
Case report

Wildlife portrayals, media production structures, and animal welfare: A report on institutional gaps and comparative practices in Japan

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Abstract: Animal welfare must be examined through two interconnected layers: (1) the scientific layer, which evaluates an individual's welfare state; and (2) the social implementation layer, in which scientific understanding is integrated into institutions, norms, and practical applications. This study focuses on wildlife trade and media portrayals in Japan as a domain in which these two layers are simultaneously compromised. Specifically, we compared (1) the explicit inclusion of animal welfare in broadcasting standards and production guidelines; (2) illustrative wildlife portrayals in Japanese television programs, examined for the presence of welfare-relevant contextual information; and (3) welfare-oriented information practices in two selected zoo cases. Our findings indicate that, within the Japanese broadcasting frameworks reviewed, explicit mechanisms for integrating production-stage animal welfare and demand-related considerations into media production remain limited. The selected zoo cases illustrate how contextual information, relevant professional expertise, and attention to visitor behavior can be incorporated into public communication. These comparative results suggest that animal welfare can be embedded in media production in ways compatible with freedom of expression when welfare-relevant considerations are integrated into production and editorial decisions. Potential implementation conditions include welfare-informed planning, relevant expert involvement, and contextual information that reduces misinterpretation and demand-related risks.

Keywords: animal welfare; wildlife trade; media portrayals; demand creation; zoo education; animal-visitor interaction

1. Introduction

Animal welfare is a “socially mandated science” in which scientific objectivity intersects with social ethical judgments, reflecting a broad concept that incorporates the values and policies of diverse stakeholders [1,2]. Accordingly, animal welfare can be examined at two analytically connected layers: first, the scientific assessment of an individual's “welfare state,” and second, the “social field” in which this scientific understanding is implemented through social institutions and norms. The former, “welfare state,” is defined by the WOA (World Organisation for Animal Health) as “the physical and mental state of an animal in relation to the conditions in which it lives and dies” and is scientifically evaluated using the five domains model [3,4]. While welfare definitions vary in the literature [5–8], the WOA definition was adopted here as the most broadly recognized international standard, which encompasses both physical and mental dimensions and provides a shared foundation across diverse stakeholders [9]. Conversely, the latter is an institutional domain in which scientific knowledge is expected to be translated into social practices, such as legal systems, industry standards, professional ethics, corporate risk management, education, and media representation, to ensure welfare across society. Advances in the scientific assessment of individual welfare states (Layer 1), including the assessment of cumulative lifetime experiences [2], do not by themselves ensure improved welfare outcomes. Such knowledge must also be translated into social practice through the institutional arrangements of social field (Layer 2), including legislation, industry standards, professional oversight, and production practices. Where this translation is absent or inadequate, the conditions that generate welfare risks may remain unregulated or normalized, allowing those risks to persist or recur (Figure 1).

The extent to which this translation is achieved varies across sectors and national contexts, and this study examines a domain that remains critically underdeveloped. Media portrayals of wildlife represent a particularly critical site of such concerns because they operate at the intersection of demand formation and institutional governance, and portrayals that normalize ownership or obscure welfare costs can stimulate demand across the entire supply chain [10–13]. However, in many national contexts, including Japan, no institutional mechanism exists to assess or mitigate these effects. Based on this framework, this study focuses on wildlife trade and media portrayals in Japan, a domain in which concerns about animal welfare can arise simultaneously at both layers.

The wildlife trade is a field in which animal welfare is often severely compromised at both the individual and institutional levels. More than 420 million wild-caught individuals of species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), an international agreement governing cross-border trade in listed wild animal and plant species, were traded internationally between 1998 and 2018, encompassing approximately 4,000 species, particularly reptiles, birds, and small mammals [14,15]. Although this trade encompasses diverse end uses, this report focuses on live wild animals, whether wild caught or captive bred, traded for private keeping, including pets, or for related commercial uses, including commercial display and media production. Within this scope, because animals must remain alive throughout the supply chain (capture in habitat or captive breeding, domestic transport, consolidation, international transport, wholesale, retail, and keeping; Figure 1), they are exposed to cumulative welfare risks, including restraint, overcrowding, dehydration, starvation, thermal stress, injury, and disease at each stage of the supply chain [16–18]. These compounding stressors result in persistently low welfare states across a wide

range of traded taxa, with mortality rates reaching up to 75% in some taxa [16–18]. Thus, at the individual level (Layer 1), live wildlife trade and subsequent keeping can systematically undermine animal welfare.

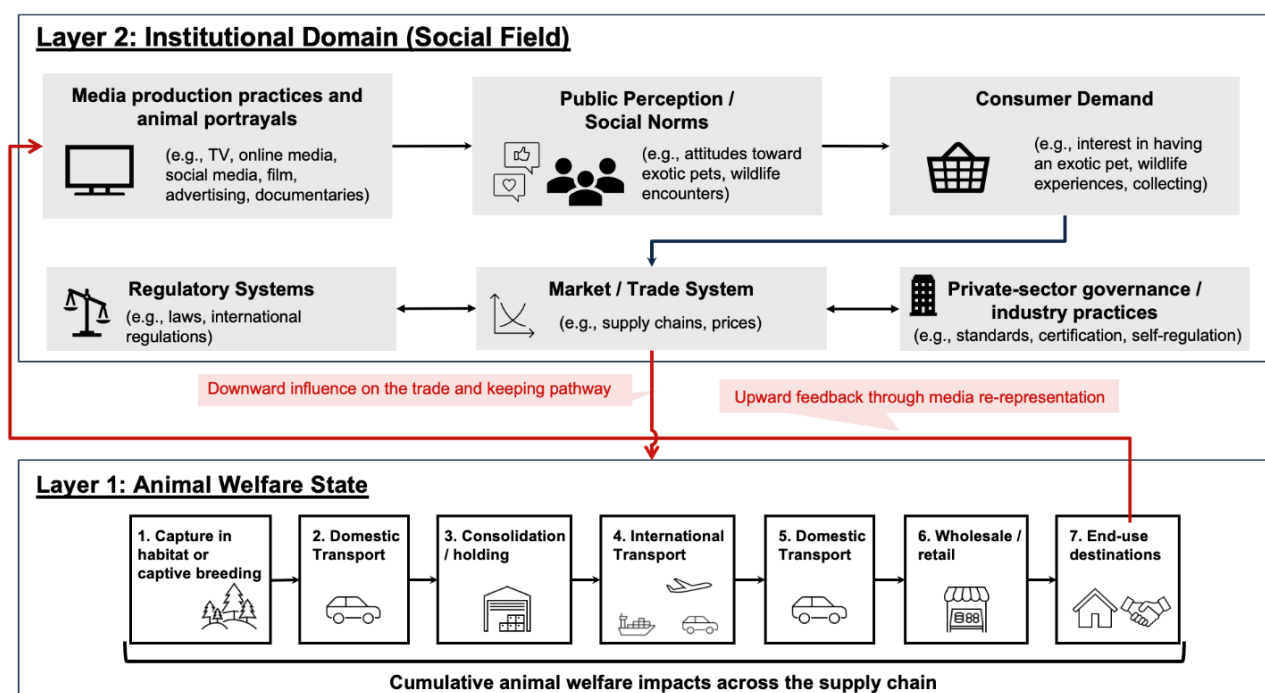


Figure 1. Dual-layer framework of animal welfare in wildlife trade systems. The upper portion (Layer 2: Institutional Domain) represents the social and institutional processes that shape wildlife trade outcomes, including production practices and animal portrayals, public perception and social norms, consumer demand, and governance structures (regulatory systems, market mechanisms, and private sector governance). The lower portion (Layer 1: Animal Welfare State) represents the cumulative welfare impacts experienced by individual animals across the supply chain, from capture in wild habitats or captive breeding through transport, consolidation, wholesale and retail, and end-use destinations. Black arrows indicate relationships within each layer. Red arrows indicate cross-layer mechanisms: demand and market dynamics influence the scale and conditions of the trade and keeping pathway (downward), while animals in trade, captivity, commercial display, or media production may be re-represented through media, potentially reinforcing demand and welfare risks (upward).

Moreover, animal welfare problems in the wildlife trade systems are not limited to direct welfare risks within the trade and keeping pathway (Layer 1). They are also shaped and amplified by processes in the institutional domain (Layer 2), including demand formation, regulatory frameworks, and media representation, which influence both the scale and conditions of trade. In Japan, this has resulted in a structure in which low-welfare states can be easily reproduced and accumulated. Japan's current legislation (“Act on Welfare and Management of Animals”) establishes general duties and management requirements for animal-handling businesses, but enforceable numerical standards have been specified primarily for dogs and cats [19,20]. The broader standards for household and exhibition animals set out general principles of care but do not provide equivalent species-specific numerical

requirements for most wild and exotic animals [21,22], although governmental discussions on standards for non-dog and non-cat mammals are underway [23]. Animal welfare concerns in Japan have been documented, particularly in commercial display settings. For example, studies on exotic animal cafés have reported large numbers of exotic and CITES-listed species kept in commercial display settings, often under conditions associated with poor welfare outcomes [24,25]. Policy analyses and advocacy reports have further highlighted regulatory gaps, including insufficient national standards and limited traceability for exotic species, as well as the potential presence of illegally traded animals in commercial facilities [26]. In addition, Japan has been identified as a major destination market for certain wildlife trade, including slow lorises and ivory, with documented weaknesses in terms of enforcement and regulatory oversight [27,28].

Beyond these regulatory gaps, the culturally embedded concept of “animal aigo” (animal loving/care), which is deeply rooted in Japanese historical and cultural contexts, is often conflated with scientifically grounded notions of animal welfare, blurring the distinction between emotional concern for animals and welfare as an evidence-based concept [29]. Specifically, “animal aigo” is a fundamentally anthropocentric concept that prioritizes human-side emotional dispositions, such as compassion, the moral imperative not to harm, and risk avoidance [29]. In contrast, scientific animal welfare is an animal-centric concept that objectively evaluates the physical and mental state of an individual animal [1,2]. These concepts should not be treated as interchangeable, and this distinction is relevant to Layer 2 as part of the social and institutional context through which animal welfare is understood and implemented.

Among the institutional processes that shape demands within this structure, the media play a crucial role. It shapes public perception and normalizes certain forms of human–animal relationships, thereby influencing consumer demand and reinforcing welfare risks across the supply chain (Figure 1). Visual images of animals have been shown to influence attitudes, donation behavior, pro-environmental behavior, and ownership intent (Figure 1). While digital platforms enable the dissemination of conservation messages, they also amplify portrayals depicting close human–wildlife interactions or portraying wild animals as “cute” and manageable, which can unintentionally normalize ownership and increase demand [10–13]. For instance, a study investigating YouTube videos of slow lorises reported that 11.2% of comments expressed ownership intent, such as “I want one” or “Where can I get one,” suggesting a potential increase in demand [11]. Notably, this was the second-most-frequent type of comment recorded overall. In the video’s initial months, the figure reached 25%, suggesting significant potential for increased demand [11]. These findings indicate that media portrayals do more than reflect existing preferences: they may shape public perceptions and normalize particular human–animal relationships, thereby contributing to demand formation and reinforcing welfare risks [10–13]. Despite their analytical importance, interdisciplinary approaches connecting animal welfare, demand formation, institutional implementation, and media representation remain underdeveloped in the Japanese context.

The zoo and aquarium sectors also communicate animal-related information to the public while managing the welfare of individual animals and the interpretive framing presented to audiences. While in the 1970s and 1980s, zoos were criticized for spectacle-like displays and for neglecting animal welfare [30,31], a major shift occurred with the 1993 World Zoo Conservation Strategy [32], 2003 Ethical Guidelines [33], and standards and codes of professional conduct for zoo personnel were proposed to advance zoo management grounded in the practice of animal welfare [34,35]. In addition, in the animal visitor interaction (AVI) activity, careful monitoring of the animal’s condition and ensuring that the animal is given the option to choose whether or not to participate are both emphasized [36,37]. Today, facilities conduct welfare self-assessments, and research highlights the

need to consider staff working conditions [38]. The New Ethical Guidelines [39] and the Animal Welfare Strategy [40] reaffirm that animal welfare is essential for fostering public empathy and advancing conservation.

Recent studies have identified concerns about public trust in zoos and aquariums, emphasizing the importance of addressing animal welfare concerns and communicating welfare-related information [41]. A comparative study of zoo visitors in Japan and Britain also discusses how a failure to address animal welfare concerns may undermine public trust in these institutions [42]. Accordingly, JAZA (Japanese Association of Zoos and Aquariums), as an organization affiliated with WAZA, stipulates in Article 5 that educational activities must emphasize animals' natural behaviors and avoid actions that harm their health or involve excessive anthropomorphism. This principle also applies when filming animals for outreach purposes [43]. Norms to avoid "pet-like" or "performer-like" depictions are explicitly stated, even in AVI. WAZA's AVI guidelines [44] require that interactions do not become performances that deviate from "natural behavior in the wild" and that animals are not presented in a way that leads visitors to perceive them as "exotic pets" or "performers." Therefore, information dissemination in the zoo sector can serve as a useful reference framework—a "design pattern"—for examining institutional design in the broadcasting sector, as it provides principles for integrating (1) the protection of individual animal welfare and (2) communication intended to reduce viewer misconceptions and demand-related risks.

Given the fragmented nature of existing research and the lack of integrative frameworks linking animal welfare, media representation, and institutional processes, there is a need to examine how these elements interact within specific national contexts such as Japan. Accordingly, this study aims to address three research questions: (RQ1) how the two layers of animal welfare (individual welfare state and institutional field) can be simultaneously compromised in the Japanese media environment, (RQ2) the institutional gaps in incorporating animal welfare considerations into the Japanese broadcasting and production system, and (RQ3) the necessary conditions for integrating animal welfare standards into the media production process, based on a comparison of animal welfare institutionalization in the zoo sector and international media. By examining these questions, this study aims to contribute to interdisciplinary discussions on animal welfare governance by clarifying the media's role as an institutional actor within wildlife trade systems and identifying practical design principles for embedding animal welfare considerations into information production and dissemination processes.

2. Materials and methods

This study used three complementary methodological components to address these three research questions. The institutional and literature review (Section 2.1) addressed RQ1 and RQ2 by comparing welfare-related institutional frameworks in the Japanese and international media environments. The extraction of wildlife portrayals (Section 2.2) addressed RQ1 by documenting illustrative portrayals of wildlife on Japanese television. The analysis of educational videos in zoos (Section 2.3) addressed RQ3 by examining how welfare-oriented zoo videos function as a comparative reference to identify implementation conditions.

2.1. Institutional and literature review

To identify whether animal welfare is institutionally addressed in Japanese media production and, if so, in what form, it is necessary to establish a reference standard against which the Japanese framework can be evaluated. Therefore, we conducted a comparative analysis of domestic and

international regulations and guidelines, focusing on animal welfare and ethical treatment.

As of January 18, 2026, this review includes Japanese public and commercial broadcasters (NHK and the Japan Commercial Broadcasters Association), international media organizations (BBC and Ofcom), and a global streaming platform (Netflix). Ofcom has been examined as a regulatory mechanism that complements broadcaster-level standards. The BBC was selected as a public service broadcaster whose institutional mandate (editorial independence, public accountability, license-fee funding) is structurally comparable to Japan's NHK; Netflix as a leading streaming platform representing an alternative governance model; and National Geographic as a specialist wildlife content producer. Together, these cases represent major institutional models for integrating animal welfare into media production.

We categorized the institutional frameworks into two: (1) “on-air content,” referring to ethical or editorial standards applied to broadcast scenes (e.g., avoidance of distressing depictions), and (2) “production process,” referring to guidelines governing the physical handling, safety, and welfare of animals during filming. This categorization corresponds to the two-layer framework introduced above: “on-air content” primarily relates to the social implementation layer (Layer 2), governing how animals are represented to audiences, while “production process” intersects both layers, as it directly affects individual welfare states (Layer 1) through physical handling and simultaneously reflects the degree of institutional welfare governance (Layer 2). The media sector’s institutional frameworks were analyzed against the zoo sector’s standards and guidelines, including international standards from WAZA and domestic standards from JAZA.

2.2. *Extraction of wildlife portrayal cases in Japanese television*

Between December 2024 and June 2025, we conducted criterion-based monitoring of free-to-air broadcasts of terrestrial television programs transmitted via ground-based transmitters, constituting the widely viewed broadcasting tier in Japan, as opposed to satellite (BS/CS) or cable television to identify illustrative examples of the representation of wild animals in Japanese media and to assess whether welfare-relevant contextual information was provided. Rather than a systematic content analysis with exhaustive sampling, this monitoring was conducted by the research team during regular viewing, with segments selected for inclusion when they met the following criteria [45]: (a) featured non-domesticated animal species; (b) appeared in non-natural settings such as television studios or animal cafés; and (c) involved framing that could plausibly influence viewers’ perceptions of ownership feasibility. The selection focused on segments featuring exotic species (non-native, non-domesticated species kept outside their natural range) or rare species (species infrequently encountered in Japanese domestic settings due to limited availability or specialized care requirements, distinct from “rare” in the conservation sense of small population size) in such setting.

2.3. *Analysis of educational videos in zoos*

As a comparative reference for the media industry, we examined information dissemination in zoos in which animal welfare was embedded in the institutional mission. Between November 25, 2025, and December 3, 2025, we screened videos published on the official websites and official social media accounts (e.g., YouTube and Facebook) of the 90 zoos affiliated with JAZA. Videos were included

when they met the following criteria: (a) published in 2023 or later; (b) related to animal welfare or AVI; (c) 60 seconds or longer; and (d) included explanatory content through audio narration, interviews, or on-screen captions. We excluded simple event announcements, short promotional clips, and posts that showed animals without explanatory content related to welfare or AVI. Facilities that published both animal welfare-related and AVI-related educational videos were treated as candidates for an in-depth case analysis. Two facilities were selected based on their willingness to participate and the accessibility of relevant production personnel.

Based on this review, the authors conducted semi-structured interviews with policy officers and relevant personnel regarding the video production process and the purpose of publication. The interview questions addressed the following topics: (1) the objectives and methods of video production; (2) the procedures and requirements to be followed during filming; and (3) the individuals responsible for planning, filming, and editing, including narration and subtitles, and final approval prior to publication. Multiple interview sessions were conducted between November 2025 and December 2025, with the second author (M.N.) serving as the interviewer.

3. Results

3.1. Comparison of animal welfare provisions in media guidelines

We analyzed the broadcasting and production guidelines of domestic and international media organizations. The findings were categorized according to on-air content and production processes (Table 1). A review of Japanese broadcasting standards and production guidelines revealed that no clauses explicitly position “animal welfare” or “ethical treatment of animals” as independent concepts (Table 1). For instance, while the Japan Commercial Broadcasters Association (JBA) Broadcasting Standards include ethical considerations for human rights and social discrimination as well as provisions addressing depictions of cruelty and abuse, they do not mention “animal welfare” or “ethical treatment of animals” [46]. Similarly, NHK’s “Broadcasting Standards and Production Guidelines (FY2025)” includes conservation-oriented safeguards for outdoor filming but lacks specific standards for animal welfare or handling [47]. The provisions addressing depictions of cruelty and abuse focus on “expression management”—editorial standards whose regulatory purpose is to prevent human viewers from experiencing distress or discomfort, such as by limiting graphic depictions of violence or cruelty in the Japanese broadcasting framework. These depiction-related provisions focus on audience responses to what appears on screen. Within the two-layer framework, they function as Layer 2 mechanisms for audience protection; however, explicit provisions for assessing or safeguarding the welfare of individual animals (Layer 1) during production were not identified in the reviewed documents.

By contrast, certain international media organizations have established frameworks that clearly separate and complement the ethics of broadcast content from individual welfare in the production process. Notably, the BBC, selected as a public service broadcaster whose institutional mandate is structurally comparable to that of Japan’s NHK, addresses animal welfare through a layered structure of guidelines. At the broadest level, Section 5.4.42 of the BBC Editorial Guidelines 2025 (“Harm and Offence”) establishes welfare and cruelty-prevention provisions applicable to all animals featured in its content, positioned alongside guidelines on interpersonal violence, child protection, and other harm-

related issues [48]. For wildlife programming specifically, the Editorial Policy document “Guidance: Recording the Natural World” provides additional requirements on factual accuracy, preventing audience misperceptions in natural history content, legal compliance, and ethical considerations specific to wild-animal filming. Importantly, these standards are supported by an implementation architecture: mandatory referral of proposals involving reconstructions, simulations, or animal distress to senior editorial figures or the Head of the Natural History Unit; preproduction risk assessments evaluating welfare-related factors such as the proximity of contact, potential hazards, and filming duration; and the requirement to seek expert advice. All staff and independent production companies are required to comply with these guidelines [49]. While a comprehensive evaluation of implementation effectiveness at production sites is beyond the scope of this study, the existence of a structured, multi-tiered institutional architecture that separates general welfare obligations from wildlife-specific guidance and embeds both into contractual production workflows represents an institutional design without an equivalent in the Japanese broadcasting framework. Although Netflix’s ethical standards for onscreen content are relatively limited, they provide guidance on animal safety and health management during production, institutionalize prior risk assessments, and involve specialists [50]. National Geographic’s sustainability guidelines also address animal handling and safety in National Geographic-branded animal interactions, including minimizing handling and avoiding disturbance to wild animals and their habitats [51]. Furthermore, in the UK, Ofcom (Office of Communications) categorizes “animal welfare” as an independent category for complaints, maintaining an institutional mechanism to record and assess complaints concerning animal welfare in broadcast content [52]. According to Ofcom’s response to the 2021 Freedom of Information request, multiple complaints regarding animal portrayals in programs were recorded under this category, demonstrating an institutional structure that recognizes the treatment of animals as a legitimate public concern [52]. The significance of this example lies in the explicit recognition and visibility of animal-welfare concerns within the complaints system, rather than in evidence of enforcement outcomes.

Table 1. Institutionalization of animal welfare across media organizations.

Organization/Company	On-air content (representation and ethics)	Production process (on-site animal welfare)	Reference
BBC (UK)	Yes	Yes	[48, 49]
NHK (Japan)	Yes	Not specified	[47]
Japan Commercial Broadcasters Association (Japan)	Yes	Not specified	[46]
Netflix (USA)	Not specified	Yes	[50]
National Geographic (USA)	Yes	Yes	[51]

Note: “Yes” indicates relevant provisions on animal portrayals (including general cruelty or abuse provisions) or animal handling, safety, or welfare during production. It does not indicate equivalent specificity or effectiveness. “Not specified” indicates that no explicit provision relevant to the category assessed was identified in the reviewed documents.

3.2. Wildlife portrayals in Japanese television programs

The illustrative cases identified through this monitoring revealed recurring patterns in the portrayal of exotic and rare species across multiple programs on major terrestrial broadcasters (Fuji TV and TBS). Exotic and rare species were observed in two distinct settings: domestic contexts, in which animals were depicted in private homes and framed as personal pets or companions (Figure 2B, C); and commercial contexts, in which animals were displayed in business-operated venues, such as animal cafés, or featured in studio segments for entertainment purposes (Figure 2A, D, E). In both settings, portrayals were structured alongside or in comparison to dog and cat imagery (Figure 2). The following cases (Figure 2) illustrate the three framing types observed: (a) celebrity-mediated interaction in commercial settings (animal cafés), (b) viral social media content rebroadcast on television, and (c) the introduction of privately owned exotic animals with an emphasis on purchase price and novelty. In several of the observed segments, presenters or narrators made explicit statements characterizing exotic species as easy to keep or suitable as household companions. For example, in one program (Figure 2C), the purchase price of a striped skunk was prominently displayed, with no accompanying information on the species' dietary, environmental, or veterinary requirements. In another case (Figure 2D), an alpine marmot café was introduced as a novel social trend without reference to the species' natural habitat or behavioral needs. Across these cases, no contextual information regarding species ecology, legal status, or welfare requirements was provided.



Figure 2. Examples of wildlife portrayals in Japanese television programs. (A) Mezamashi TV (Fuji TV, aired January 9, 2025): A famous child actor visiting an animal café and petting animals like a snowy owl (*Bubo scandiacus*). (B) Kiseki Taiken! Unbelievable (Fuji TV, aired January 22, 2025): a scene from a program featuring videos that went viral on social media, including one about keeping a raccoon (*Procyon lotor*) as a pet. (C) Newcomer (TBS television, December 31, 2024): An introduction to a privately owned striped skunk (*Mephitis mephitis*) purchased for approximately 800,000 yen. (D) The Kyōtsū-Ten! Special 2-hour

Episode (Fuji television, aired June 27, 2025): A feature of a newly opened café maintaining alpine marmots (*Marmota marmota*) established in Japan following a social media trend, which attracted 2,000 visitors in the first month of operation. (E) The same program as D: A special studio segment in the same program as D, where exotic animals such as an alpine marmot are introduced as a feature.

3.3. Institutionalization of welfare in the zoo sector

Of the 90 JAZA-member zoos screened, the authors found that 29 had videos explaining animal welfare, eight had videos explaining AVI, and four had published both types of videos. Of these four, two facilities, Kofu City Yuki Park Zoo and the Adachi Park of Living Things, were included in the interview-based case analysis.

We analyzed videos produced and released for educational purposes to examine how information dissemination in zoos is linked to animal welfare. The results confirmed that at Kofu City Yuki Park Zoo and Adachi Park of Living Things, animal welfare considerations were consistently incorporated into both the content and editing policies of the videos.

In anticipation of the renovation of the lion enclosure at the Kofu City Yuki Park Zoo and to facilitate the smooth transfer of two individuals to the new facility without resorting to tranquilizer guns or forced confinement, husbandry training began more than two years in advance. Filming was conducted each time to observe and document how each individual reacted during the training sessions, with the footage shared among the staff. Husbandry training was conducted with the two lions. However, because their responses varied markedly across individuals, the two designated personnel (the zoo director, who is also a veterinarian, and another veterinarian) determine the appropriate point at which to conclude the training. The zoo director personally reviewed the footage, edited it based on individual characteristics. Particular emphasis was placed on accurately conveying the animals' reactions and providing interpretations of their behavior by keepers and veterinarians each time (Figure 3). Interviewees at Kofu City Yuki Park Zoo explained that the videos were intended to document husbandry training and to communicate the rationale behind these practices to the public. Because the aims of the training could not be fully conveyed through footage alone, long-form YouTube content was used to provide additional explanation. The director, who was interviewed, stated the following: "What we try to be careful about when making videos is not to make things look too idealized, but to show the animals' real reactions as they are. We also feel it's important to share our own interpretations of their behavior, since we work with these animals every day. I just said we try not to beautify things too much, but to be honest, while editing the videos, there are many moments when we're moved by how hard the animals—and the staff—are trying".

Multiple educational videos on AVI featuring guinea pigs were identified at Adachi Park of Living Things. The videos employed a structure designed to encourage visitors to understand the animals' condition before contact (Figure 4). These videos were produced as part of pre-visit learning for interactive activities. The goal is to have visitors watch this video before interacting with guinea pigs, thereby reducing interactions that cause excessive stress to the animals and encouraging positive behaviors. Scenes were filmed, capturing detailed examples of behaviors when the guinea pigs were stressed and in a positive state, and the footage was edited with explanatory captions. The latter

program introduces the history of the relationship between guinea pigs and humans. It particularly highlights emotional expression through vocalizations as a means of explaining the links between ecology, behavior, and animal welfare. The program aims to convey that animals, like humans, possess emotions and express not only joy and pleasure but also “negative emotions,” such as fear and pain. It seeks to encourage viewers to pay attention to the guinea pigs' state before, during, and after the interaction sessions. A guinea pig keeper conducted all filming and audio recordings. The footage was edited through close consultation between the keepers and film editors and released after confirmation by the zoo director. He stated the following: It was really difficult to record the guinea pigs' vocalizations when we were editing the video. But when you're trying to pay close attention to their subtle reactions, noticing all the different sounds they make is really important, so we worked very hard on that part during the production.



Figure 3. Introducing Husbandry Training of Lions (Kofu City Yuki Park Zoo). The purpose of the husbandry training was to enable the lions to live their lives in captivity with as few experiences of fear or discomfort as possible, and to foster a lifelong state of positive emotional well-being. (URL: <https://youtu.be/3868rP5j0Cw?si=kyrCJfid8MoIo6-L>)

The following could be derived from these examples: how zoo animals should be perceived and accepted by the public is inseparable from the broader social significance of zoos themselves, such as their role in conveying the societal meaning of keeping wild animals in captivity or serving as a space for learning how proximity and physical interaction affect the internal states of individual animals.

Furthermore, the following three points can be identified as common characteristics shared by the two facilities described above: First, the purpose of the video production was clearly focused on promoting an “understanding of the animals' condition,” rather than merely “presenting the animals' appeal.” Behaviors and reactions were not emphasized through anthropomorphism or dramatization; instead, they were explained in their context. This characteristic directly addresses the promotion of scientific understanding of individual welfare states (Layer 1). Second, professional perspectives on

evaluating and interpreting animal welfare (zookeepers and veterinarians) were incorporated into the footage, including the filming environment. This reduces the likelihood that visitors or viewers will interpret animal behavior based on their own assumptions. By anchoring interpretive authority in professional expertise at the social implementation level (Layer 2), scientific knowledge of individual welfare states (Layer 1) serves as a barrier to prevent miscommunication among information recipients. Third, even in visitor-participation activities like AVI, expressions that presented animals as “pet-like beings” or “performers” were avoided, and it was repeatedly demonstrated that the animals themselves were the agents of their own behavioral choices. These examples demonstrate that information dissemination in zoos occurs within an institutional and practical framework that balances individual welfare considerations with educational objectives.



Figure 4. Guinea pig and visitor interaction (Adachi Park of Living Things). (a) Let’s Learn About Guinea Pig Emotions from Their Sounds. (URL: <https://www.youtube.com/watch?v=x1uf8hbX7ZI>) (b) Proper Handling Techniques for Guinea Pigs. (URL: <https://www.youtube.com/watch?v=hKI3msAJo90>)

4. Discussion

4.1. The dual vulnerability of animal welfare in Japan

The results indicated that emotional portrayals of animals in the media can exert negative structural impacts on both the individual welfare state (Layer 1) and the social implementation layer (Layer 2). Of particular importance is how “misconception” and “justification” in media portrayals distort norms within the social field (Layer 2), potentially reinforcing a mechanism that undermines animal welfare (Layer 1) across the entire supply chain through demand formation.

First, animal portrayals that focus solely on emotions block the information needed for a scientific understanding of an individual's welfare state (Layer 1). Presentations on television and social media that frame animals as “part of daily life” or “easy to keep” (Figure 2)—a pattern observed across the three framing types documented in Section 3.2, in which contextual information regarding species ecology, legal status, or welfare requirements was absent—may render the ecological requirements and the necessity of professional care invisible. Such portrayals can lead viewers to overestimate the feasibility of ownership, replacing the appropriate social application of scientific understanding (Layer

2) with the personal emotional gratification of “ownership desire” [9,12].

Second, the different qualities of social justification provided by different media formats fix these misconceptions as “socially recommended” behaviors. While individual posts on social media accelerate the “visualization of trends” [53], corporate mass media (e.g., television) play a decisive role in granting public legitimacy to these portrayals [54]. When mass media broadcasts emotional depictions on public airwaves, it can act as an “institutional endorsement,” effectively ratifying these interactions as socially appropriate. This authoritative ratification (institutional endorsement) firmly establishes the social soil (Layer 2) that tolerates inappropriate husbandry or contact, thus transforming an individual’s intention to own into a “legitimate, socially recognized action.” For example, an increase in ownership intention on social media, linked to the case of small-clawed otters in Japan, where mass media dissemination plays a background role, has led to a profound transformation of social norms [55,56]. The legitimacy granted by television, acting as a “stamp of approval,” serves as a powerful social driver perpetuating low-welfare states (Layer 1) throughout the supply chain, including the smuggling of pups and poor housing conditions.

Consequently, animal portrayals in the Japanese media can function as one mechanism through which norms are reinforced within the social implementation layer (Layer 2), going far beyond mere information provision. The structure in which corporate mass media continue to ratify emotional consumption without expert knowledge is a major institutional factor hindering the implementation of appropriate welfare management based on scientific evidence (Layer 1).

4.2. Individual welfare risks in filming and production

As shown in Table 1, the Japanese frameworks reviewed primarily addressed on-air content, whereas the selected international frameworks also included explicit provisions for the production process, including the handling of animals during filming. In the Japanese documents reviewed, we did not identify comparable explicit provisions concerning production-stage animal welfare or formal mechanisms requiring animal-welfare expertise in production decisions. At filming sites, factors such as high-intensity lighting, noise, restraint, temperature fluctuations, and long-distance transport can impose additional stress on animals. This comparison identifies an institutional gap in the frameworks examined, which may limit the systematic consideration of individual welfare during filming. These findings suggest a need for institutional mechanisms that support welfare-informed production decisions, rather than attributing responsibility solely to individual production staff.

As a non-profit organization, Rooting Our Own Tomorrows (ROOTs) has addressed this gap by developing and publishing the “Guidelines for Animal Content.” The guideline presents a dual-layered structure (Figure 1): (1) standards for assessing and safeguarding the welfare state of individuals used in filming and (2) content standards intended to reduce demand-related risks and misconceptions [57]. ROOTs also provides animal content checks and supervision. They maintain a database of cases that have faced social backlash or criticism from an animal welfare or conservation perspective (e.g., protest letters or citations from local governments and NGOs) and engage in dialogue with media companies based on analyses of which portrayals lead to social and institutional issues.

Similar approaches have been adopted worldwide. For example, American Humane operates the “No Animals Were Harmed” program, which institutionalizes expert involvement and third-party

evaluation in film and television production. Similarly, People for the Ethical Treatment of Animals (PETA) has contributed to shaping social norms and applying pressure on production teams through campaigns regarding the use of animals. These initiatives are characterized by positioning animal welfare not as a “restriction on expression,” but as “risk management,” “quality assurance,” and an “ethical standard.” In these models, animal welfare is designed not as an opponent of creative freedom but as an element that enhances the social credibility and sustainability of production.

The present study did not assess how widely comparable practices have been adopted across the Japanese media industry. Television production faces several structural constraints. Japanese television production operates on a high-speed weekly cycle where filming, editing, and broadcasting proceed in parallel [58]. Regarding the production system for Japanese terrestrial television, interviews have highlighted that, unlike satellite (BS) dramas, which are filmed in advance, terrestrial dramas are “filmed over a period of three to four months simultaneously with broadcasting,” indicating an environment constantly pressured by broadcast deadlines [59]. In variety programs, the pressure to achieve “toredaka” (enough usable footage) within a short location shoot is often noted, which significantly limits the time available for direction, ethical review, and careful content scrutiny [58]. Furthermore, production teams are often small and heavily dependent on external production companies and their staff [46,59]. It should also be noted that institutional frameworks do not guarantee effective implementation. Even well-established systems face challenges when translating policies into consistent practices. For instance, the American Humane “No Animals Were Harmed” program, while pioneering third-party certification in film and television production, has faced criticism regarding its monitoring effectiveness and potential conflicts of interest [60]. The BBC's structured implementation architecture constitutes a documented institutional design, but the degree to which these mechanisms translate into consistent welfare outcomes remains an open empirical question warranting future investigation.

4.3. *Reference from the zoo sector: Design patterns for implementation*

In contrast to the institutional gaps in media production highlighted in the previous section, the two zoo cases positioned information dissemination not merely as entertainment provision but also as a process for promoting proper understanding and preventing misperceptions based on international norms and expert knowledge. This contrast reflects a fundamental difference in institutional mandates: the zoo sector operates under an explicit conservation and education mission, formalized through the WAZA/JAZA framework, whereas the media sector operates under entertainment and information provision mandates, with broadcasting standards oriented toward audience protection rather than animal welfare. Despite this difference, findings from the two zoo cases suggest that specific design patterns may be identified and transferred to media production under feasible conditions. First, in the two zoos studied here, the presentation of behaviors and vocalizations was contextualized to support interpretation of the individual animal's condition, rather than being presented solely for emotional appeal. The educational mission of “increasing the number of people who understand” (Layer 2) was internalized as an organizational purpose. In contrast, the television portrayals documented in Section 3.2 lacked contextual information about species ecology or welfare requirements, instead framing animals in ways to maximize emotional appeal. This design pattern, contextualizing animal behavior

to promote understanding rather than emotional responses, may be adapted to media production through editorial guidelines requiring factual context alongside animal portrayals, without necessitating fundamental changes to production formats.

Second, professionals had the authority to interpret the condition of animals in the zoo videos. In videos from Kofu City Yuki Park Zoo, and Adachi Park of Living Things, keepers and veterinarians were directly involved in filming and editing, and the interpretation of behaviors was based on professional expertise. This can serve to suppress viewers from interpreting the footage in their own way and reducing it solely to emotional evaluations like “cute” or “seems happy,” and support welfare-informed understanding of animal behavior. By anchoring interpretive authority to professional expertise at the social implementation level (Layer 2), the scientific knowledge of individual welfare states (Layer 1) can be easily reflected in communication practices. In contrast, the Japanese media frameworks reviewed did not identify formal mechanisms requiring animal welfare expertise in production decisions. Interpretive decisions are entrusted to non-specialists, such as directors or producers (personal communications). This design pattern, involving professionals with animal welfare expertise, could be implemented through contracted expert consultants during preproduction planning, an approach that does not require permanent specialist staff within media organizations.

Third, the selected zoo videos positioned visitors and viewers not only as observers but also as individuals whose actions can affect animal welfare. In AVI-related videos of the Adachi Park of Living Things, specific animal stress signals and preferred contact methods were clearly demonstrated before any interaction. This structure makes the potential welfare implications of visitor behavior explicit. Conversely, the illustrative television cases provided limited information about how portrayals or subsequent human actions might affect animal welfare, including through demand formation, misperceptions, or imitative behavior.

Taken together, the comparison suggests that the central issue is not an inherent incompatibility between entertainment and animal welfare but the absence of arrangements that make animal-welfare considerations actionable in production and editorial decisions. In the selected zoo cases, three such arrangements were evident: contextualizing animal behavior, involving personnel with relevant animal-welfare expertise, and treating viewers’ subsequent actions as potentially welfare-relevant. These elements provide provisional reference points for media design. Rather than treating animal welfare solely as an ethical or expressive constraint, Japanese media frameworks should consider incorporating these elements as part of production quality, risk management, and social legitimacy.

4.4. Limitations and future research directions

This study had several limitations that should be addressed in future research. First, we did not verify a direct causal relationship between specific television portrayals and actual purchasing behavior or trade volume. While our discussion of how portrayals induce overestimation of ownership feasibility is grounded in the existing literature, future quantitative surveys of Japanese viewers and experimental studies measuring post-viewing behavioral changes are necessary. It is necessary to measure post-viewing behavioral changes, such as search behavior, purchase intent, and inquiry behavior. Direct behavioral measurements would provide stronger evidence for the proposed mechanism and would be essential for evaluating the effectiveness of any institutional intervention.

Second, the zoo cases analyzed in this study focused on best practices that pioneered the institutionalization of animal welfare; therefore, they may not reflect the current state of all facilities in Japan. Of the 90 JAZA member facilities screened, only four published both welfare and AVI-related videos, suggesting that the practices observed here were exceptional. Future research should include broader comparative analyses of facilities of varying scales and management models. Third, the television monitoring reported in Section 3.2 was conducted through opportunistic observation by the research team rather than through systematic content analysis with exhaustive sampling. Consequently, the identified portrayal patterns should be understood as illustrative cases that characterize recurring institutional features, rather than as a representative quantification of wildlife portrayals across Japanese broadcasting. A systematic quantitative content analysis, using defined sampling frames, coding protocols, and inter-coder reliability testing, would provide stronger evidence regarding the prevalence, frequency, and temporal trends of these portrayal patterns and constitute an important direction for future research.

Fourth, although this study compared the existence and structure of institutional frameworks across media organizations (Table 1), it did not evaluate how effectively these frameworks were implemented in practice. The BBC's structured implementation architecture represents a documented institutional design. However, the degree to which these mechanisms translate into consistent welfare outcomes at production sites remains an open empirical question. Future comparative research should examine implementation effectiveness across both international and domestic media organizations, including monitoring compliance rates, the quality of risk assessments, and the extent to which welfare-related decisions are documented and reviewed.

Fifth, the effectiveness of institutional interventions at production sites remains unclear. An empirical evaluation of how the proposed strengthening of social implementation (Layer 2), such as the introduction of checklists and the involvement of professionals, affects the actual content (consideration of Layer 1) and viewer reactions will be a critical task.

5. Conclusion

This study has highlighted that wildlife portrayals in Japanese media raise issues that go beyond the way animals are represented. The institutional review identified a gap in the Japanese media frameworks examined: unlike the selected international frameworks, they did not include comparable explicit provisions concerning production-stage animal welfare or formal mechanisms requiring animal-welfare expertise in production decisions. Drawing cautiously on the two selected zoo cases, this study identifies three potentially adaptable considerations for media production: (1) contextualizing animal behavior to promote an understanding of the animal's condition rather than emotional appeal, achievable through editorial guidelines requiring factual context alongside animal portrayals; (2) involving professionals with animal welfare expertise in content production decisions, achievable through contracted expert reviews at the preproduction planning stage; and (3) positioning viewers as agents whose actions affect animal welfare rather than passive spectators, achievable through informational captions and framing techniques that communicate welfare implications. Together, these considerations form a dual-layered approach: safeguarding the welfare of animals used during production through welfare-informed planning and relevant expert input (Layer 1), while

reducing misconceptions and demand-related risks through contextualized animal portrayals (Layer 2).

We propose a tiered approach for implementing these patterns within the structural constraints of the media industry. In the short term, welfare checkpoints can be integrated into existing preproduction workflows, and pilot collaborations between NGOs with animal welfare expertise and production companies can be initiated. In the medium term, industry-wide voluntary guidelines could be developed, modeled on the BBC's dual-track approach, separating on-air content ethics from production process welfare. In the long term, regulatory reforms could incorporate animal welfare as an independent category in broadcasting standards, drawing on Ofcom's complaint classification model, and establish a third-party certification system for animal-related media content.

To firmly establish this dual-layered implementation, it is also necessary to conduct empirical investigations into specific incentive designs and the effectiveness of private-sector monitoring systems. Transforming media from a driver of wildlife demand to a platform for scientific and ethical literacy is a vital step toward a society in which animal welfare is systematically understood and protected.

Use of AI tools declaration

The authors used artificial intelligence (AI) tools solely for language editing, translation, and information organization. AI tools were not used in the study design, data collection, data analysis, or interpretation of results.

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Conflict of interest

Three of the four authors serve as board members of Rooting Our Own Tomorrows (ROOTs), a non-profit organization that develops guidelines for animal-related media content, which is referenced in this study as one of several comparative cases. The authors declare no financial interests, commercial relationships, or personal benefits related to the results of this study. The analysis was conducted in terms of academic capacity, and the inclusion of ROOTs was based on their relevance as domestic examples within a broader comparative framework.

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