proximity to the public, behaviour, locomotion, body condition and visible injuries.

As there are currently no UK-specific welfare standards or codes of practice specific to reindeer, welfare considerations in this report are interpreted in relation to the welfare needs set out under the Animal Welfare Act 2006 and the Animal Health and Welfare (Scotland) Act 2006. Observations are considered in relation to whether the conditions visible are likely to allow animals to be provided with a suitable environment, suitable diet, the ability to exhibit normal behaviour patterns, appropriate social housing, and protection from pain, suffering, injury and disease. In order to interpret how the conditions observed may affect animal welfare, the report also considers principles from animal welfare science, including the Five Domains model, which recognises that nutrition, physical environment, health and behavioural interactions influence the mental state of the animal and therefore overall welfare⁵.

Interpretation of behaviour and environmental conditions from video footage has inherent limitations. Observations presented in this report are therefore confined to conditions visible within the footage reviewed and do not represent a full assessment of husbandry, feeding regimes, veterinary care, transport conditions or long-term management of the animals. However, the footage provides insight into how reindeer

are used and managed during public festive events and therefore provides relevant evidence when considering potential welfare implications.

The review is limited to the video materials supplied by the client and reflects the consultant's professional opinion within the limits of observable evidence. The commentary does not constitute legal advice or expert witness testimony in law and should not be interpreted as extending beyond the evidential scope of the footage reviewed.

3.0 SPECIES-SPECIFIC WELFARE CONSIDERATIONS FOR REINDEER

Reindeer are members of the *Cervidae* family of hoofed ruminant mammals and have the largest circumpolar distribution of any ungulate, inhabiting tundra and boreal forest regions across northern Eurasia and North America⁶. Several subspecies exist, associated with different ecological conditions, migration patterns and management systems⁷. Some populations of reindeer are managed by humans for meat, transport and other uses and may be described as semi-domesticated; however, reindeer are not considered fully domesticated in the same way as species such as cattle or sheep, and many behavioural and physiological characteristics remain closely aligned with those of wild ungulates⁸. The categorisation of a species or population as 'wild' or 'domesticated' results in different requirements under legislation⁹. This question is the topic of a research piece currently in progress as part of the wider workstream by Animal Insights Research and Consulting on the welfare of reindeer in the UK.

Regardless of domestication status, reindeer are highly specialised Arctic ungulates whose behaviour and physiology are adapted to cold climates, seasonal feeding patterns, large ranges, and living in social herds¹⁰⁻¹⁵. These species-specific behavioural and ecological characteristics are important when considering the welfare of reindeer kept in captivity or used in public entertainment events. Environments that restrict movement, limit foraging opportunities, expose reindeer to close human proximity, loud noise or unfamiliar stimuli, or require isolation from the herd are likely to limit their ability to express normal behaviour and may influence both physical welfare and mental state⁴.

Table 1 summarises the species-specific welfare considerations relevant to assessing reindeer used in entertainment events and the corresponding observable indicators used in this review. These questions are not intended to represent a formal welfare assessment tool but provide a structured framework for interpreting the conditions and behaviours visible within the footage in relation to the welfare needs of reindeer.

Table 1. Species-specific welfare considerations relevant to reindeer used in entertainment events. The questions summarise observable indicators that assist in assessing whether the welfare needs of reindeer are likely to be met in event environments.

Welfare question	Species-specific context
Need for a suitable diet (Nutrition)	
Is species-appropriate forage available?	Reindeer are Arctic-adapted ruminants whose diet includes lichens, grasses, shrubs and other seasonal vegetation. Access to appropriate forage supports rumen function and helps maintain body condition.
Is fresh water visibly available?	Adequate hydration is required to support rumen function and metabolic processes, particularly when animals are handled, transported or exposed to unfamiliar environments.
Do animals appear to be in adequate body condition?	Body condition reflects nutritional status and resilience to environmental stressors.
Are animals able to engage in natural feeding behaviour?	Natural feeding behaviour normally occurs over extended periods of grazing or foraging across large areas. Disturbance can interrupt feeding behaviour.
Need for a suitable environment (Physical environment)	
Is sufficient space available for normal movement?	Reindeer are adapted to extensive landscapes and normally move over large areas when foraging or responding to disturbance.
Are ground conditions suitable and comfortable for movement and resting?	Stable and appropriate ground conditions support locomotion and reduce the risk of slips, injuries or lameness. Reindeer also spend periods resting and ruminating while lying down, so surfaces should allow animals to lie down comfortably without risk of injury or disturbance.
Are animals protected from unsuitable weather conditions, including excessive heat?	Reindeer are adapted to cold environments and possess dense insulating fur that limits heat loss. In warmer conditions or crowded environments this insulation may increase the risk of overheating if animals cannot access shade, airflow or cooler areas.
Are animals able to withdraw from crowds or disturbance?	As a prey species, reindeer typically regulate distance from perceived threats and may attempt to avoid close human proximity.
Are animals kept with or apart from other animals in a way appropriate for the species?	Reindeer are social herd animals whose behaviour and access to resources are influenced by social hierarchy and group structure.
Are animals exposed to loud or unpredictable noise?	Reindeer possess sensitive hearing and may respond to loud or unpredictable sounds with heightened vigilance or avoidance behaviour.
Need to be protected from pain, injury and disease (Health)	
Are animals free from visible injuries?	Visible wounds, swelling or abrasions may indicate unsuitable environments, equipment or handling practices. In captive settings injuries can also occur through interactions with barriers, harnesses or unfamiliar surfaces.
Is there evidence of lameness or abnormal gait?	Reindeer are adapted for efficient locomotion across varied terrain; abnormal gait or reluctance to move may indicate pain, injury or unsuitable surfaces.
Are animals showing signs of fatigue or physical exhaustion?	Handling, restraint, transport and prolonged standing may contribute to physical fatigue or stress responses.

Does the coat appear healthy and intact?	Coat condition can reflect overall health and nutritional status. Reindeer undergo seasonal moulting, and some hair loss may therefore be normal depending on the time of year. However, patchy hair loss, skin lesions or poor coat condition outside normal shedding patterns may indicate health, nutritional or environmental issues.
Do antlers (if present) appear intact and healthy?	Both male and female reindeer grow antlers annually. During the growth phase antlers are covered in highly vascularised velvet tissue that is sensitive and prone to injury. Damage to antlers or velvet may indicate injury, inappropriate environments, unsuitable equipment or close human interaction.
Need to exhibit normal behaviour (Behaviour)	
Are animals able to express natural behaviours?	Reindeer normally spend large portions of the day foraging, ruminating, resting and moving between feeding areas. Restriction of space or frequent disturbance may limit the expression of these behaviours.
Do animals interact normally with conspecifics?	Reindeer are social herd animals that maintain structured dominance relationships and spacing within groups, which influence access to food, resting areas and movement patterns.
Are animals free to move away from people if they choose?	As a prey species, reindeer rely on the ability to regulate distance from perceived threats. Human presence and disturbance can disrupt normal spacing behaviour and may trigger avoidance responses.
Is human handling calm and appropriate?	Handling, restraint and forced proximity to people can generate behavioural disturbance and physiological stress responses
Are animals showing sustained vigilance behaviour?	Reindeer possess highly sensitive sensory systems and regularly scan their surroundings to detect potential threats. Prolonged or heightened vigilance behaviour may indicate perceived disturbance or environmental stressors.
Are abnormal or repetitive behaviours observed?	Repeated pacing, circling or persistent attempts to move away from stimuli may indicate frustration, stress or an inability to avoid perceived threats.
Do animals show startle or sudden avoidance responses to environmental stimuli?	Reindeer are highly sensitive to auditory and visual stimuli and may respond to sudden noise, movement or unfamiliar stimuli with startle or flight responses. Frequent startle reactions may indicate that animals perceive their environment as unpredictable or threatening.

4.0 SUMMARY OF OBSERVATIONS FROM THE FOOTAGE

The video materials reviewed show reindeer being used in a range of public entertainment contexts including garden centres, markets, seasonal light switch-on events, town centres and parades. This footage provides insight into the environments and management practices in which reindeer are commonly displayed during festive events. The following summary highlights recurring observations in relation to the five welfare needs set out under the Animal Welfare Act 2006 and the Animal Health and Welfare (Scotland) Act 2006.

The full event-level commentary and detailed observations for each recording are provided in **Appendix 1**.

4.1 Need for a suitable environment

The need for a suitable environment includes the provision of appropriate space, suitable ground surfaces, bedding or resting areas, protection from adverse weather, and the ability for animals to withdraw from disturbance. Reindeer are adapted to relatively open environments and rely on the ability to regulate their distance from perceived threats and rest undisturbed while ruminating^{4,6}.

Across the footage, reindeer were observed housed in temporary pens or required to move through busy public environments such as town centres, garden centres, markets and parade routes. These environments were often characterised by high levels of sensory stimulation, including loud noise, music, traffic, machinery, dogs and large numbers of people, including children. Enclosure sizes varied between events, but the majority were and offered limited opportunity for animals to move freely or withdraw from people. In many cases, reindeer were surrounded by members of the public on multiple sides, held by handlers using head collars, or required to stand in specific locations for public interaction. This limited the reindeers' ability to control their distance from people or avoid disturbance. Ground conditions and bedding provision varied widely between events and included grass, damp ground, tarpaulin, artificial grass, straw bedding, hard standing and tarmac road surfaces. In several enclosures the quantity of straw bedding appeared limited and was not sufficient to allow all animals to lie down comfortably at the same time. Where bedding is limited, damp or located on hard surfaces, this is likely to reduce resting comfort and may discourage animals from lying down.

Only two of the ten events provided more suitable environmental conditions, with sufficient bedding and distance from crowds, likely supporting the resting behaviour seen in the footage. In the Dunfermline event, several reindeer were observed lying down together on grass within a relatively spacious enclosure, appearing calm and resting. Similarly, at Waterperry Gardens, artificial grass was provided and a distance was maintained between the reindeer and members of the public, and they were observed lying down and ruminating. However, these examples were in the minority compared to the number of events where reindeer were housed in inappropriate environments.

Overall, the environments observed across many events differed substantially from the environments to which reindeer are adapted, particularly in terms of space, noise levels,

ground surfaces and the ability to withdraw from disturbance. As such, the need for a suitable environment was rarely met in these entertainment events.

4.2 Need for a suitable diet

Reindeer are ruminants adapted to consume fibrous vegetation such as lichens, grasses and shrubs and typically spend substantial periods foraging and ruminating^{10,12}. Access to appropriate forage and water is therefore essential for digestive health and normal behaviour.

From the footage available, it was not possible to determine the full feeding regime or nutritional management at each event. In some events, such as Lowes Farm Shop and The Woodthorpe, pelleted feed and hay were visible and animals were observed feeding or ruminating. However, in several other recordings, including Wincanton Christmas Lights and the Alma Arms Pub event, no clear provision of forage, feed or water was visible within the enclosure during the footage. In the Trioscape Garden Centre event, reindeer were observed being fed small treats by handlers during public interaction. Even where feed is provided, stress associated with transport, handling, noise and unfamiliar environments may reduce feeding and drinking behaviour. Reduced feeding behaviour may result in hunger or digestive disturbance, and sudden dietary changes or inappropriate feeding may result in gastrointestinal problems, which are known to occur in reindeer used in festive events¹.

Overall, while some provision of forage and feed was visible in certain events, the footage does not allow confirmation that animals had continuous access to appropriate forage and water throughout events, and feeding opportunities may have been limited or inconsistent in some cases.

4.3 Need to be able to exhibit normal behaviour patterns

The need to be able to exhibit normal behaviour patterns includes the ability for reindeer to move freely, rest, ruminate, forage and interact with conspecifics. Reindeer are a prey species and rely on the ability to move away from disturbance and control their proximity to potential threats¹⁶. The ability to control movement and interaction with the environment, sometimes referred to as behavioural agency, is an important component of animal welfare and mental state¹⁷.

Across multiple events, reindeer were observed wearing head collars, sometimes with additional harnesses, and were often held by handlers or positioned within enclosures where their movement appeared restricted. In several recordings, reindeer appeared to attempt to move away from people or interaction but were prevented from doing so by restraint equipment or handlers holding the reindeer in position. For example, in the Trioscape Garden Centre event, one reindeer repeatedly attempted to move away from members of the public touching it but was held in place by a handler directly holding onto the head collar. In parade events such as Cowbridge and Merry Milngavie, reindeer were required to move through crowded and noisy environments while closely controlled by handlers and, in some cases, pulling carriages. In these situations, the reindeer appeared to have little opportunity to alter direction, increase distance from crowds or withdraw from environmental stimuli. These situations represent a restriction of behavioural agency, in that reindeer had limited ability to make choices about their movement, social distance or interaction with their environment. Reduced

control over the environment and inability to withdraw from disturbance are associated with negative affective states such as fear, frustration and stress¹⁷.

Behavioural indicators consistent with vigilance in deer and other ungulates were observed across many recordings, including repeated scanning of the environment, raised head posture, visible eye white, ear flicking and frequent orientation towards surrounding activity^{16,18}. These behaviours were observed in multiple events including The Woodthorpe, Wincanton Christmas Lights and Merry Milngavnie. While vigilance is a normal behaviour in prey species such as reindeer, prolonged vigilance combined with an inability to withdraw from disturbance may indicate that the reindeer were unable to relax fully and may have been experiencing ongoing stress or perceived threat.

In a small number of recordings, reindeer were observed lying down, intermittently ruminating or resting. This occurred in events where crowd proximity and overall volume of people was lower and reindeer were not being actively handled or positioned for public interaction, particularly in the Dunfermline event and at Waterperry Gardens. These observations suggest that where reindeer are provided with space, reduced disturbance and the ability to withdraw from people, they are able to rest and ruminate and exhibit more relaxed behaviour. However, these situations appeared to be the exception rather than the norm across the events reviewed.

Overall, across several events the use of restraint equipment, restricted space, close public interaction and highly stimulating environments appeared to limit the reindeers' ability to move freely, control proximity to people, withdraw from disturbance and express normal behavioural patterns. As such, in several of the events observed the need to be able to exhibit normal behaviour patterns was not have been fully met.

4.4 Need to be housed with, or apart from, other animals.

The need to be housed with, or apart from, other animals relates to the social requirements of the species and the ability of reindeer to interact appropriately with conspecifics, maintain social relationships and regulate social distance. Reindeer are highly social herd form groups ranging from small herds to over 100 individuals, with a functional minimum around 30-35 animals for effective group cooperation and protection^{19,20}. Within these groups, they have complex dominance-subordination relationships, which influence movement, vigilance behaviour, access to resources and resting behaviour^{15,16}. The presence of familiar conspecifics can also facilitate provide social buffering, where the presence of other individuals reduces behavioural and physiological stress responses in challenging or unfamiliar environments²¹.

Positively, all events reviewed involved two or more individuals, meaning no reindeer were observed being exhibited alone. Reindeer were most commonly exhibited in pairs of adults, which allows some level of social contact but does not reflect the larger herd structures typical for the species. Reindeer were exhibited in larger groups in the minority of events; at the Dunfermline event, six adult reindeer were housed together in a relatively spacious grass enclosure and were observed lying down and ruminating in close proximity. In contrast, at the Merry Milngavnie event several reindeer (four adults and two calves) were housed together but showed heightened vigilance despite the presence of conspecifics. Whilst many factors limit a direct comparison, including

footage length and the presence of juveniles, this indicates that the presence of other reindeer alone does not necessarily mitigate stress.

The benefits of social housing depend not only on the presence of other reindeer and group size, but also familiarity and compatibility between individuals²¹. Although group composition is therefore an important factor in determining whether the social needs of reindeer are being met, this was not able to be assessed from the footage for most events. However, an example at the Verwood house care home suggests that the importance of group composition is being overlooked. At this event, two adult reindeer were in separate individual enclosures next to each other, held by handlers. Conversations between handlers and the audience audible in the footage suggest the male has been with the handlers for approximately three days and therefore could not be a familiar individual to the female. The grouping of unfamiliar individuals carries the risk of increased stress rather than the mitigation of negative states through social buffering. As such there is a risk that the grouping of individuals is decided by availability of animals rather than the suitability for meeting the social needs of reindeer.

Overall, while it is positive that reindeer were not exhibited alone, in the majority of events, the full social needs of reindeer were rarely met.

4.5 Need to be protected from pain, injury and disease

The need to be protected from pain, injury and disease includes provision of safe environments, appropriate handling, suitable transport and management practices that minimise the risk of injury, physical strain or illness. Assessment of this need considers both visible health indicators and environmental or management factors that may increase the risk of injury or discomfort.

From the footage available, most reindeer appeared to have generally healthy coats, body condition score and no obvious severe injuries were widely visible. However, there were some cases of injury visible on the footage, including broken antlers, a fetlock abrasion and possible lameness whilst in a reindeer pulling a sleigh at Merry Milngavie. Several reindeer observed in the footage were also in velvet, indicating active antler growth. During this stage, antlers are covered in highly vascularised tissue and are sensitive to contact and injury^{6,22,23}. Close confinement, head collars, harness equipment and movement through crowded environments increase the risk of antler trauma during this period. Although transport conditions were not visible in the footage, it suggests that reindeer are likely to have been transported during a period when they may be at increased risk of injury²². Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97 prohibit the transport of reindeer in velvet for this reason. Reindeer were also visibly exposed to physical risk from inappropriate surfaces. In some events reindeer were required to walk on tarmac roads, including painted road markings or stood on tarpaulin. In the Cowbridge Christmas Parade event, one reindeer was observed slipping and falling onto a knee whilst pulling a sled. Similarly at the Wincanton Christmas Lights, a startle interaction was observed between two reindeer when one reindeer startled the other from behind, causing a clear slip.

Considering the limitations of video footage and the propensity of reindeer, like many prey species, to mask signs of pain, injury or illness, the presence of visible injury and

risk for future injury in the footage shown is concerning. As such, in some events the need to be protected from pain, injury and disease need is unlikely to be met and needs further urgent assessment.

5.0 CONCLUSION

The footage reviewed in this report provides observational evidence of how reindeer are managed and displayed in practice across multiple events and locations, and suggests that the risk factors previously identified⁴ are not theoretical but occur in real event environments. Although individual events varied in their conditions, the conditions evident in the footage suggests that reindeer used in festive events are frequently exposed to multiple potential stressors simultaneously, including transport, confinement in temporary enclosures, loud noise, crowds, close human interaction, restraint and restricted movement. While any one of these factors alone may have a limited impact on welfare, the combination and repeated exposure to multiple stressors is likely to have a cumulative effect on the animals' welfare over time, affecting both physical health and psychological wellbeing.

Whilst this commentary is based on limited video footage and does not represent a full assessment, the environments, management practices and behavioural responses observed across multiple events suggest that there is a significant risk that the welfare needs set out under the Animal Welfare Act 2006 and the Animal Health and Welfare (Scotland) Act 2006 are not consistently being met. On this basis, the available evidence suggests that the use of reindeer in public festive events should be reconsidered until it can be demonstrated that these activities are fully compatible with the welfare needs of reindeer and compliant with relevant animal welfare legislation.

REFERENCES

1. McSloy A. Basic veterinary management of reindeer. *In Pract.* 2014;36(10):495-500. doi:10.1136/inp.g6675
2. Fletcher J. Reindeer health and welfare. *Vet Rec.* 2009;164(8):249-249. doi:10.1136/vr.164.8.249-a
3. Foster A, Wight A. Reindeer health and welfare. *Vet Rec.* 2022;191(11):453-455. doi:10.1002/vetr.2509
4. Hammond TJ. The welfare needs of captive reindeer used for entertainment events in the UK: a review. Published online 2023.
5. Mellor DJ, Beausoleil NJ, Littlewood KE, et al. The 2020 Five Domains Model: Including Human-Animal Interactions in Assessments of Animal Welfare. *Anim Open Access J MDPI.* 2020;10(10):1870. doi:10.3390/ani10101870
6. Geist V. *Deer of the World: Their Evolution, Behaviour, and Ecology.* 1st ed. Stackpole Books; 1998.
7. Pelletier M, Kotiaho A, Niinimäki S, Salmi AK. Identifying early stages of reindeer domestication in the archaeological record: a 3D morphological investigation on forelimb bones of modern populations from Fennoscandia. *Archaeol Anthropol Sci.* 2020;12(8):169. doi:10.1007/s12520-020-01123-0
8. Pokharel K, Weldenegodguad M, Dudeck S, et al. Whole-genome sequencing provides novel insights into the evolutionary history and genetic adaptation of reindeer populations in northern Eurasia. *Sci Rep.* 2023;13:23019. doi:10.1038/s41598-023-50253-7
9. Décory MSM. A Universal Definition of 'Domestication' to Unleash Global Animal Welfare Progress. *Derecho Anim Forum Anim Law Stud.* 2019;10(2):39. doi:10.5565/rev/da.424
10. Cronvall E, Adler S, Sandström P, Skarin A. Quantifying winter forage resources for reindeer: Developing a method to estimate ground lichen cover and biomass at a local scale. *Trees For People.* 2025;19:100768. doi:10.1016/j.tfp.2024.100768
11. Perra M, Brinkman T, Scheifele P, Barcalow S. Exploring auditory thresholds for Reindeer, *Rangifer tarandus.* *J Vet Behav.* 2022;52-53:37-44. doi:10.1016/j.jveb.2022.05.002
12. Heggberget TM, Gaare E, Ball JP. Reindeer (*Rangifer tarandus*) and climate change: Importance of winter forage. *Rangifer.* 2002;22(1):13. doi:10.7557/2.22.1.388
13. Dominy NJ, Hobaiter C, Harris JM. Reindeer and the quest for Scottish enlivenment. *-Percept.* 2023;14(6):20416695231218520. doi:10.1177/20416695231218520
14. Moen J, Holand Ø, Kumpula J, Horstkotte T. *Reindeer Husbandry and Global Environmental Change: Pastoralism in Fennoscandia.* 1st ed. Routledge; 2022. doi:10.4324/9781003118565
15. Espmark Y. Studies in dominance-subordination relationship in a group of semi-domestic reindeer (*Rangifer tarandus* L.). *Anim Behav.* 1964;12(4):420-426. doi:10.1016/0003-3472(64)90061-2
16. Beauchamp G. *Animal Vigilance: Monitoring Predators and Competitors.* Academic Press; 2015.
17. Špinka M. Animal agency, animal awareness and animal welfare. *Anim Welf.* 2019;28(1):11-20. doi:10.7120/09627286.28.1.011
18. Lambert (Proctor) HS, Carder G. Looking into the eyes of a cow: Can eye whites be used as a measure of emotional state? *Appl Anim Behav Sci.* 2017;186:1-6. doi:10.1016/j.applanim.2016.11.005
19. Paine R. Reindeer and caribou *Rangifer tarandus* in the wild and under pastoralism. *Polar Rec.* 1988;24(148):31-42. doi:10.1017/S0032247400022324
20. Baskin LM. Differences in the ecology and behaviour of reindeer populations in the USSR. *Rangifer.* 1986;6(2):333. doi:10.7557/2.6.2.667
21. Hennessy MB, Kaiser S, Sachser N. Social buffering of the stress response: Diversity, mechanisms, and functions. *Front Neuroendocrinol.* 2009;30(4):470-482. doi:10.1016/j.yfrne.2009.06.001
22. Laaksonen S, Jokelainen P, Pusenius J, Oksanen A. Is transport distance correlated with animal welfare and carcass quality of reindeer (*Rangifer tarandus tarandus*)? *Acta Vet Scand.* 2017;59(1):17. doi:10.1186/s13028-017-0286-z
23. Tryland M, Kutz SJ, eds. *Reindeer and Caribou: Health and Disease.* CRC Press, Taylor & Francis Group; 2019.

APPENDIX 1 EVENT-LEVEL OBSERVATIONS

The following section provides technical commentary on video materials relating to reindeer used in public entertainment events. Observations are based solely on the footage provided and reflect behavioural and environmental indicators visible within the recordings. The commentary is not intended to represent a full welfare assessment but highlights observable factors relevant to the welfare needs of reindeer.

Event 1: Lowes Farm Shop, Cheshire

Footage information: Three videos 41 to 27 seconds long. Provided by Animal Aid.



Need for a suitable environment: The footage shows two reindeer within a fenced enclosure at a garden centre event. The enclosure appears to be approximately 16 ft by 16 ft. Members of the public are present nearby and music and children are audible in the background. The reindeer are positioned on a hard surface with a small quantity of straw present. The amount of bedding visible appears limited and may not allow both animals to lie down comfortably at the same time. Members of the public appear able to approach the enclosure from two sides, although they retain some opportunity to move away from people within the space available. Both are wearing head collars.

Need for a suitable diet: Two buckets containing pelleted feed are present in the enclosure and both animals are intermittently observed feeding from them. Based on the footage it is not possible to determine whether the feed provided is nutritionally appropriate for reindeer. No forage or fresh water is visible within the enclosure during the recording. Reindeer are adapted to spend substantial periods foraging and ruminating, typically consuming fibrous vegetation such as lichens, grasses and shrubs. The limited feeding opportunities visible in the footage may therefore restrict the expression of natural foraging behaviour.

Need to be able to exhibit normal behaviour patterns: Both reindeer move intermittently around the enclosure and appear alert to their surroundings. The adult is

observed grooming, which is a normal maintenance behaviour. At one point the adult reindeer raises its head and orients towards an undetermined stimulus. During this posture a small amount of visible eye white can be seen. This posture is consistent with vigilance behaviour, which prey species such as reindeer commonly display when monitoring their surroundings for potential disturbance. The juvenile is observed chewing on a metal sign attached to the enclosure with the information that reindeer are 'domesticated'. This behaviour may reflect exploratory behaviour but could also occur in environments where opportunities for natural foraging or environmental interaction are limited.

Need to be housed with, or apart from, other animals: The footage shows two reindeer, consisting of one adult and one juvenile. Reindeer are social herd animals that normally live in larger groups where social interactions influence movement, vigilance behaviour and access to resources. Exhibiting reindeer in pairs may allow some social interaction but does not reflect the larger herd structures typically observed in natural or semi-domesticated populations.

Need to be protected from pain, suffering, injury and disease: Both animals appear to be in generally good body condition, with no visible signs of injury or lameness observed during the recording. Coat condition appears normal with no obvious hair loss or lesions visible. The adult is observed in velvet, indicating active antler growth. During this stage the velvet covering the antlers contains a rich blood supply and can be sensitive to injury if antlers contact hard surfaces or enclosure structures.

Event 2: The Woodthorpe, Manchester

Footage information: Two videos 1min38 and 2min35 seconds long. The footage consists primarily of a close-up recording of a conversation with a handler. The conversation itself is difficult to hear and is not used for the purposes of animal welfare assessment. Provided by Animal Aid.



Need for a suitable environment: The close camera framing limits the ability to assess the wider enclosure conditions; however, one of the two reindeer is clearly visible and the presence of a second animal lying down can be seen. Straw bedding is visible within the enclosure. Forage provision appears to be present in the form of a hay net, although it is not possible to determine the quantity or quality of the forage from the footage. Weather conditions appear rainy and damp, and rain appears to be entering the enclosure from the sides. The footage indicates close proximity between the animals and members of the public. One reindeer is wearing a head collar attached to a rope held by a handler within the enclosure, which appears to limit the animal's ability to move away from nearby people. Live and loud music from a brass band, bells and children can be heard in the background, indicating a noisy and potentially unpredictable environment.

Need for a suitable diet: Forage appears to be provided in the form of a hay net, although the quantity and suitability of the forage cannot be determined from the footage. Straw bedding is also visible. It is not possible to determine whether fresh water is available within the enclosure from the camera angle. One of the animals visible in the footage is observed ruminating, indicating that some feeding has occurred prior to or during the recording.

Need to be able to exhibit normal behaviour patterns: One reindeer is observed lying down, while the other remains standing on a head collar held by the handler. The standing animal is intermittently observed ruminating, but also shows periods of alertness, orienting towards environmental stimuli. The animal raises its head on

several occasions and scans its surroundings. During some of these postures visible eye white can be observed, consistent with vigilance behaviour commonly displayed by prey species monitoring their surroundings.

Need to be housed with, or apart from, other animals: The footage shows two reindeer present within the enclosure, one lying down and the other standing. Reindeer are social herd animals that normally live in larger groups where social interactions influence movement, vigilance behaviour and access to resources. Exhibiting reindeer in pairs may allow some social interaction but does not reflect the larger herd structures typically observed in natural or semi-domesticated populations.

Need to be protected from pain, suffering, injury and disease: Both animals appear to be in generally good body condition, with coat condition appearing normal. Both animals are observed in velvet, indicating active antler growth. One of the animals has a broken antler, which appears considerably shorter than the other antler and ends in a blunt point. During the velvet stage, antlers contain a rich blood supply and can be sensitive to contact. In the footage the animal moves away when the handler attempts to touch this area, which may indicate sensitivity or pain. The standing animal is also observed panting or breathing heavily at times, interspersed with periods of rumination and alert scanning of the environment.

Event 3: Verwood House Care Home, Bournemouth

Footage information: Four videos between 6 and 42 seconds long. Provided by Animal Aid.



Need for a suitable environment: The footage shows two adult reindeer housed in separate individual enclosures surrounded by standard sheep pen gates, with an approximate total area of 8 ft by 4 ft each. Both animals are either held by handlers or tied to the enclosure fencing, and the rope does not appear to include a visible safety knot. The animals are positioned on damp grass and appear to be located beneath an awning, providing some overhead shelter. Weather conditions appear cold and wet. Members of the public appear to be positioned behind a barrier, which limits their ability to directly touch the animals. However, the animals are held within small individual enclosures, and handlers remain in close proximity to each animal throughout the footage. Due to the enclosure size and the animals being held or tied by handlers, the reindeer appear to have limited opportunity to move away from people within the space available.

Need for a suitable diet: Forage appears to be provided in buckets within the enclosures. In the footage, pelleted feed appears to be provided on top of the forage for the female. Additional buckets can be seen beside the enclosures; however, it is not possible to determine from the footage whether these contain water, forage, or pelleted feed.

Need to be able to exhibit normal behaviour patterns: The limited size of the individual enclosures and the animals being held or tied by handlers appears likely to restrict their ability to move freely or regulate distance from nearby human activity. The footage does not clearly show the animals moving sufficiently to allow detailed observation of their behaviour or locomotion.

Need to be housed with, or apart from, other animals: The two reindeer are housed in separate individual enclosures positioned next to each other. Reindeer are social herd animals that normally live in larger groups where social interactions influence movement, vigilance behaviour and access to resources. Housing animals in individual enclosures may therefore limit opportunities for normal social interaction, although the

animals remain within visual proximity of one another. Comments audible in the footage indicate that one animal is male and the other female, although this cannot be independently verified from the recording. In reindeer, males may show increased aggression and territorial behaviour during the rutting season, which typically occurs in autumn. The footage does not allow assessment of the animals' reproductive status or seasonal behavioural context.

Need to be protected from pain, suffering, injury and disease: Both animals appear to have generally healthy body condition and coat condition based on the footage available. Both individuals are observed in velvet, indicating active antler growth. Both animals appear to have one antler that has broken off, resulting in asymmetrical antler structures visible in the footage. During the velvet stage, antlers contain a rich blood supply and can be sensitive to injury. A rub or abrasion appears to be present on the left hind fetlock of the male, although the footage does not allow detailed assessment of this area. The footage does not clearly show the animals moving sufficiently to determine whether lameness or gait abnormalities are present. Conversations between handlers audible in the footage suggest the male has been with the handlers for approximately three days. These statements are based on comments audible within the recording and cannot be independently verified from the footage.

Event 4: Wincanton Christmas Lights

Footage information: Two videos between 15min56 and 2min11 long, Provided by Animal Aid.



Need for a suitable environment: The footage shows two adult reindeer within a temporary enclosure positioned on a town centre street, apparently as part of a market or seasonal event taking place during the afternoon or early evening. Members of the public are able to approach the enclosure from three sides, and individuals, including children, are intermittently observed reaching out to touch the animals during the recording. Both reindeer are held by handlers using head collars, and the handlers remain positioned close to the animals throughout the footage. Straw bedding is visible on the ground; however, the quantity appears limited and shallow, and does not appear sufficient to provide substantial insulation or thermal comfort. The animals appear to be standing on a hard surface with only a thin layer of bedding. The surrounding environment appears busy and noisy, with crowds present and loud machinery or traffic audible nearby. The enclosure is positioned close to several market stalls and food vendors, and dogs are observed approaching the enclosure during the recording, which may further increase environmental stimulation.

Need for a suitable diet: From the footage available, no clear provision of forage, feed or water is visible within the enclosure. The recording suggests the animals may have arrived in a standard Ifor Williams horse box, although no forage provision can be seen inside the vehicle during the brief view available.

Need to be able to exhibit normal behaviour patterns: The animals appear to have some limited ability to move within the enclosure, although members of the public are able to approach and touch them from several sides. Both reindeer are held on head collars by handlers, suggesting some restriction of movement. During the footage, one reindeer is briefly observed ruminating, which is a normal digestive behaviour. This behaviour is interrupted when the animal is startled from behind by the second reindeer, at which point the animal appears to slip slightly while regaining balance.

At other points in the recording the animals are observed moving repeatedly within the enclosure, showing frequent ear flicking, head movements and alert postures while

monitoring the surrounding environment. Both animals appear responsive to activity around the enclosure, including the presence of people, dogs and nearby noise from roadworks. These behaviours are consistent with vigilance responses, which prey species such as reindeer commonly display when exposed to multiple environmental stimuli.

Need to be housed with, or apart from, other animals: The footage shows two reindeer housed within the enclosure. Reindeer are social herd animals, and the presence of another individual may allow some degree of social interaction. The startle response suggests some level of dominance hierarchy between the two animals.

Need to be protected from pain, suffering, injury and disease: Both animals appear to have intact coats and antlers, and no obvious external injuries are visible from the available footage. However, both reindeer appear relatively lean in body condition, with the outline of the spine, ribs and pelvic bones visible. This may indicate a lower body condition score, although a full assessment cannot be made from the footage alone. No clear signs of lameness are visible. However, the brief slip observed when one animal is startled may indicate that the ground surface provides limited traction, particularly where bedding coverage is shallow.

Event 5: Waterperry Gardens, Oxford

Footage information: Two videos 13min50 and 17min01 long. Provided by Animal Aid.



Need for a suitable environment: The footage shows two adult reindeer in a courtyard on a sunny afternoon. One animal is standing, the other lying down. Members of the public can approach on all sides, although a distance of approximately five metres is maintained. Astroturf is provided as a non-slip surface for lying down. The environment is noisy, with children and crowds contributing to elevated auditory stimulation.

Need for a suitable diet: From the footage, it is only partially clear that forage is available in the bucket, and the amount or type cannot be confirmed. A bucket, potentially containing water, is positioned near the edge of the enclosure closest to the public.

Need to be able to exhibit normal behaviour patterns: The animals have some ability to move within the courtyard, although their movement may be influenced by the proximity of people and the presence of head collars. Both reindeer are observed ruminating, which is a normal digestive behaviour, though the lying animal shows periods of heavy breathing. Repeated scanning of the environment, ear flicking, and head movements indicate vigilance responses to crowd noise, environmental stimuli, and other activity in the courtyard.

Need to be housed with, or apart from, other animals: The footage shows two reindeer together. As social herd animals, this allows some degree of social interaction. Occasional startle or vigilance responses may reflect social dynamics between the two.

Need to be protected from pain, suffering, injury and disease: Both animals appear to have intact coats and antlers. No visible injuries or lameness are observed, although only one animal's movement is fully visible. The lying animal shows heavy breathing intermittently. Overall body condition appears good, with no obvious signs of poor health, though a full assessment is limited by the footage. One adult is observed moulting during the recording.

Event 6: Cowbridge Christmas Parade

Footage information: Three videos between 12 and 20 seconds long. Provided by Born Free.



Need for a suitable environment: The footage shows two adult reindeer being used during a Christmas parade taking place in the late evening along a residential street. Crowds are positioned on both sides of the road, creating a corridor of people along the parade route. The environment appears loud and busy, with crowd noise clearly audible, and bright artificial lighting and loud music associated with the parade.

One reindeer is being led at the front by a handler using a harness. A second reindeer follows behind and is pulling a small carriage containing an adult passenger. A handler walks beside the reindeer pulling the carriage from the front, and the carriage also appears to be pushed from behind by several individuals. In total, approximately seven people are positioned around the carriage and animals, including handlers and individuals assisting with the carriage. The animals are required to move along a tarmac road surface in close proximity to crowds, motorcycles, vehicles and other parade participants. During the recording, one of the reindeer slips while crossing painted road markings and falls briefly onto one knee before regaining footing, suggesting reduced traction on the road surface. Following this incident, the animal appears to veer off its original path and momentarily move away from the handlers, indicating that control of the animal may be reduced at that point.

Need to be able to exhibit normal behaviour patterns: Both reindeer are observed moving quickly through the parade environment while being closely controlled by handlers. The animals appear to have little opportunity to alter direction or increase distance from surrounding crowds, vehicles or noise. The reindeer pulling the carriage shows visible eye white for sustained periods, while both animals display raised head posture and repeated scanning of their surroundings. These behaviours are consistent with heightened vigilance responses, which prey species may display when exposed to

unfamiliar or unpredictable stimuli. The presence of loud music, crowd noise, bright lighting, moving vehicles and close human proximity, combined with the animals being required to pull a carriage through the environment, indicates that the animals are moving through a highly stimulating and unpredictable setting.

Need to be housed with, or apart from, other animals: The footage shows two reindeer moving behind each other within approximately 10 feet during the parade but do not have the opportunity for social interaction.

Need to be protected from pain, suffering, injury and disease: Due to the distance and lighting conditions, detailed assessment is limited. However, coat condition, body condition and antler condition appear generally normal from the footage available. No clear signs of lameness are visible during the short recording. The incident in which one reindeer slips on painted road markings and falls onto one knee, followed by a moment where the animal appears to veer away from the handlers, highlights the potential risk associated with requiring reindeer to move on hard road surfaces while pulling a load in a crowded environment.

Event 7: Alma Arms Pub

Footage information: Three videos between 15 and 22 seconds long. Provided by Freedom for Animals.



Need for a suitable environment: The footage shows two juvenile or early adult reindeer within a small enclosure estimated to be approximately 8 ft by 8 ft. The animals are positioned under an awning within a busy market stall area in a town centre, in close proximity to other attractions and near a road. The enclosure floor appears to consist of a tarpaulin surface partially covered with straw. The straw does not fully cover the ground surface and appears limited in quantity. This may reduce traction on the tarpaulin surface and could potentially create a slip hazard, particularly where the underlying surface remains exposed. The quantity of straw visible does not appear sufficient to allow both animals to lie down comfortably at the same time. The enclosure appears relatively dark and enclosed, and members of the public are positioned very close to the animals on multiple sides of the enclosure.

A crowd of more than ten people is visible in the footage, and members of the public appear able to reach toward and touch the animals from different sides of the enclosure. Given the small enclosure size, the animals appear to have little opportunity to increase distance from people or withdraw from interaction. In addition, very loud roadworks can be clearly heard in the background of the recording, and the footage indicates that the animals are positioned within approximately 10 metres of ongoing construction activity, including digging work. This produces continuous mechanical noise during the recording. Combined with market activity, nearby traffic and public presence, the animals appear to be located within a highly stimulating environment with multiple sources of disturbance.

Need for a suitable diet: From the footage available, no provision of forage, feed or water is visible within the enclosure.

Need to be able to exhibit normal behaviour patterns: Both animals are observed standing within the enclosure wearing head collars. The limited enclosure size may restrict the animals' ability to move freely or increase distance from surrounding activity and members of the public. Members of the public appear able to touch the animals from multiple sides of the enclosure, and the animals appear to have little ability to control proximity to these interactions. Reindeer are prey animals that typically maintain spatial distance from unfamiliar stimuli, and environments where animals are surrounded by people with limited opportunity to withdraw may restrict this natural behavioural response. Due to the short duration and restricted quality of the footage, it is not possible to clearly assess behavioural responses or determine the extent to which the surrounding environment, including nearby construction noise and public activity, may be influencing the animals' behaviour.

Need to be housed with, or apart from, other animals: The footage shows two reindeer housed together within the enclosure. Reindeer are social herd animals, and housing animals together allows some level of social interaction.

Need to be protected from pain, suffering, injury and disease: Both animals appear to have generally good body condition, and coat condition appears normal based on the limited footage available. Antlers appear intact and are not in velvet. No obvious signs of lameness or visible injury can be identified from the recording.

Event 8: Merry Milngavnie

Footage information: Seven videos between 9 and 35 seconds long. Provided by OneKind.



Need for a suitable environment: The footage shows three adult reindeer and two juveniles in two different contexts: first within a temporary pen located in what appears to be a car park, and later walking through a busy town centre while pulling a sleigh. The ground conditions appear wet and damp, and the animals do not appear to have access to shelter or protection from the weather. Straw bedding is visible within the pen, however the quantity appears limited and likely damp given the weather conditions, which may reduce its effectiveness in providing insulation or thermal comfort. The amount of straw also does not appear sufficient for all animals to lie down comfortably at the same time, and during the footage all animals are observed standing. Members of the public are able to surround the pen on three sides, and there appears to be some opportunity for the animals to move away from people or withdraw from the interaction.

The footage later shows two adult reindeer pulling a sleigh along a busy town centre street during what appears to be a parade, with large crowds lining both sides of the route. The remaining two adults and two juveniles follow closely behind held by one handler. The crowd appears to be within approximately six feet of the animals as they pass, and the environment is very noisy with shouting, children shouting and large numbers of people present.

Need for a suitable diet: Buckets containing pelleted feed are visible within the pen. However, no forage or fresh water are visible within the enclosure during the footage. Reindeer typically consume fibrous forage and spend significant periods feeding and ruminating. The limited feeding resources visible in the footage may therefore restrict normal feeding behaviour, although the footage duration is insufficient to confirm overall feeding provision.

Need to be able to exhibit normal behaviour patterns: All animals are observed wearing harnesses or head collars during parts of the recording. One adult reindeer is shown being fitted with a harness, during which the animal appears visibly

uncomfortable. While the girth strap around the abdomen is tightened, the animal is observed freezing in posture, displaying visible eye white and shifting its body position, behaviours that may occur when animals experience discomfort or heightened vigilance. Within the pen, three adult reindeer are observed standing with raised head posture and visible eye white, and there is no clear indication of rumination behaviour during the footage. These postures are consistent with vigilance behaviour, which prey species such as reindeer may display when monitoring potentially disturbing stimuli in the surrounding environment. The footage also shows one reindeer within the pen interacting with decorative foliage and sleigh decorations, which appear to include artificial materials. This behaviour could reflect exploratory behaviour or attempts to forage, and raises the possibility that non-food materials could potentially be ingested.

During the parade sequence, two adult reindeer are observed pulling a sleigh carrying two children and one adult. The animals move through a very busy town centre environment with dense crowds positioned close to the route. At one point a handler appears to pull on the head collar rope, after which the reindeer visibly shake their heads, behaviour that may occur when animals attempt to relieve pressure from head equipment.

Need to be housed with, or apart from, other animals: The footage shows four adult reindeer and two juveniles present together, which may allow some degree of social interaction. Reindeer are social herd animals, and group housing can support normal social behaviour.

Need to be protected from pain, suffering, injury and disease: Based on the footage available, all animals appear to have generally good body condition and coat condition, and antlers appear intact and in velvet. No obvious external injuries are visible. However, during the parade sequence the adult reindeer closest to the camera pulling the sleigh appears to show signs of lameness in the front right limb.

Event 9: Dunfermline

Footage information: Two videos 14 and 22 seconds long. Provided by OneKind.



Need for a suitable environment: The footage is limited in duration and detail but shows what appear to be six adult reindeer lying down on a grassy area within a relatively spacious enclosure. The ground surface appears to consist of grass, and the animals are resting in a group. From the footage available, the enclosure appears to provide sufficient space for the animals to lie down and rest comfortably. Due to the short duration and restricted view of the enclosure, it is not possible to determine the full enclosure size, presence of shelter, or proximity of members of the public.

Need for a suitable diet: Buckets containing pelleted feed are visible within the enclosure. From the limited footage available it is not possible to determine whether additional forage or water are present, or whether the pellets are nutritionally appropriate for reindeer. None of the animals are visibly feeding or ruminating during the recording.

Need to be able to exhibit normal behaviour patterns: All six animals are observed lying down together, appearing calm and stationary. The animals do not display obvious vigilance behaviour, such as repeated head raising or scanning of the environment, during the short recording. Resting behaviour is a normal component of reindeer daily activity, and the animals appear settled and relaxed within the enclosure during the footage available.

Need to be housed with, or apart from, other animals: The footage shows six reindeer resting together within the enclosure. Reindeer are social herd animals, and group housing may allow animals to maintain social proximity and interact with conspecifics.

Need to be protected from pain, suffering, injury and disease: From the limited footage available, the animals appear to have generally healthy body condition and coat condition. Due to the short duration and limited camera angles, detailed assessment of health indicators, locomotion or potential injuries is not possible.

Event 10: Trioscape Garden Centre

Footage information: Four videos between 27 seconds and 2min57 long. Provided by OneKind.



Need for a suitable environment: The footage shows two reindeer within a busy garden centre environment, with members of the public standing very close to the animals. Both reindeer are wearing bells and are held by handlers using head collars and ropes. Throughout the recording, the animals are kept positioned close to the public by the handlers, and their movement appears restricted in order to allow continued interaction with visitors. Some straw is visible on the ground, although the quantity appears limited and does not appear sufficient to allow both animals to lie down comfortably.

Need for a suitable diet: During the interaction with the public, the reindeer are observed being fed small treats by a handler while people are touching them. From the footage it is not possible to determine whether additional forage, feed or water are available elsewhere within the enclosure.

Need to be able to exhibit normal behaviour patterns: During the recording, one of the reindeer repeatedly attempts to move away from the interaction with members of the public, pulling its head and body backwards while adults and children continue attempting to touch it. The handler maintains control of the animal by placing their hands through the head collar and gripping the collar directly, using this position to hold the animal in place and prevent it from moving away. While the animal attempts to withdraw, the head collar is pulled tightly against the animal's face, and at several points the collar appears to press into the area around the animal's eye. Despite the animal repeatedly attempting to increase distance from the people touching it, the handler continues to hold the animal in position close to the public. Both handlers remain very close to the animals and maintain continuous physical restraint, preventing the animals from exhibiting agency. After approximately two and a half minutes of the recording, one of the animals is briefly allowed to move towards the back of the

enclosure away from the people touching it. When the second animal attempts to follow, the handler physically prevents it from moving and keeps it positioned near the public.

Both animals show visible eye white during parts of the recording, and the animal being restrained repeatedly orients away from the people attempting to touch it, behaviours consistent with heightened vigilance and attempts to avoid the interaction.

Need to be housed with, or apart from, other animals: The footage shows two reindeer present together within the enclosure. Based on differences in antler development between the animals, it is possible that one animal may be younger than the other, although this cannot be confirmed from the footage. The level of restraint restricts interaction between social animals.

Need to be protected from pain, suffering, injury and disease: Both animals appear to have generally healthy body condition and coat condition based on the footage available. No obvious signs of lameness are visible during the recording.