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DO WILDLIFE CRIMES AGAINST LESS CHARISMATIC SPECIES GO UNNOTICED? A CASE STUDY OF GOLDEN JACKAL *CANIS AUREUS* LINNAEUS, 1758 POACHING AND TRADE IN INDIA

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Do wildlife crimes against less charismatic species go unnoticed? A case study of Golden Jackal *Canis aureus* Linnaeus, 1758 poaching and trade in India

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Abstract: Wildlife crimes pertaining to lesser-known species do not usually garner adequate focus or interest by enforcement and conservation agencies. Additionally, illegal wildlife trade fuelled by religious beliefs in sorcery and superstition is an oft-neglected field of research. To draw attention to these two broad issues, we provide a baseline analysis of open-source reports on Golden Jackal *Canis aureus* poaching and trade in India. We highlight the pervasiveness of an active local and transnational ‘jackal horn’ trade, which is severely under-reported and insufficiently researched. News reports and government seizure data reveal that, between 2013 and 2019, 126 skins, eight tails, more than 370 ‘jackal horns’, 16 skulls and two live jackals have been seized. The demand for the illusionary ‘jackal horn’ appears to be driven by extensive online endorsement and unsubstantiated claims made by religious practitioners, targeted primarily at south Asian markets. This preliminary study is an urgent call for concerted efforts to monitor the illegal trafficking and trade of this common species, with a particular focus on the demand and supply chains.

Keywords: *Canis aureus*, carnivores, ‘jackal horn’, management, illegal wildlife trade, poaching, wildlife trafficking.

Tamil abstract: குறைவாக அறியப்பட்ட இனங்கள் தொடர்பான வனவிலங்கு குற்றங்கள் வழக்கமாக அமலாக்கம் மற்றும் பாதுகாப்பு நிறுவனங்களால் போதுமான கவனம் அல்லது ஆர்வத்தை பெறுவதில்லை. கூடுதலாக, சூனியம் மற்றும் மூடநம்பிக்கை ஆகியவற்றில் மத நம்பிக்கைகளால் தூண்டப்பட்ட சட்டவிரோத வனவிலங்கு வர்த்தகம் என்பது பெரும்பாலும் புறக்கணிக்கப்பட்ட ஆராய்ச்சித் துறையாகும். இந்த இரண்டு பரந்த பிரச்சினைகளுக்கும் கவனத்தை ஈர்க்க, இந்தியாவில் குள்ளநரி (கேனில் ஆரியஸ்) வேட்டையாடுதல் மற்றும் வர்த்தகம் குறித்து திறந்த மூல அறிக்கைகளின் அடிப்படையில் ஒரு பகுப்பாய்வை நாங்கள் வழங்குகிறோம். செயலில் உள்ள உள்நாள் மற்றும் நாடுகடந்த ‘குள்ளநரி கொம்பு’ வர்த்தகத்தின் பரவலான தன்மையை நாங்கள் முன்னிலைப்படுத்துகிறோம். இது கடுமையாக அறிக்கை செய்யப்படாதது மற்றும் போதுமான அளவு ஆராய்ச்சி செய்யப்படவில்லை. 2013 மற்றும் 2019 க்கு இடையில், 126 தோல்கள், 8 வால்கள், 370 க்கும் மேற்பட்ட குள்ளநரி கொம்புகள், 16 மண்டை ஓடுகள் மற்றும் 2 நேரடி குள்ளநரிகள் பறிமுதல் செய்யப்பட்டுள்ளதாக செய்தி அறிக்கைகள் மற்றும் அரசு கைப்பற்றப்பட்ட தகவல்கள் தெரிவிக்கின்றன. மாயையான ‘குள்ளநரி கொம்புக்கான கோரிக்கை விரிவான ஆன்லைன் ஒப்புதல் மற்றும் மத பயிற்சியாளர்களால் ஆதாரமற்ற கூற்றுக்கள், முக்கியமாக தெற்காசிய சந்தைகளை இலக்காகக் கொண்டது. இந்த பூர்வாங்க ஆய்வு இந்த பொதுவான உயிரினத்தின் சட்டவிரோத கடத்தல் மற்றும் வர்த்தகத்தை கண்காணிப்பதற்கான ஒருங்கிணைந்த முயற்சிக்கான அவசர அழைப்பாகும். மேலும் அதன் தேவை மற்றும் விறியோக சங்கிலிகளில் ஒரு குறிப்பிட்ட கவனத்தை செலுத்துகிறது.

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INTRODUCTION

The marginalization of less charismatic species is evident in the lack of conservation funding and public discourse in preventing their illegal poaching and trade (Sigouin et al. 2017). Conservation efforts to combat poaching are generally focused on large, charismatic species or species that face immediate extinction threats. Illegal trade of relatively abundant species, whose populations are not considered to face imminent declines, however, may comprise a significant portion of wildlife seizure data (Scheffers et al. 2019). For example, digital monitoring of illegal wildlife trade in the United States revealed that non-threatened species, which included deer, elk, moose and bear were frequently confiscated, although these species were not typically the focus of organizations controlling illegal wildlife trade (Hansen et al. 2012). This presents a paradox. While anti-poaching efforts focus inadequately on common species, unsustainable hunting or poaching could in fact accelerate the decline of less charismatic species and result in local extinctions (e.g., local extinction of the African Civet in several areas in Ghana driven by unsustainable bush meat hunting; Ryan & Attuquayefio 2000; Damania et al. 2005). Additionally, the pursuit of a common target species could lead to the 'opportunistic exploitation' of a higher value rare species. The basis of this suggestion is that targeting a widespread species, while also earning profits through opportunistic encounters with higher valued species, is more profitable than targeting higher valued species alone (Branch et al. 2013). Therefore, monitoring common or relatively widespread species in illegal wildlife trade networks fulfills the dual role of preventing an abundant species from spiralling into decline and reducing poaching pressure on rare species.

An oft-overlooked aspect of illegal wildlife trade is one that is rooted in local religious practices. Wildlife may be utilized as sacrificial offerings (e.g., sea turtle sacrifice by Balinese Hindus in Indonesia; Jensen 2009), ornaments (e.g., birds-of-paradise feathers for traditional outfits in Papua New Guinea; Van den Bergh et al. 2013), food in festivals or ceremonies (e.g., consumption of barking deer and wild pig meat during the Morum festival in north-east India; Hilaluddin et al. 2005), products for sorcery practice (e.g., Demidoff's Bushbaby skull in West Africa; Djagoun et al. 2018) and in similar superstitious practices (e.g., Indian Star Tortoise in India; D'Cruz et al. 2015). An investigation of outdoor markets and religious shops in northern Brazil revealed that the wildlife trade for religious purposes involved an extensive commercial network of collectors, distributors and shop owners,

where priests of the Candomblé religion directed traders and customers about the type of animal and their body parts used for specific religious ceremonies (Alves et al. 2012).

In India, conservation bias towards charismatic species echoes amongst policy makers, with many holding the view that large, charismatic wildlife are the primary target species for poaching or illegal trade (Niraj et al. 2009). In contrast, illegal wildlife trade in the country constitutes a significant portion of lesser-known, less charismatic and common species that are traded in diverse markets as exotic pets, wild meat, traditional medicine, sorcery and superstitious practices, perfumes, souvenirs, ornaments and even for the manufacture of painting and shaving products, among other reasons (Sahajpal et al. 2009; Aiyadurai 2011; Mendiratta et al. 2017; Sharma et al. 2019). The demand for products used in superstitious or religious practices surpasses state and national boundaries, giving rise to widespread and diverse consumer groups. The evidence-base for this trade, unfortunately, is limited and ambiguous. This is typified by the local and international trade in monitor lizard *Varanus* spp. genital parts, driven by belief in sorcery, superstition and traditional medicine. The body part is sold in local markets and online platforms with the Hindi name 'hatha jodi', which is also the name for the root of *Martynia annua*, a rare medicinal plant. The masked biological origin, and shared nomenclature with a plant that is valued as traditional medicine, most likely facilitates the trade while evading detection by enforcement authorities (Bhattacharya & Koch 2018; Rajpoot et al. 2018; Sharma et al. 2019). Additionally, the use of e-commerce platforms for wildlife-derived products (compared to previous 'word-of-mouth' approaches; Ahmed 2010) presents a definitive shift by sorcery practitioners to reach a much wider clientele. Illegal, small-scale wildlife markets benefit from online legal markets by the legal protection provided by these companies, and as a means to expand business opportunities in a relatively risk-free cyber space (Lavorgna 2014).

Poaching of the Golden Jackal *Canis aureus* in India exemplifies two broad issues discussed above: (i) the marginalization of less-charismatic species in terms of conservation efforts, and (ii) illegal trade of common species for religious practices. The Golden Jackal is listed under the Least Concern category of the IUCN Red List because of its large global distribution and purported stable populations. In India, hunting and trade of jackals is a punishable offence; it is protected under Schedule II of the Wild Life Protection Act (1972) and Appendix III of

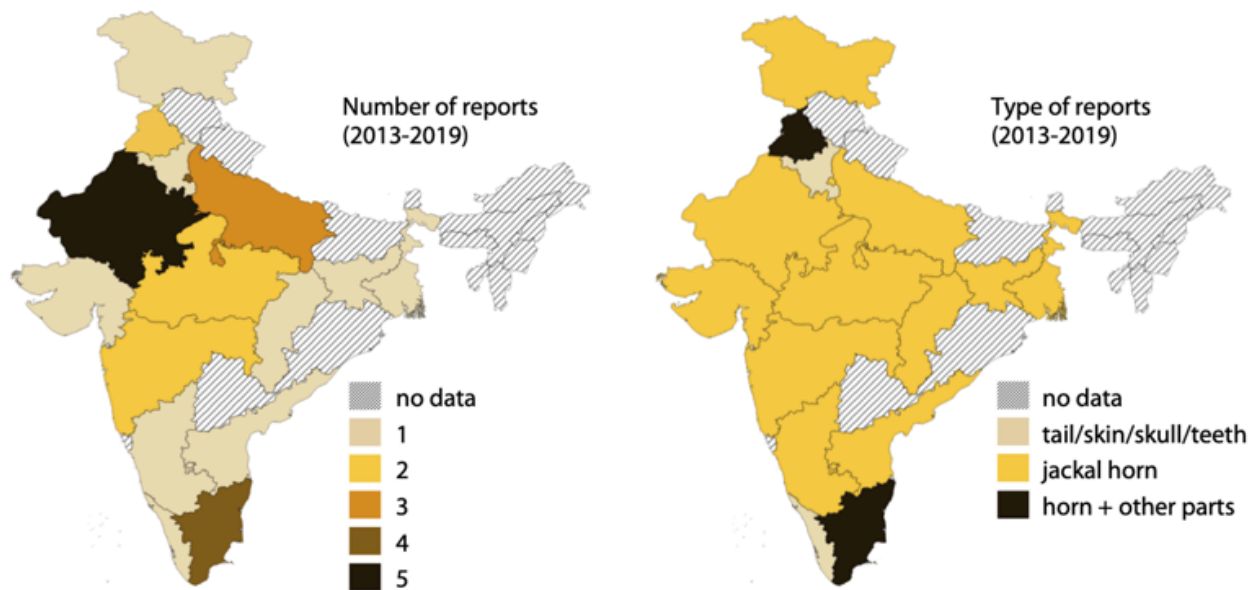


Figure 1. State-wise numbers of media reports or advertisements (2013–2019) featuring sale, trade or seizure of jackal body parts. Note: Jammu-Kashmir was a State during the study period; now split into Union Territories.

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). To provide baseline information on the severely under-reported issue of illegal poaching and trade of jackals, we examined multiple forms of internet-based media which include advertisements, social media posts, blog articles, news reports and peer-reviewed articles. We compiled data on illegal hunting, sale of jackal body parts, trade, and seizure reports by enforcement agencies, from 2013 to 2019. Key findings based on the analysis of online media posts and reports are presented in this article.

SUBSISTENCE HUNTING, POACHING, AND TRADE

Our review of open-source reports showed that jackal meat is consumed by several communities in the north-eastern states, and parts of western, central and southern India (Borah & Prasad 2016). Jackal body parts such as head, skin, tail and teeth find use in traditional and cultural practices in southern India, and jackal organs are believed to have medicinal properties in central India. Poaching and trade of skin, teeth, tail and hair have been documented in media reports from several Indian states (Figure 1). Our analysis of media reports revealed that 126 skins, eight tails, and two live jackals were seized by the Wildlife Crime Control Bureau of India (WCCB) between 2013 and 2019 (see Supplementary Material).

A more pervasive threat is likely from poaching of jackals for ‘siyar singhi’—a talisman extracted from the

jackal’s skull—translating to ‘jackal horn’ in English. A jackal’s skull does not have a true horn; the ‘siyar singhi’ is either a protrusion or deformity behind the jackal’s sagittal crest, or in many cases, a tuft of hair from a jackal or any domestic animal (dog, pig, or goat), stuck together in the shape of a ball. Some images on the Internet also show the dewclaw of jackals/foxes/dogs marketed as ‘jackal horn’. The sale of ‘jackal horn’ appears to be commonplace in Indian trade markets, as evidenced by advertisements on social media and popular online retail outlets. Regional names for ‘jackal horn’ include ‘siyar singhi’ or ‘gidar singhi’ in Hindi, Urdu, and Punjabi, and ‘nari kombu’ in Tamil, Kannada, and Telugu. Between 2013 and 2019, the WCCB seized more than 370 ‘jackal horns’ and 16 skulls. These seizures usually happen during anti-trafficking operations targeted at ‘hatha jodi’ (dried copulatory organ of monitor lizard *Varanus* spp.) trade (Bhattacharya & Koch 2018; Sharma et al. 2019). The demand for ‘jackal horns’ appears to be driven by superstitious beliefs, strengthened by online propaganda, perpetuated by traders of ritualistic worship materials, astrologers, and sorcery or ‘black magic’ practitioners of Hindu, Muslim, and Sikh religious groups (see Supplementary Material).

ONLINE ENDORSEMENT AND TRADE OF ‘JACKAL HORNS’

We found that verified accounts on YouTube endorse the purported magical powers of ‘jackal horns’, with

several tutorials demonstrating how the product is stored or used. These parts are often sold in pairs, claiming to be a male and a female. Online advertisements and videos show the widespread presence of an internet-based market for jackal parts, with local, regional, and international stakeholders. The demand from sorcery practitioners of the southern Asian diaspora perhaps fuels the trade. Based on evidence from social media posts and e-commerce platforms, we believe that Pakistan may be a source-country (besides India) for the 'siyar singhi' trade (see Supplementary Material). We found that online retailers based in the UK, USA, Germany, and Singapore also list 'jackal horns' for sale on their websites. Some reports indicate that sellers procure the product from local hunters, while others suggest 'jackal horns' are part of a much wider international trade. These open markets raise serious concerns about the prevalence of organised crime networks transporting and distributing jackal products across international borders. There is some evidence that jackals may be poached by planting crude bombs or trapped in leg-hold traps. The jackal trade issue discussed here is, therefore, problematic, both, from the ecological and animal welfare perspectives.

KEY CHALLENGES AND RECOMMENDATIONS

Limited only to publicly accessible reports and social media articles, our exploratory research underscores the paucity of comprehensive data or academic analyses of seizures related to jackal parts. Absence of detailed information such as the quantity, modus operandi, transit modes, transit routes, and potential destinations, impedes our understanding of the scale of harvest and components of the demand–supply chain. The biases associated with English media news reports further add to the problem; levels of public interest and awareness may influence locations and accuracy in such reporting. Furthermore, those states in India that actively enforce poaching and wildlife trafficking laws may be overrepresented in the media. Understanding the extent of local and transnational trade in jackal parts and combating the trade will require ground-based investigations and collaborations between source and destination countries. This will largely depend on political will, or the lack of it.

As preliminary efforts in this direction, we strongly recommend that State Forest Departments confiscate jackal parts that may be encountered while targeting the larger illegal trade market for superstitious ritualistic products, which often include monitor lizards, musk pods

(from Himalayan Musk Deer *Moschus chrysogaster*), pangolin scales, leopard parts, snake bones, owls, corals and other species (see Supplementary Material). Animal parts seized during such raids should be sent for laboratory-based genetic analysis to help ascertain species identity. Protocols in the identification, screening and documentation of 'jackal horn' trade need to be developed for the Police, Forest officials and enforcement agencies that regulate wildlife trade. Given the trans-boundary nature of the trade, Customs officials deputed at international transit points need to be trained in identification of these products. E-commerce portals such as Amazon, Facebook, eBay, and possibly YouTube must incorporate a stricter screening of posts that involve illegal trade of wild animal parts through their websites. These measures would also go a long way in meeting the Convention of Biological Diversity post-2020 global commitments that stress on the importance of maintaining transparency in wildlife trade flows between countries (IUCN 2019).

CONCLUSION

Knowledge of Golden Jackal poaching and trade in India is severely lacking due to its 'common' status, lack of public awareness and its prevalence in the lesser-known wildlife market driven by superstitious and religious practices. Through our exploratory analysis, we draw attention to the widespread poaching and trade of jackal body parts in India, largely driven by superstitious belief. We highlight the prevalence of the 'jackal horn' - a talisman extracted from the jackal's skull that is widely advertised on social media and e-commerce platforms. News reports and government seizure data reveal that the 'jackal horn' trade is possibly part of the larger wildlife trade for sorcery products that similarly targets monitor lizards, pangolins, leopards, musk deer, owls and several marine species. At present, critical knowledge gaps impede effective detection and prevention of jackal poaching crimes. Future investigations will need to focus on periodic monitoring of the species to further our understanding of trends in wildlife trade and trafficking of jackals in India and beyond.

Supplementary Material (Appendix 1–4)

Information on poaching and trade news reports and seizure reports. Requests for archived news articles, images and videos may be directed to the corresponding author.



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Author contributions: MMC and AS conceived the idea, MMC and AB compiled the data, all authors critically evaluated and validated the data and finally MMC, AS, and SS processed the data for publication. All authors contributed towards writing the manuscript.

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Supplementary Table 1: Golden Jackal Trade and Trafficking: 'Jackal horn' / 'Siyar singhi'.

	Month/Year	Location	State	Remarks	Source	Web Source Link
1	Oct-18	Durg	Chhattisgarh	325 'jackal horns' and other items seized, one arrest made	Facebook	https://www.facebook.com/WCCBHQ/photos/pic.2181416092106197/2181411855439954/?type=3&theater
2	Nov-15	Not available	Andhra Pradesh	Facebook seller of 'jackal horn' and other wildlife products	Facebook	https://www.facebook.com/photo.php?fbid=1586701538219113&set=pcb.1586701611552439&type=3&theater
3	Jun-16	Not available	Punjab & Chhattisgarh	Endorsing use of 'jackal horn' in black magic	Facebook	https://www.facebook.com/153463733511969/photos/a.1535697460072563/1543731165935859/?type=3&theater
4	Oct-16	Bangalore	Karnataka	Endorsing use of 'jackal horn' in black magic	Facebook	https://www.facebook.com/onlineoveproblemsolutions/photos/basw.AbqqMf_skvD4bbEu81ybE66jU8IVvc0ZL6nBhXZOSiOSHjgpSHIHUIKqF7ia72foSjhmQ1BrL6cTgAO10SHrgGy-0kdGtQAUBdCpWkwjxhDIOIPsv1heClz2_OHK1_TmAzErbjZLckjTHRf-ix8LQYVrsOtWfL268DI3_Dzw.1416645638621343.10202190527619169.1545053349136974.1133217456799838.568560056656679.720365731399512.1545054829136826.56856543323697.557568107755874/1133217456799838/?type=1&opaqueCursor=AbqoWt17_VpHrCkX1Mally4wYHH0hidEKpgq9x_kfgwVFJLQbzjgHDcznF3BvY7ookat4F62DzpuHirGj1xZqyrr8YV_-isn9A7OIZbeYxw6UH1XFy4bZA4gJONmbdy17GfFs5n6d6taW32sGpXsM8foArNpETA6bsKWIRdJNCLSRerID_wlg8lo2KeRal_TXvCxCqYjqH1FpcDudQ2MGxZpEbZ3Rtk3GvBkRrhskQHw76aABOzm-YkAVbcRwie2KkeEXTI5khXTWn1VXH5376p6LZntvn_f8pasBUlucYESZThL8ilBoJ2uck4PXH7Wae950QbmPWlujul2bx9MBEXCOBJoePa7MijSR_8UI3EmKZXCW7z-WDnceok8SkVILM_RglY-YrX_JLduSuRnluloY_R0zichPaI2_Ake07yzK1PaK8RCrdD6g_IY-My_JHdFNp9jmeX9Xrt0XyMgEDdYLS3qCeZnHaOCrd4M2qPBGzA16eGjmJlXrBdmfk-Wh627gVzTcSqualafidqCV7s60fbsZ0zi7PjUTLfc74JlBn9AnBc-9LE6ok-KVhcUzuw1qQoBr87TjwLH2TyeKtmySM2IvgcjoVdidP8AIHafqAOpsE_2ZmZ_LtFXzKSULnYIG-PEBFn3F_9SiSET6-HclL2Tnxp1mv60QZJY-Gp1oY&theater
5	Jul-18	Delhi	NCT of Delhi	Amazon seller	Amazon	https://www.amazon.com/craftslook-siyar-singhi-gidar-Singhi/dp/B00VL9NFCY
6	Jun-16	Jodhpur	Rajasthan	Trade India seller	Trade India	https://www.tradeindia.com/fp3394158/Siyar-Singhi.html
7	Dec-18	Kolkata	West Bengal	Online shop: Rs 4000	Fortune Teller India	https://fortunetellerindia.com/product/siyar-singhi/
8	May-18	Navi Mumbai	Maharashtra	Online shop: Rs 4100	WhiteAuraVastu Store	https://www.whiteauravastustore.com/product/siyar-singhi/
9	Mar-18	Delhi	NCT of Delhi	Product discontinued, sold for Rs 5700	Shop Clues	https://www.shopclues.com/sidha-and-original-siyar-singhi-singhi-gidar-singhi.html
10	Jan-18	Mumbai	Maharashtra	Rs 1484 for 'jackal horn' and hatha jodi	Abel Store	http://abelstore.com/home-decor-furnishings/original-hatha-jodi-siyar-singhi-combo/p-7002726-70837448739-cat.html (Page no longer exists)
11	Jan-18	Delhi	NCT of Delhi	An account of an astrologer from Delhi	Blogpost	http://craftsman-saqib.blogspot.com/2012/01/gider-singhi-siyar-singhi-or-jackals.html
12	Aug-15	Delhi	NCT of Delhi	Endorsing use of 'jackal horn' in black magic	Wordpress	https://kamakhyavashikaran.wordpress.com/tag/siyar-singhi-price-in-delhi/ (Page no longer exists)
14	Feb-18	Meerut	Uttar Pradesh	16 'jackal horns' and other wildlife products seized from a tantric shop	Times of India	https://timesofindia.indiatimes.com/city/meerut/in-major-haul-body-parts-of-endangered-species-recovered-in-meerut/articleshow/63100788.cms
15	2018	Morabadi	Jharkhand	Online shop: Rs 4150	Tantra Astro	http://www.tantraastro.com/product/100-original-sidha-siyar-singhi-jackal-horn/?fbclid=IwAR1H8XgsN8Df2DrR3JnYfUuMYQa8GnYX0zE9A7AmZwJubJooQiaAB4 (Page no longer exists)
16	Jun-17	Noida	Uttar Pradesh	27 'jackal horns' and other wildlife products seized	Times of India-Noida	https://timesofindia.indiatimes.com/city/noida/lizard-genitalia-sold-as-rare-root-arrest-in-noida-after-interpol-alert/articleshow/59279141.cms
17	Jan-19	Dhanmandi, Udaipur	Rajasthan	4 shops raided; 'jackal horns' and other wildlife products seized	Udaipur Times	https://udaipurtimes.com/pooja-product-sellers-arrested-selling-wild-life-products/
18	Sep-18	Not available	Jammu and Kashmir	Explanation of 'jackal horn' by astrologers	YouTube	https://www.youtube.com/watch?v=6LgQlvotguw
19	Aug-17	Indore	Madhya Pradesh	Jackal horn' and hatha jodi seized from a company- Shubh Bhakti	The Indian Express	https://indianexpress.com/article/india/four-e-commerce-firms-including-snapdeal-get-notice-for-selling-animal-parts-4792899/
21	Sep-18	Bhilwara	Rajasthan	Jackal horn' and other wildlife products seized, two arrested	Wildlife Crime Control Bureau, Government of India	http://wccb.gov.in/Content/NewsDetail.aspx?news_id=1229 (Page no longer exists)
22	Jun-17	Allahabad	Uttar Pradesh	Jackal horn' sold by tantriks during Mahakumbh, 2013	Shodhganga	http://shodhganga.inflibnet.ac.in/bitstream/10603/38763/12/12_chapter%205.pdf
23	Sep-18	Jaipur	Rajasthan	Endorsing use of 'jackal horn' in black magic	YouTube	https://www.youtube.com/watch?v=yHnWkxent-U
24	Nov-17	Not available	Rajasthan	Customer's account	YouTube	https://www.youtube.com/watch?v=I254vcr9CM
25	Jul-15	Vellore	Tamil Nadu	3 jackal heads seized; jackal heads sold during 'Girivalam' festival	Times of India-Chennai	https://timesofindia.indiatimes.com/city/chennai/Headhunters-on-loose-jackals-on-run/articleshow/48106934.cms
26	Jan-15	Samayapuram	Tamil Nadu	12 jackal skulls seized	The Hindu	https://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/jackal-skulls-seized/article6773951.ece?fbclid=IwAR0ynPOTpqqyPR1_RhfS1jpsGITUFQeIGHRMxsh5TdeDmBJO58qTYd_VQ28
27	Jun-17	Ahmedabad	Gujarat	24 'jackal horns' and other wildlife products seized	Wildlife Crime Control Bureau, Government of India	http://wccb.gov.in/Content/SpecialOperations.aspx

Supplementary Table 2. Illegal endorsement of 'Jackal horn' / 'Siyar singhi' on YouTube.

	Month/ Year	Remarks	Source	Web source Link
1	Apr-19	Tantric practitioner describes uses of 'jackal horn' and how to activate it	YouTube	https://www.youtube.com/watch?v=1qlwo-tqRQM&t=2s
2	Sep-17	Tantric practitioner describes uses and storage of 'jackal horn'	YouTube	https://www.youtube.com/watch?v=l_1b3sCsYQE&t=62s
3	Jan-18	Tantric practitioner describes uses and storage of 'jackal horn'	YouTube	https://www.youtube.com/watch?v=tC4i7YAaFMQ
4	May-18	Tantric practitioner describes uses and storage of 'jackal horn'	YouTube	https://www.youtube.com/watch?v=aHxD4x4boyc&t=124s
5	Jan-18	Tantric practitioner describes how the original 'jackal horn' male and female pair look	YouTube	https://www.youtube.com/watch?v=XkU7pZ_EOyY&t=403s
6	Jun-17	Tantric practitioner claims that the jackal itself sheds the 'horn' from its head	YouTube	https://www.youtube.com/watch?v=GtD8R9Deyi0&t=89s
7	Jul-18	Tantric practitioner describes and uses and storage of 'jackal horn'	YouTube	https://www.youtube.com/watch?v=vquv2rBxN-s
8	Feb-19	Tantric practitioner demonstrates the storage of 'jackal horns' using a "fresh" pair	YouTube	https://www.youtube.com/watch?v=FBjpGVICPu0&t=435s
9	Feb-19	Tantric practitioner shows the skeletal structure of an animal and claims it is derived from jackal	YouTube	https://www.youtube.com/watch?v=GmaiCGO0Ovs&t=215s
10	Dec-18	Seller describes uses of 'jackal horn' and alerts viewers of fake ones	YouTube	https://www.youtube.com/watch?v=mE9X2gFB6QM&t=197s
11	Jan-19	Seller claims to give a live demonstration of the removal of the 'horn' from a jackal via video call	YouTube	https://www.youtube.com/watch?v=j_39-fP-5GA&t=335s
12	Mar-16	Seller claims to provide details of a 'DNA test' to prove the authenticity of the 'jackal horn'	YouTube	https://www.youtube.com/watch?v=JSwripSFwxM
13	Sep-18	Use of 'jackal horn' in combination with hatha jodi in tantric practice	YouTube	https://www.youtube.com/watch?v=WcEyatHGf2k&t=7s
14	Jan-18	Use of 'jackal horn' in combination with hatha jodi in tantric practice	YouTube	https://www.youtube.com/watch?v=2_954O77ox4&t=1s

Supplementary Table 3. Details of trade and trafficking of golden jackal body parts in India.

	Month/ Year	Location	State	Remarks	Source	Web Source Link
1	Dec-14	Tiruttani	Tamil Nadu	8 jackal tails seized; each tail was priced at Rs. 300	The Hindu- Chennai	https://www.thehindu.com/news/cities/chennai/jackal-tails-seized-in-tiruttani/article6665863.ece
2	Oct-16	Periyar TR	Kerala/ Tamil Nadu	14 jackal skins seized	Wildlife Trust of India	https://www.wti.org.in/news/wti-study-provides-intelligence-for-covert-operation-leads-to-seizure-of-14-jackal-skins-in-periyar/
3	Jan-18	Ropar	Punjab	112 jackal skins and poaching traps seized	Times of India- Chandigarh	https://timesofindia.indiatimes.com/city/chandigarh/5-snakes-necklaces-of-birds-claws-recovered-in-ropar-raids/articleshow/62465494.cms?fbclid=IwAR0GKQF5U9mLpc6SiRLDuZdt2sRAI9QDM8eyHEHBKAASPYNVuhOZuCl-IrA
4	Feb-19	Rohtak	Haryana	1 jackal killed with a trap and spear	Wildlife Crime Control Bureau, Government of India	http://wccb.gov.in/Content/SeizuresofWCCB.aspx
5	Dec-17	Trichy	Tamil Nadu	Traps set for jackals to sell off nails and teeth	Times of India- Trichy	https://timesofindia.indiatimes.com/city/trichy/2-dogs-killed-for-trade-in-fox-teeth-nails/articleshow/62214778.cms
6	Jun-19	Hyderabad	Telangana	1 live jackal rescued from bird trade market	Times of India- Hyderabad	https://timesofindia.indiatimes.com/city/hyderabad/34-protected-birds-jackal-rescued-from-murgi-chowk/articleshow/69949714.cms
7	July-19	Kurukshetra	Haryana	1 jackal seized along with jungle cat and monitor lizards	Facebook	https://www.facebook.com/WCCBHQ/photos/a.1937867123127763/2358458097735328/?type=3&theater

Supplementary Table 4. Evidences of jackal hunting as a source of bush-meat.

	Month/ Year	Location	State	Remarks	Source	Web Source Link
1	Nov-16	Mangrol	Gujarat	Caught and kept in captivity for meat	Facebook	https://www.facebook.com/krunal.trivedi.94/posts/116733934331316
2	Jul-16	East Midnapore	West Bengal	Hunted by local communities during Jyeshtha Amavasya	Mongabay	https://news.mongabay.com/2016/07/5000-wild-animals-killed-in-west-bengal-india-on-world-environment-day/
3	Jan-17	Rajgarh	Madhya Pradesh	Hunted; leg-hold traps, head, meat and hair seized	Times of India- Bhopal	https://timesofindia.indiatimes.com/city/bhopal/jackals-poached-for-meat-in-madhya-pradesh/articleshow/56674933.cms



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