Research Paper

A Study on Identifying the Aspects of Wildlife Cybercrime and Exploring Ways to Curb It

Dr.T.Sita Kumari, *Professor, Dept. of Law, SPMVV*
G.Lakshmi Priya, *Research Scholar, Dept. of Law, SPMVV*

Abstract
In today's online marketplace and forums, cybercrime activity can frequently be found to be kept out of sight in plain sight behind lawful posts. Under the "ambit of flora and fauna", the term wildlife represents one of the most constituted nomenclatures. According to
"Section 2(37) of the Wild Life (Protection) Act, 1972", wildlife refers to the land and aquatic vegetation, animals that create a portion of any domain. In recent years, wildlife trade has become one of the expanded activities on social media. This article explores an area of ongoing social and economic wildlife cybercrimes. Looking over this trade activity creates a complex challenge to researchers searching to recognise moderators searching and online trade to derange harmful and illicit activity.
This study has discussed the potential online marketplaces for the "illegal trade" associated with threatened plants. In addition, all the strategies also explored to increase all the digital origins to help law enforcement in resistant and deranging the criminal market. In order to further inspect this challenge in wildlife activities, this article paper has utilised big data approaches to recognise all potential wildlife trading activity with the collaboration of an "automated web scraper". The article also describes the possible ethical standards that can be implemented in wildlife cybercrimes to explore the perspective of the "artificial intelligence (AI) review" to deliver a potential solution to create a trustworthy bond in the approaches of AI. Therefore, the study has explained an "inter-disciplinary socio-technical artificial intelligence (AI) approach" to extract the long-term solution to curb the cybercrimes of wildlife.
All the climate change laws and practices that have been done by the responsible governmental authority have been mentioned in this article. The study discusses the beneficial sites of laws that can be implemented in climate development activities. In addition, there are also some laws and practices that have been discussed that are effective in managing the biodiversity impact of wildlife. All the potential laws and practices have been mentioned in this study to give solutions for ensuring sustainability and minimizing risks in different wildlife cybercrimes. This will help the other readers to develop the quality of different technological developmental procedures without compromising environmental sustainabilitywhich enhances the significance of the study.
The researcher has adopted a "secondary data collection tool" to gather the relevant data that are relevant to the research topic. There are several government sites that provide information about the transformation of wildlife cybercrimes which are collected and evaluated in this study. It is identified from the reviewed articles that the laws and practices have a positive impact on reducing these crimes. Furthermore, the thematic analysis process is used for evaluating all the findings appropriately. Themes are created based on the findings under which the transformation of wildlife cybercrimes is discussed. Including the state of wildlife cybercrimes before the application of different laws, the challenges and impacts of social media have been described well.
Keywords: Wildlife, cybercrime, laws, social media trade, animals, ethics in online research, plant crime, Artificial Intelligence, illegal wildlife trade.

I. Introduction

Background of the study

In recent decades, the wildlife trade has swiftly expanded on different types of social media platforms. This has been identified as an easy way especially for traders to approach the international market. The rising number of "illegal wildlife trade" has highlighted a potential threat to global biodiversity. In this regard, trades have become a popular activity on daily social media platforms and it has expanded dramatically. Depending on

---

these growing threats, it has become very essential to understand and observe the 'online wildlife trade" to recognise the keys to conservation priority. All the potential factors associated with the wildlife trade have been described in this below action to understand its cruel impact on the environmental system of India. Thus, there are a wide number of ways that can improve wildlife welfare and the study proposes ways forward in this context.

Objectives
The objectives that have been marked by the researcher to make the study valuable are:
●   To understand all the recent wildlife cyber-crime in India
●   To evaluate the use of modern technology in wild-life cybercrime in India
●   To explore the role of NGOs and authorities in preserving wild-life and biodiversityin India

II. Literature Review

Aspects of wild-life cyber-crime in India
Wildlife cybercrime refers to unlawful and illegal actions against wildlife which include harming and killing different animals that are caused for the exploration of biodiversity. Three categories are associated with wildlife cybercrime in India such as poaching, "illegal wildlife trade" and possession (Singh et al. 2020). *Poaching* refers to hunting and trapping of animals from different reserved places such as national parks which is illegal. Different animals are poached for different reasons such as *rhinoceros* are poached for their horns and *elephants* are poached for their ivory and tusks. Apart from that, *Royal Bengal Tiger* is poached for their claws and skin, *pangolins* are poached for their meat, organs, skin and scales as well as fishes are illegally poached for aquaria which are called river poaching.

On the other hand, *illegal wildlife trading* is another category of crime which refers to the illegal sale of animals at high expenses. This cybercrime includes different elements such as poaching, trafficking and demand. As an example, it can be stated that leopards are poached or hunted for selling their skin, bones, claws, whiskers and other different body parts in wildlife trading (Singh et al. 2020). Apart from that, *musk pods of musk deer* are generally used for producing perfumes and *the hairs of the mongoose are* for making paint brushes as well as *the skin of snakes* is used for producing leather belts. Illegal wildlife trading is the main reason for poaching wild animals.

India is one of the major sources of wildlife trafficking but not only India but different other countries are also the sources of illegal wildlife products. It is identified that *about 8%* of the entire wildlife of the world is in India and wildlife cybercrime is the fourth largest "transnational organised crime" which is worth about *"£15 billion per annum"* (India.mongabay, 2022). The number of wildlife crimes is increasing in India and an increase of *about 78%* in wildlife cybercrime cases are identified in the country between 2019 and 2020 (Downtoearth, 2022). During 2019-20, economic disruption because of the pandemic crisis might be one of the reasons for the increase in wildlife crimes in India.

Recent wildlife cyber-crime in India
Wildlife cybercrime has increased in India during the pandemic crisis and *about 522 wildlife crime cases* were registered including animals and plants across the country in 2020. Ungulates, pangolins, elephants, turtles, big cats, birds, rhinos and other animals were poached or hunted in 2020 for illegal wildlife trading. As per the reports, a total of *43 cases of big cats* were documented because of the demand for leopard nails and tiger nails in the jewellery industry (Thehindu, 2022). Apart from that, a total of *30 cases of elephants* across the country are identified because of the high demand for ivory. Karnataka, Odisha, Tamil Nadu and others have the highest number of incidents of wildlife cyber crimes which indicates most of the cases are happening in Southern India. In addition to that, 72 other incidents of pangolins, 37 incidents of birds, 35 cases of marine wildlife, 49 incidents of reptiles and others are documented across India during 2020.

On the other hand, *"Golden Jackal poaching"* is one of the most significant wildlife crime cases in India. It is identified that the demand for the horns of jackals has increased which led to the poaching of *about 370 jackals* between 2013 and 2019 (Roy and Kumar, 2022). Religious practicing and different online endorsements are the major reasons for the increase in demand for horns in India. In addition to that, the illegal trade of pangolins between 2009 and 2018 is another recent wildlife crime in India. *About 119* pangolins were seized as well as *nearly 7500 pangolins* were killed for the purpose of illegal wildlife trading (Roy and Kumar, 2022). Hence, these are the recent wildlife crime cases in India which are increasing day by day.

Use of technology in wild-life cyber-crime in India
Technology has proven to be an advantage to the world especially after it permits the *"virtuality visit the diverse ecosystem of Earth"*. As opposed to Singh (2020), wildlife crime has slowly turned into a global

---

responsibility as it affects the entire system of global biodiversity. Using the *"information and communication technology networks"* the updating process of every activity related to wildlife crime has become easy. It has been considered the application that remains in the digital world and accesses the information of "online marketplaces", "instant chat applications", "the dark web", "peer-to-peer networks or email services", and "social network platforms" have become easy and simple. On the opposite side, technological innovation also helps in curbing the crime process. Technologyhas made the trade of wildlife products better.

"DNA analysis" is one of the technologies that have been identified as a turning point that helps in the DNA-mapping process to identify high-risk areas. Apart from this, some other advancement that have been implemented in the protection of wildlife crimes are *Digital Radio, Advanced Analytics, and GPS which is able to be accessed through Virtual Watch rooms, smart phones, and cameras*. As stated by Lavorgna et al. (2020), *"Spatial Monitoring and Reporting Tool (SMART) and Cybertracker"* are also effective in tracking specific areas and setting programs that are essential for the combat process. SMART technology has been proven as powerful software that is easy to use and incorporates drones to identify and monitor the potential suspected areas. In addition, *"acoustic traps"* is also a useful innovative technology that has been used in India to track the connection of illegal monitoring processes. *Thermal Imaging* is also used in India in specific areas to monitor the activities and recognise crime to reduce the chance.

Role of NGOs and authorities in preserving wild-life in India

Based on today's collaboration and the efficiency of the NGOs, it can be stated that they have played a vital role in protecting India's wildlife. It includes "studying biodiversity", "conducting research", "creating sustainable alternative livelihoods", and "conserving and restoring habitats" to secure their substances. According to Roy & Kumar (2022), *"Wildlife SOS"* is India's NGO system that was established in 1995. It has been created to preserve India's "rich natural heritage, forests, and wildlife". Wildlife SOS's responsibility includes the rescue and reveal of upset wildlife and resolving human-wildlife conflicts. In addition, based on the requirements the NGO also continues the ex-situ conversation to outreach and communicate with the elements (Wildlifesos.org, 2022). The team of this NGO rescued the last dancing bear in 2009; the practice has been banned from India entirely.

It also has been observed that the team has operated the *"world's largest sloth bear rescue facility center"* which is situated in Agra. Along with this, the team has also worked with reptiles, leopards, birds, elephants, and other mammals. Thus, it has been reported that *"Wildlife SOS"* is the first NGO that opened the "country's first ever elephant hospital" (Wildlifesos.org, 2022). As per the view of Choudhury & Rathod (2022), in the scenario of protecting natural substances, a collaboration of NGOs can make the initiatives more easy and simple. *"Wildlife SOS"* has been identified as organising several kinds of awareness programs to enhance knowledge distribution as it has led "cross-organisational workshops". The NGO is committed to carrying out its responsibility by resolving biodiversity and habitat. Accompanied by the collaboration of state government, *"Wildlife SOS"* has formal "co- operative' agreements" to protect forest life departments that are connected with more than nine states in India.

III.   Literature gap

Different aspects of wildlife cybercrime and recent crimes in India are discussed in this part of the study. In addition, the potential use of technology for wildlife cybercrime is also described. Hence, the government initiatives and projects for reducing the number of cases regarding wildlife cybercrime are not discussed in this section which remains a gap.

IV.   Methods

The researcher has selected all the methods for conducting this specific research topic carefully. The *"interpretivism research philosophy"* has helped the researcher to find out the relationship among research elements (Ryan, 2018). In addition, a deep analysis of the literature review has been possible with the help of this philosophy. The *"inductive research approach"* has assisted the researcher to make an effective result to make a conclusion based on a clear observation. Along with this, with the help of the adoption of an *"exploratory research design"* the researcher has perfectly followed the way of research step by step. It helped the researcher to conduct the research by measuring the information and understanding it in a better way.

Apart from this, the *"secondary qualitative data collection method"* has also helped the research developer to extract all the relevant data and information regarding the research topic. Thus, the primary data collection tool is also effective but it takes much time and money. As observed by Martins et al. (2018), secondary data is able to serve reliable and authentic information. Based on this reason, the research has followed to collect the existing resources to make the study more interesting. It has been also noticed that all the resources are taken from 2018 to 2022 to maintain their reliability and authenticity based on the current research result. It has been observed that all the resources have delivered potential outcomes relevant to the research

topic. In addition, to explore the data, the researcher has adopted *"thematic analysis"* to discuss it in a better way.

V.   Findings And Discussion

Theme 1: Contribution of technology to wildlife protection in India

Depending on the recent technological development, *"Artificial intelligence (AI)"* has been considered a controller of large amounts of conservation data that is essential for wildlife protection activities. In the words of Datta (2022), during the passing days of increasing wildlife crimes, biodiversity has become an area of serious concern. AI technology has made it possible to set "satellite and drone" to take audio, images, or videos. It has been identified as useful in identifying and monitoring wildlife activities to reduce crime numbers. Different types of technological applications are available in this modern era, and it has been remarked that the investigation process is so simple that the responsible authority can focus on animal welfare.

●   **GPS tracking system**

The **"Global Positioning System (GPS) tracking system"** has enabled assistance that has been easy to access with technologically advanced vehicles. Accompanied by the range of software tools, the movement of animals can be easily detected within this technology.

●   **Radio Telemetry**

"Radio Telemetry" is another technology that is able to detect the movement by transmission of radio signals that are also used in India to be attached to the animals that canbe in danger.

●   **Heavy Armoured Vehicles**

These types of vehicles are naturally used in armed conflict areas to create "defensive capabilities' and "operational mobility". In India, it has been used to protect wildlife and balance the biodiversity environment.

●   **Unmanned Aerial Vehicles or Drones**

This is one of the updated versions of the technology that is able to operate with the assistance of a "ground-based control system". As proposed by Plaza et al. (2020, p: 1119), from any place, this device can be operated to monitor this area within the range of reach ofthis device.

●   **Infrared Scopes**

In order to detect infrared radiation, this device technology is considered useful andeffective.

Theme 2: Legal initiatives taken by the Indian government for wildlife protection

Following the rising number of wildlife crimes and the reduction of animals, the government of India has taken numerous steps to protect "wildlife and its habitats". The Indian government has launched **"The Wild Life (Protection) Act, 1972"** which includes rigorous punishment for violation of its equipment (Gov.in, 2022). Basically, this law has been implemented to use any weapon, vehicle, or equipment utilised for committing wildlife offenses. It is one of the most powerful laws that is able to provide the highest degree of protection for animal life (Trouwborst et al. 2020). Under this law, the responsible authority is also responsible to protect endangered and rare animals such as Snow Leopards, Dugongs, Tigers, Gangetic dolphins, Great Indian Bustard, and many others.

Apart from this, the Parliament of India has launched the *"Forest Conservation Act 1980"* to control the "ongoing clear cutting of the forests of India" (Legaldesire.com, 2022). It has been implemented to improve the living standard for those who are habitant near forests and protect natural resources to control biodiversity growth (Jhala et al. 2021). In addition, *"Prevention of Cruelty to Animals 1960"* was also invented to protect against the exaction of needless suffering or pain on animals (Legaldesire.com, 2022). In order to reduce the cruel activity that has been seen applying to animals in India, this law is effective. Based on the cruelty and unnecessary harm to the animals, the punishment for the guilty can be set with the application of this law.

Therefore, the Indian government has also implemented the *"Indian Forests Act 1927"* to save exclusive state control over the forests to achieve the requirement for forests. It can be applied all over the country except territories to provide the Indian forests a greater layer of protection from unwanted harmful

activities (Legaldesire.com, 2022). Any human being cannot do any kind of torture or abuse activity with any animal under the rule of this law. ***"Biological Diversity Act 2002"*** is another law that has been invented to protect the biological resources present in nature. Applying this law, the responsible authority can supervise any utilisation of biological resources (Ghosh-Harihar et al. 2019). In order to protect the commodities to secure the natural resources it is a very useful law. The state government of India has given both financial and technical support to take action on better measures of protection for rare and endangered animals.

Theme 3: Important projects by the Indian government regarding wildlife protection

Wildlife has been identified as an important part of the entire ecosystem of the world. In this regard, protecting wildlife is one of the essential responsibilities of people. According to Karanth et al. (2018), it has been observed that under *"Section 2(37) of the Wildlife Protection Act, 1972"*, any aquatic or animal needs to be protected to secure the biodiversity balance. In order to achieve the desire of maintaining wildlife, the Indian government has implemented five different projects.

● *Project Snow Leopard*

In order to protect the snow leopard inhabiting the Himalayan landscape, the *"Global Snow Leopard and Ecosystem Protection Program"* has been organised. In 2009, this project has made to serve protection in the "Trans and Greater Himalayan Region".

● *Project Tiger*

This project has been launched in the *"Palamau Tiger Reserve, Jim Corbett National Park, Uttarakhand"* (Margulies et al. 2019). The killing activity of the tiger has been set to imprisonment for two years and under *S.429* fine.

● *Project Elephant*

After implementing this project, near about 65% of elephants become possible to protect spread over India. It has been associated with ensuring the welfare of domesticated elephants.

● *UNDP Sea Turtle Project*

This project has been implemented by the *"Wildlife Institute of India"* in November 1999 to protect turtle breeding places. In this project, confirmation of utilise of Satellite Telemetry has been set to locate the areas.

● *Crocodile Conservation Project*

Preserve the Indian crocodiles; this project has involved securing the natural habitat of crocodiles. It has been noticed that 1800 mugger/crocodiles, 4000 gharial/alligator, and 1500saltwater crocodiles can be reinstated in India to balance the biodiversity.

VI. Conclusion And Recommendations

Conclusion

Due to passing days, in India the constantly growing cybercrimes have indicated that wildlife is in danger as the number of different species has become limited. The frequency of animals and other species under wildlife needs to be balanced to protect the biodiversity level. In order to reduce the number of wildlife crimes in India, the Indian government has implemented several approaches by launching different effective laws to make the initiatives perfect. In addition, different projects also have been created to secure wildlife and its habitats.

Recommendations

Observing several flaws in the implementation of the governmental laws, it can be mentioned that with the powerful involvement of governmental authorities. They will be able to monitor whether the laws have been applied or not can help in managing the implementation in a far better way. In the words of Keeley et al. (2019), the role of government is totally different in the situation of protecting something huge natural resources. Similarly, the Indian government can provide better protection to wildlife situated in different regions across India. In addition to this, with the adoption of more advanced and modern technology, the monitoring processes can be improved well by that responsible authorities

can detect all the locations and areas where wildlife can be endangered. Making the legislation more powerful also can set powerful boundaries for the offenders.

References
[1]. Choudhury, N., & Rathod, A. (2022). Wildlife Conservation-A Challenge under Present Scenario. Latest Trends In Zoology And Entomology Sciences, 17. https://www.researchgate.net/profile/Neelanjana-Choudhury-2/publication/364322249_Wildlife_Conservation_A_Challenge_Under_Present_Scen ario/links/6347fafb2752e45ef6b493df/Wildlife-Conservation-A-Challenge-Under- Present-Scenario.pdf#page=21
[2]. Datta, S. C. (2022). Only wildlife conservation may be future omicron-like-preventive- epidemic-covid-19-model enriched forestry-horticulture-agriculture-environment- health-biodiversity-science-technology-communication-application-issues. Hort IntJ, 6(1), 6-9.
[3]. https://pdfs.semanticscholar.org/a0e8/0b90defa5f5f6132a0800d4cedf01bceaf7c.pdf Downtoearth, (2022).Why environmental crimes are rising in India. Retrieved on: 13th
[4]. November 2022; retrieved from: https://www.downtoearth.org.in/factsheet/why-environmental-crimes-are-rising-in-india-81785

[5]. Ghosh-Harihar, M., An, R., Athreya, R., Borthakur, U., Chanchani, P., Chetry, D., ... & Price,

[6]. T. D. (2019). Protected areas and biodiversity conservation in India. Biological Conservation, 237, 114-124. https://doi.org/10.1016/j.biocon.2019.06.024

[7]. Gov.in, 2022. Steps Taken by Government to Protect Wildlife and Its Habitats [Online]. Available at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1843396#:~:text=Important%20ste

ps%20taken%20in%20this,committing%20wildlife%20offence(s).> [Accessed on: 13th November, 2022]

[8]. India.mongabay, (2022). Why is India a major hub for wildlife trafficking? Retrieved on: 13th November 2022; retrieved from: https://india.mongabay.com/2022/06/explainer-why-is-india-a-major-hub-for-wildlife-trafficking/#:~:text=Wildlife%20trafficking%20in%20India%20is,the%20attraction% 20towards%20exotic%20pets.

[9]. Jhala, Y., Gopal, R., Mathur, V., Ghosh, P., Negi, H. S., Narain, S., ... & Qureshi, Q. (2021). Recovery of tigers in India: Critical introspection and potential lessons. *People and Nature*, *3*(2), 281-293. https://doi.org/10.1002/pan3.10177

[10]. Karanth, K. K., Gupta, S., & Vanamamalai, A. (2018). Compensation payments, procedures and policies towards human-wildlife conflict management: Insights from India. *Biological Conservation*, *227*, 383-389. https://doi.org/10.1016/j.biocon.2018.07.006

[11]. Keeley, A. T., Beier, P., Creech, T., Jones, K., Jongman, R. H., Stonecipher, G., & Tabor, G.

[12]. M. (2019). Thirty years of connectivity conservation planning: An assessment of factors influencing plan implementation. *Environmental Research Letters*, *14*(10), 103001. https://iopscience.iop.org/article/10.1088/1748-9326/ab3234/meta

[13]. Lavorgna, A., Middleton, S. E., Pickering, B., & Neumann, G. (2020). FloraGuard: Tackling the online illegal trade in endangered plants through a cross-disciplinary ICT-enabled methodology. *Journal of Contemporary Criminal Justice*, *36*(3), 428-450. https://doi.org/10.1177/1043986220910297

[14]. Legaldesire.com, 2022. *WILDLIFE FORENSICS: INVESTIGATION TECHNIQUES & LAWS IN INDIA* [Online]. Available at: <https://legaldesire.com/wp- content/uploads/2022/03/WILDLIFE-FORENSICS-INVESTIGATION- TECHNIQUES-LAWS-IN-INDIA.pdf> [Accessed on: 13th November, 2022]

[15]. Margulies, J. D., Bullough, L. A., Hinsley, A., Ingram, D. J., Cowell, C., Goettsch, B., ... & Phelps, J. (2019). Illegal wildlife trade and the persistence of "plant blindness". *Plants, People, Planet*, *1*(3), 173-182. https://doi.org/10.1002/ppp3.10053

[16]. Martins, F. S., da Cunha, J. A. C., & Serra, F. A. R. (2018). Secondary data in research–uses and opportunities. *PODIUM sport, leisure and tourism review*, *7*(3). https://doi.org/10.5585/podium.v7i3.316

[17]. Plaza, P. I., Blanco, G., & Lambertucci, S. A. (2020). Implications of bacterial, viral and mycotic microorganisms in vultures for wildlife conservation, ecosystem services and public health. *Ibis*, *162*(4), 1109-1124. https://doi.org/10.1111/ibi.12865

[18]. Ranthamborenationalpark.com, 2022. *Wildlife Conservation Initiatives by Indian Government* [Online]. Available at:

<https://www.ranthamborenationalpark.com/blog/wildlife-conservation-initiatives- indian-government/> [Accessed on: 13th November, 2022]

[19]. Roy, D., & Kumar, V. (2022). A Concise Review On Wildlife Crimes And Wildlife Conservation In The Region Of Kerala And Tamil Nadu. *Journal of Positive School Psychology*, 6(8), 1210-1218. https://www.journalppw.com/index.php/jpsp/article/download/9887/6458

[20]. Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, *25*(4), 41-49. https://doi.org/10.7748/nr.2018.e1466

[21]. Singh, J. (2020). Internet User and Cyber Crime in India. *EmErging TrEnds in Big daTa, ioT and CyBEr sECuriTy*, 86. https://msi-ggsip.org/wp- content/uploads/conference2020.pdf#page=99

[22]. Singh, S., Barmase, M. A., Tiwari, A. S., & Chikne, (2020). M. S. WILDLIFE FORENSICS: INVESTIGATION TECHNIQUES & LAWS IN INDIA. *Nyayik Vigyan Articles of Forensic Research and Criminal Investigation*. p.1-4

[23]. Thehindu, (2022). *Despite pandemic and lockdowns, illegal hunting and trade in wildlife continued across India, shows report*. Retrieved on: 13th November 2022; retrieved from: https://www.thehindu.com/news/national/karnataka/despite-pandemic-and-lockdowns-illegal-hunting-and-trade-in-wildlife-continued-across-india-shows- report/article65068674.ece

[24]. Trouwborst, A., McCormack, P. C., & Martínez Camacho, E. (2020). Domestic cats and their impacts on biodiversity: A blind spot in the application of nature conservation law. *People and Nature*, *2*(1), 235-250. https://doi.org/10.1002/pan3.10073 Wildlifesos.org, 2022. *World NGO Day: A Reminder That NGOs Are A Strong Pillar Of*

[25]. *Society* [Online]. Available at: <https://wildlifesos.org/chronological-news/world- ngo-day-a-reminder-that-ngos-are-a-strong-pillar-of- society/#:~:text=Today%2C%20the%20NGO%20has%20evolved,on%20wildlife%20 for%20their%20sustenance.>

[Accessed on: 13th November, 2022]