**Wildlife Crime and its Socio-Ecological Impact**

**Dr. Chanchal Kumar**

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur, Chhattisgarh, India

Email -chanchalbiosgmail.com

**First Author: Diksha Kashyap1**

Research Scholar

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur, Chhattisgarh, India

Email-dikshakashyap505@gmail.com

**\*Corresponding Author –**

**Dr. Ajay Amit**

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur, Chhattisgarh, India

Email -ajay2amit@gmail.com

**Megha Yadav2**

Research Scholar

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur, Chhattisgarh, India

Email-dikshakashyap505@gmail.com

**Priyanka Gupta2**

Research Scholar

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur, Chhattisgarh, India

Email -blessiuikey@gmail.com

**ABSTRACT**

Wildlife crime poses a significant hazard to endangered species. Due to these offenses, a number of species have become extinct. Wildlife crime is destroying biodiversity and causing the extinction of species. This illegal activity includes the illegal taking, trafficking, obtaining, and consumption of wildlife. It is frequently conducted by transnational criminal organizations. Now, however, individuals worldwide are attempting to preserve these endangered species and restore them to their natural habitats. Everyone should be aware of the events, crimes, incidents, and conservation techniques that have occurred in the region in order to take such measures. Keeping this in view, this chapter aims to discuss the various aspects of wildlife crimes and their impact on society.

**Keywords:** Wildlife Crime, Biodiversity, Wildlife, Endangered Species, Conservation Techniques

**I. INTRODUCTION**

The term Wildlife is used to describe the species of animals and plants that are found in their natural habitats such as forest areas, desert land, and rainforest areas [1]. It includes non-domesticated animal or plant that grows or live wild in an area far from human influence [2]. Generally, animals are identified based on body covering (hair, fur, feathers, scales, shells), appendages (arms, legs, wings, fins, tails), and their way of movement (walking, crawling, flying, swimming) [3]. Wildlife crimes include trading, possessing, and consumption of certain conserved flora and fauna [4]. Illegal hunting, poaching, trafficking, and trade of banned wildlife are also a class of wildlife crime [5]. Wildlife crime overexploits certain species of plants or animals resulting in the disturbance of the fine balance of that particular ecosystem [6]. The reason behind the wildlife crime is mainly economical but it can be committed due to entertainment or recreational reasons too [7]. After assessing the situation, the United Nations Office on Drugs and Crime (UNDOC) included most of the wildlife crimes as a transnational organized crime (TOC) in 2003 [8]. Wildlife conservation and protection are essential for the stability of the ecosystem [9]. As the most involved animal in the ecosystem, humans have a greater responsibility to preserve the ecological equilibrium of the earth [10]. It has been a fact that the diversity of flora and fauna in any ecosystem is directly linked with the stability of that particular ecosystem [11]. Keeping this in view, this chapter aims to discuss the various aspects of wildlife crimes and their impact on society [12].

**II. IMPORTANCE OF WILDLIFE**

According to Section 2(37) of the Wildlife Protection Act, 1972, Wildlife may include any animal or plant either terrestrial or aquatic that grows and propagates without any human interference in any habitat [13]. The presence of wildlife has emotive as well as social significance to society as they contribute to the stability of the ecosystem [14]. Even smaller organisms such as earthworms aid immensely in agricultural productivity [15]. So before discussing wildlife crime in the following sections in this section, we will discuss the importance of wildlife in brief [16]. The function of wildlife in maintaining an ecological balance is essential [17]. The presence of wild animals has emotive and social significance for humans, as they contribute to the stability of natural processes [18]. The significance of wildlife can be categorized as ecological, commercial, investigative, and conservation of biological diversity [19]. In addition, animals provide us with sustenance, clothing, and income [20]. Without wildlife, human survival would be virtually impossible [21]. We are a part of the ecosystem that sustains wildlife, and our participation is necessary to preserve the ecological equilibrium on Earth [22]. Wildlife plays a crucial role in agricultural development, as animals such as cows, buffaloes, etc. assist with tillage or tilling the soil, etc [23]. In addition, numerous microorganisms, and small animals, such as reptiles, contribute to soil fertility and provide a solid foundation for agricultural activities [24]. Microorganisms, such as earthworms, are said to be farmers' best friends, as they aid in the decomposition of dead matter and contribute humus to the soil [25]. This improves the soil's fertility [26]. Overall, wildlife performs important roles in our lives, including those listed below:

1. **Ecological importance**

Wildlife contributes to the preservation of the ecological equilibrium of nature [27]. The killing of carnivores causes an increase in the number of herbivores, which hurts forest vegetation [28]. As a result, these herbivores leave the forest in search of sustenance on agricultural land and destroy our crops [29]. This demonstrates that wildlife helps maintain ecological equilibrium by preying on one another [30]. Large predatory animals are the primary cause of ecological development [31]. As a result, once equilibrium and stability are disrupted, numerous issues arise [32].

1. **Economic Importance**

Wildlife can be used to generate income [33]. Wild plant products such as food, medicine, timber, and fibers have economic value, as do wild animal products such as meat, medicines, hide, ivory, lac, and silk, among others [34]. Wildlife provides us with the primary and fundamental materials necessary to launch any industry, factory, etc. for our financial gain [35]. Wildlife is also regarded as one of the greatest contributors to the expansion and improvement of international trade and the growth of national income [36]. It also benefits farmers the most by improving tillage and other agricultural practices [37]. Therefore, wildlife is of enormous economic value to everyone [38]. Since wildlife is the source of income for many, it plays a crucial role as an economic factor in their lives [39].

1. **Investigatory Importance**

Wildlife is a great resource to know about the past and evolution [40]. Animals like Crocodiles, tortoises, and other reptiles have been living on this earth for ages and scientific studies and analyses about their habits and anatomy are proven to be very informative in knowing the history of the earth in general and about the ecosystem in particular vegetation and trees of dense forests like of Amazon are still to be fully explored and the information hidden behind that untouched territory of earth will have immense value in understanding the evolution and changing dynamics of the ecosystems [41]. The information gathered from the wildlife may be implemented in the laboratory to develop new products with greater economic value [42]. With the advent of biotechnology, microbiology, and other applied sciences. Now, it is possible to produce wildlife products in the laboratory on a commercial scale [43].

**d. Importance of Wildlife in Biodiversity**

An ecosystem is always dynamic and its nature depends on the various interactions among the ecosystem's various biotic and abiotic components [44]. Traditionally, in Wildlife Habitat relationship (WHR) the wildlife is conceptualized as the function of habitat [45]. Each wildlife species has its own set of key ecological functions (KEFs). For the sustainability of every natural ecosystem, it is of utmost importance that the rate of reproduction and rate of death of every living component should always synchronize. Animals in the ecosystem act as environmental engineers and affect the geomorphology of the ecosystem [46]. In any ecosystem, the wildlife species play an important role in its diversity as these wildlife species are either functional keystone or functional specialization roles in the ecosystem [47]. Most of the wildlife species work as functional keystone species whose removal may affect the balance of the ecosystem [48].

**e. Conservation of Biological Diversities**

By conserving fauna, environmental diversity can be preserved. Some scientists assert that a more diverse ecosystem is more stable [49].

**f. Importance in agriculture**

The importance of wild organisms to modern agriculture is immense [50. The following describes the significance of biodiversity in the agricultural sector [51]:

a. The creation of a novel hybrid variety from native plants [52].

b. Utilizing wild animals to produce a superior hybrid variety of agricultural animals [53].

c. They can produce new species of vegetation and animals [54].

Wildlife plays a crucial role in agricultural development because animals such as cows, buffaloes, etc. assist with ploughing or tilling the soil, etc [55]. In addition, numerous microorganisms, and small animals, such as reptiles, contribute to soil fertility and provide a solid foundation for agricultural activities [56]. Microorganisms, such as earthworms, are considered to be farmers' best friends, as they aid in the decomposition of dead organisms and contribute humus to the soil [57]. This improves the fertility of the soil [58].

**III. WILDLIFE CRIME AND ITS NATURE**

Wildlife crime is the fourth most lucrative type of global organized crime [59]. The illicit taking, trading, exploitation, possession, or killing of animals or plants in violation of national or international law constitutes a wildlife crime [60]. Wildlife crime refers to violations of national and international laws and regulations intended to safeguard natural resources and ensure their sustainable management [61]. Wildlife crime refers to any act that violates laws protecting wild animals and vegetation [62]. It can cause animals anguish and suffering and extirpate species [63]. It is on the verge of extinction and is linked to other serious crimes such as gun crimes and organized crime [64]. Wildlife crime is defined in Section 2(c) of the Wildlife Protection Act of 1972 as injuring, destroying, or removing any body part of any such animal, or, in the case of wild birds or reptiles, disturbing or damaging their eggs or nests [65]. Many of the world's animals have become extinct or endangered as a result of wildlife crime [66]. Animals are being slaughtered en masse, and not just for sustenance or clothing, but also for ornamental value, traditional medicine, and other expressions of status [67]. The enormous profits generated by wildlife trafficking enable criminal networks to exploit resource-strapped states [68]. In a process that intensifies corruption and undermines development, syndicates frequently pay hefty bribes to officials who earn modest and frequently inconsistent salaries [69]. It is extremely difficult to measure the scope of wildlife crime and identify the actors, species, activities, state responses, and drivers involved due to the illegal nature of the activity [70]. Current strategies largely rely on the demand side of wildlife crime (for example, poaching statistics) [71]. However, more comprehensive approaches that address the economic and social factors contributing to supply, as well as consumer preferences in demand countries, would produce more effective responses [72]. To combat this complex phenomenon, we require more diverse data to comprehend the factors that motivate individuals to commit wildlife crimes [73]. Wildlife crime is unlikely to exist in isolation from other criminal activities (such as drug trafficking), and it is necessary to identify such intersections [74].

**IV. TYPES OF WILDLIFE CRIME**

There are the following types of Wildlife crimes:

**a. Poaching**

Poaching includes the illicit hunting, capture, and killing of wild animals, which is commonly associated with land use rights [75]. Poaching was once performed for subsistence and to supplement the meager of the impoverished peasantry [76]. Poaching, according to the law, is the illicit shooting, trapping, or taking of game, fish, or plants from private property or a location where such activities are prohibited [77]. Poaching is a significant existential hazard to numerous wild organisms across the globe and a major contributor to biodiversity loss [78]. This has occurred for a variety of reasons, including claiming the land for human use [79]. However, in recent times, illegal conduct is the yearning for rare animal products such as ivory, fur, organs, skin, bones, and teeth [80]. Poaching is the unlawful killing of animals in violation of local, state, federal, or international law [81]. Poaching includes murdering an animal out of season, without a license, with a restricted weapon, or in a restricted manner, such as jacklighting [82]. Poaching also includes murdering a protected species, exceeding the bag limit, and killing an animal while trespassing [83]. People engage in poaching for various purposes, including food, pleasure, medicine, leather, trophies, and bones [84]. In some regions, such as China, the demand for highly valued animal products such as ivory and furs drives poaching [85].In other locations, poaching is motivated by destitution or disregard for hunting laws [86]. The practice of removing eggs from the burrows of loggerhead turtles is an example of poaching [87]. In South Africa, 448 rhinos were slain in 2022, three fewer than in 2021[88]. In a country like India, where a rhino is poached every 20 hours, over the past three years there have been 90 seizures of elephant tusks/ivory and 29 instances of elephant poaching [89]. The Ministry of Environment, Forest, and Climate Change (MOEFCC) shared the data with the Lok Sabha on August 8, 2022 [90]. In 2021, the greatest number of elephant tusk seizures, 42, and the highest number of elephants poaching incidents, 14, were reported across the country [91]. Meghalaya was solely responsible for seven of the fourteen poaching fatalities [92]. In 2018-2019, six elephant deaths were attributed to poaching, while in 2019-2020, nine elephant deaths were attributed to poaching [93].In South Africa, rhino poaching increased for the first time in six years in 2021[94]. It is plausible that the COVID-19 pandemic was responsible for this change [95].

**b. Coursing**

Coursing is defined as using sight rather than scent to pursue game animals such as hares with greyhounds [96]. Coursing is the pursuit of game or other animals by dogs, primarily greyhounds and other sighthounds, who capture their quarry through speed, sight, and not scent [97]. Coursing was a prevalent hunting method utilized by nobles, landowners, and the wealthy, as well as commoners with sighthounds and lurchers [98]. Hares, foxes, various species of deer, antelope, gazelle, jackals, and wolves are hunted for sport and recreation [99]. Coyotes and jackrabbits are the most prevalent animals encountered on courses [100]. In contemporary, organized coursing competitions, two greyhounds pursue one hare simultaneously [101]. The dogs are judged on both their performance and their ability to capture the hare: points are awarded for outrunning the other dog and catching the hare, for turning it at a right angle, for wrenching (turning it less than a right angle), for tripping the hare, and for a kill [102]. In his report, ‘Arrian on Hunting’ written in 150 A.D., the Greek philosopher and historian Arrian described coursing in detail [103]. During the 16th century, the sport became extremely popular but now it is banned in countries like England, North Ireland, Scotland, the UK, and Australia [104].

1. **Hunting**

Hunting is defined as tracking and killing wild animals or birds for amusement or subsistence(105). Humans hunt when they seek, pursue, capture, or slaughter wild or feral animals (106). The most common reasons for humans to hunt are to exploit the animal's body for food (that is meat) and useful animal products (fur, hide, bone, tusks, antler, etc.), for recreation /taxidermy, although it may also be done for non-exploitative reasons such as removing predators dangerous to humans or domestic animals (for example,wolf hunting), to eliminate pests and nuisance animals that damage crops /herbivores /pest Species that are hunted for sport are commonly referred to as "game" and are typically mammals and birds (107). A hunter or huntsman is a participant in a hunt, a game reserve is a natural area used for hunting, and a gamekeeper is an experienced hunter who helps coordinate hunts and/or manages game reserves (108).

1. **Illegal Wildlife Trade**

It refers to the products that are derived from animals or plants that are not domesticated and are typically extracted from their natural environment or reared in a controlled environment [109]. It may involve the exchange of living or deceased humans, tissues such as skins, bones, flesh, or other goods [110]. It primarily entails the smuggling, poaching, capturing, or collection of endangered species, protected wildlife (including animals or plants subject to harvest quotas and permits), their derivatives, or products [111]. IWT refers to a vast array of species, products, geographies, actors, and networks; however, it is commonly understood to refer to the harvest and trade of wild species in violation of national law, including harvest quotas, protected species lists, protected areas regulations, and obligations to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) [112]. Illegal wildlife trade (IWT) is a primary threat to global biodiversity, imperiling not only large charismatic mammals but also tens of thousands of species of terrestrial and marine flora, fauna, and fungi worldwide [113]. This not only threatens the survival of species but also diminishes the variety of functions and processes that these species perform in their ecosystems, including those that are essential for stable, resilient ecosystems [114]. Besides this, the illegal wildlife trade results in: a) Harm to individual plants, fungi, or animals affected by the case, b)Harm to species survival, c) Harm to public ecosystem goods and services and broader human well-being, d) Harm to individual trees, including individuals of great age (although welfare is more commonly associated with fauna) e) Reduction in the survival probability of a Critically Endangered species, at the level of both the local population and the global population, f) Alterations to future forest structure and community, g) Damage to relational values (e.g., a sense of place, a bequest, or values of existence) [115].

In 2016, 50 tigers were traded, the highest number in the past decade [116]. In the past 3 years (2018, 2019, and 2020) more than two thousand cases were registered across India for the killing or trafficking of wild animals, which resulted in the arrest of nearly four thousand accused of illegal trading [117]. The number of cases registered and the persons arrested in the years 2018, 2019, and 2020 were 648:1099, 805:1506, and 601:1231 respectively [118].In July 2020, exotic species viz. red kangaroo (Macropus rufus), Aldabra tortoise (Aldabrachelys gigantea), blue macaws (Anodorhynchus hyacinthinus), and capuchin monkey (Cebus capucinus) were seized from Lailapur, Assam [119].

Other wildlife crimes include persecution of badgers, birds, and bats, egg theft and collection, collection of or trade in protected species and animal products, not registering animals that require a license, taking protected plants, use of poisons or explosives to kill or injure animals, animal cruelty, hunting with dogs, introducing invasive species, killing, or capturing, damaging, or destroying endangered species, and killing or capturing, damaging, or destroying protected plants [120].

**Table 1. Illegal Wildlife Trade of Animals**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of Animals** | **Illegal Wildlife Trade Product** | **Use** | **IUCN Conservation Status** |
| Elephant | Ivory Tusk | To produce ornaments, figurines, and small carvings, as well as items like jewellery, piano keys, and chess sets. | Endangered |
| Tigers | Skin, bones, Claw, fur, teeth | Skin can be sold as home décor, bones used to make non-essential tonics and medicine, teeth and claws for jewellery, and fur used to make jackets. | Endangered |
| Rhino | Horn | traditional medicine and have an artistic value | Vulnerable |
| Pangolin | Scales, meat, blood | They are used for spiritual protection. Scales are used in traditional medicine and jewellery and meat is consumed for delicacy. | Endangered |
| Hornbill | Horn | Have medicinal and artistic value | Vulnerable |
| Crocodile | Skin, teeth, claw | Skin to make cosmetics | Critically Endangered |
| Snake | Skin, venom | Skin is used to make different items like boots, bags, belts, etc. Venom is used to make medicine. | Vulnerable |
| Bear | Bile Juice | Used as medicinal to cure cancer, colds, etc. | Threatened with Extinction |
| Tortoise | Shell | To make ornaments and guitars. | Vulnerable |
| Antelopes | Horns and skin | Horns have high medicinal value and skin is used to make box calf and suede. | Vulnerable to Near Threatened |
| Ostrich | Fur and eggshell | Egg shells have medicinal value and can also be used as a tool and fur is used for decoration, brushing, and making dusters. | Least Concern |
| Leopard | Head, fur, skin, bone, claw, teeth | The skin is used for making boots, coats, blanket | Endangered |
| Birds | Live animals or their meat | To make them pets or eat them | Critically Endangered |
| Peacock | Plucked feathers and meat | Have artistic and spiritual value. | Endangered |
| Wild Boar | Meat | Consumption | Least Concern |

**Table.2 No. of Cases of Wildlife Crimes in India**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Type of Wildlife Crime** | **Number of Cases (2021-2023)** |
| 1. | Poaching | 722 |
| 2. | Hunting | 863 |
| 3. | Coursing | 756 |
| 4. | Illegal Wildlife Trading | 1203 |
| 5. | Persecution of badgers, birds, and bats | 489 |
| 6. | Egg theft and collection | 183 |
| 7. | Collection of or trade in protected species and animal products | 370 |
| 8. | Not registering animals that require a license | 150 |
| 9. | Taking protected plants | 195 |
| 10. | Use of poisons, snares, or explosives to kill or injure animals | 561 |
| 11. | Animal cruelty | 720 |
| 12. | Hunting with dogs | 120 |
| 13. | Introducing invasive species | 157 |
| 14. | Killing. Damaging and Destroying the Habitat of Animals | 750 |

**IV. LAWS RELATED TO WILDLIFE**

**A. International Law Related to Wildlife Crime**

**a. Migratory Bird Treaty with Canada, signed by Great Britain (1916)**

• The Migratory Bird Treaty between the United States and Canada, which was a colony of the United Kingdom at the time it was signed, has been amended several times.

• The purpose of this treaty is to protect migratory birds considered to be in peril of extinction

• This treaty protects species that are either harmless or beneficial to humans.

• It establishes closed seasons for hunting, with no hunting permitted for insectivores unless they endanger crops, in which case a permit may be issued.

**b. Migratory Bird and Game Mammal Treaty with Mexico (1936)**

• This treaty was signed to protect migratory birds between the United States and Mexico.

• Hunting is prohibited in the region.

• In the United States, a code outlining the penalties for violating this treaty was enacted.

• In 1972, the treaty added many other species of birds, including eagles, hawks, and owls

**c. Antarctic Treaty (1959)**

Twelve nations lent their support to the 1959 Third Antarctic Treaty Consultative Meeting. No Antarctic-native birds, flora, or mammals may be brought into or out of the United States or Canada.

**d. Environmental Protection Treaty with the Russian Federation (1973)**

**•** In 1973, the United States and the Russian Federation signed the Environmental Protection Treaty to protect the Arctic and Subarctic ecosystems.

• Air quality and water pollution were also a concern.

• Legislation has been introduced to remove the Pacific walrus from the endangered species list, which will have an impact on the treaty.

**e. European Community (EC) (1992)**

• Although numerous international organizations work to safeguard animal rights worldwide, only the European Community (EC) has discussed wildlife habitats.

• Adopted in 1992, the organization seeks to maintain biodiversity by conserving 200 rare and distinctive habitat types of natural or wild fauna and flora. However, these privileges are exclusive to European nations.

**f. Polar Bear Treaty (1974)**

• Several nations, including the United States, Canada, Denmark, Norway, and the Soviet Union, signed this treaty to protect the polar bear population.

• The treaty stipulated that all of these nations must restrict the hunting, slaughter, and capture of polar bears and maintain the ecological integrity of their feeding grounds and migration routes.

**g. African Elephant Conservation Act (1989)**

• In 1989, the elephant population was declining as the illegal production of ivory increased.

• This treaty was signed to protect the exploitation and poaching of African elephants for their ivory.

• Some African countries had already implemented conservation measures, but more countries needed to comply or the African elephant population would continue to decline.

**h. CITES (1973)**

**• The Convention on International Trade in Endangered Species (CITES) was established to prevent the exploitation of flora and animals that are threatened with extinction.**

**• In March 1973, approximately 80 countries signed this treaty, and by 1999, 146 countries were members.**

**B. Indian Laws Related to Wildlife Crime**

**a. Sec.428 IPC, 1860**

Whoever commits a misdemeanor by killing, poisoning, maiming, or rendering useless any animal or animal of ten rupees or more in value shall be punished with imprisonment of either description for a term that may extend to two years, a fine, or both.

**b. Sec. 429, IPC 1860**

Whoever commits mischief by killing, poisoning, maiming, or rendering useless any elephant, camel, horse, mule, buffalo, bull, cow, or ox, regardless of its value, or any other animal valued at fifty rupees or more, shall be punished with imprisonment of either description for a term that may extend to five years, a fine, or both.

**c. Article 48A** The State is mandated by the Indian Constitution to protect and enhance the environment and to preserve wildlife and forests. The 42nd Amendment to the Constitution inserted this article in 1976.

**d. Article 51A**  of the Indian Constitution imposes certain fundamental duties for the people of India. One of them is to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures.

**e . Wildlife Protection Act, 1972**

Wildlife Protection Act 1972 was enacted by the Government of India on 9th September 1972 to safeguard wild animals, birds, and plants, and to ensure the ecological and environmental security of India. The Indian Wildlife Protection Act also provides details about restrictions on hunting to safeguard animal species. It is a law in India that aims to protect and conserve wildlife. It prohibits the hunting, poaching, and trading of endangered species, and establishes penalties for such activities. The act also focuses on the preservation of habitats and the prevention of wildlife exploitation. The Wild Life (Protection) Act, of 1972 provides a legal framework for the protection of various species of wild animals and plants, management of their habitats, regulation, and control of trade in wild animals, plants, and products made from them. It is divided into six schedules, seven chapters, and 66 sections that categorize protected plants, specially protected animals, and vermin species. These schedules outline the level of protection and monitoring required for various plants and animals. In recent times, the Wildlife Protection Amendment Bill for 2021-2022 has been introduced in the Lok Sabha. This bill aims to expand the coverage of protected species and align the regulations with the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) to ensure better conservation measures in India. This Act provides for the protection of the country’s wild animals, birds, and plant species, to ensure environmental and ecological security. The Act was last amended in the year 2006. An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015.

**V. Reason Behind Wildlife Crimes**

**a. Not enough laws to prohibit the Wildlife Crime**

There are not enough stringent laws to deter illicit traders and poachers, so they can get away with their actions. The punishments for these crimes are excessively lenient in comparison to the severity of the crimes being committed. In India, the fine ranges from approximately ten thousand to twenty-five thousand rupees and seven to ten years in prison. However, the majority of poachers are acquitted due to ineffective prosecution. The three-year conviction of a poacher was deemed a rare occurrence. Only 10% of all cases registered in India over the past three and a half years have resulted in convictions, which is a cause for concern. Poaching has increased alarmingly in recent years, and the existence of regulations for wildlife protection that can be circumvented is a significant contributing factor. The regulatory systems' laxity and vulnerabilities have enabled poachers to exploit and circumvent enforcement measures, despite the presence of regulations aimed at protecting endangered species and preserving biodiversity [121].

**b. Transferring Illegal trade items into legal markets**

The wildlife products wind up on legal markets despite their illegal origins. Previously, it was widely believed that illegally traded and poached wildlife products were sold exclusively on underground markets. However, numerous investigations have concluded that the majority of illegally traded wildlife products are sold on legal markets such as peacock feathers, oak, sea pearls, cuttlefish, ornaments, and pieces of jewelry made with ivory. This causes an increase in predation due to a rise in demand [122].

**c. Huge money on offer**

According to reports, these wildlife materials command astronomical prices on national and international markets, which encourages poachers to search for more cash. This vicious cycle of avarice, which is one of the leading causes of poaching, has been a constant source of fuel for the poaching industry. The illegal wildlife trade is a multibillion-dollar industry, and because of this, cartels, senior government officials, and wildlife regulation officials all profit from it [123].

**d. Undocumented species being traded legally**

Contrary to national laws, thousands of undocumented species can still be traded legally on the international market. There has been considerable clarity regarding which species are deemed endangered. Despite being on the verge of extinction, some species are commercially exploited in large numbers due to ambiguous documentation [124].

1. **The diverse demand and usage**

Right from being used in medicines to making a carpet and rugs, the usage of wildlife crime is so diverse that sometimes it is hard to tackle it on such a big scale.  In India, this includes diverse products such as Mongoose hair; Rhino horn, snake skins, Tiger and Leopard claws, bones, skins, whiskers; Elephant tusks; Deer antlers; Shahtoosh shawl; Turtle shells; Musk pods; Bear bile; medicinal plants; timber and caged birds such as Parakeets, Mynas, Munias, etc. The majority of these illegally obtained parts are meant for the international market and have a direct demand in India [125].

1. **Unproven Religious, Aphrodisiac, and Medical Values**

Some animals have been hunted for religious purposes and objects used in religious ceremonies, such as hooves, tails, skin, feathers, fangs, heads, far, horns, and ivory. Some Tibetan priests, for example, have been known to fulfill religious obligations by hunting rare animals. Other animals, including rhinos, turtles, orangutans, snakes, seahorses, and pangolins, are pursued because it is believed that their parts can be used to treat a variety of diseases, including cancer. For example, pangolin scales and turtle blood are ground into a powder and used for their purported medicinal properties. It is believed that buffalo horns, fresh serpent blood, and tiger male parts have aphrodisiac and virility-enhancing properties [126].

1. **Food and Exotic Dishes for the Elite**

Some untamed animals, such as zebras, lions, hippos, elephants, gazelles, snakes, and giraffes, are slaughtered for their meat, which is traditionally known as "bush meat.". In certain parts of the globe, the meat of these animals, including apes and snakes, is considered a delicacy. In exclusive restaurants in Asia, exotic dishes made from snakes, turtles, pangolins, bats, whales, and orangutans are sold to the privileged[127].

### **Organized Criminal Networks**

Criminal networks associated with human trafficking, money laundering, and drug cartels prey on certain species of wildlife. The criminal network is large enough to slaughter the animal in sub-Saharan Africa and export its body parts to Asia. Some animals are seized alive by criminal gangs to demonstrate their strength, while others are sold as pets. Humans are the only known natural predators of the rhinoceros [128].

### **Habitat Loss, Logging, and Expansion of Human Settlement Areas**

The day-to-day increase in the human population compels people to invade land set aside for untamed animals. Animals are slain so that humans can expand their cities, build roads, settle, and engage in agriculture. Destruction of animal habitats leads to starvation, which forces animals to invade agricultural land or assault livestock, ultimately resulting in their extinction. Additionally, logging generates roads and pathways into the interior of the wilderness, giving poachers access to the deeper regions of the forest that are home to a variety of wildlife species [129].

**VI. IMPACT OF WILDLIFE CRIME ON THE ECOSYSTEM**

**a. Extinction**

Some animals are currently considered extinct, while others are categorized as endangered due to wildlife crime. Additionally, over a thousand rhinoceros are killed annually for their horns Tigers are also critically endangered due to illegal poaching. As pangolins in Asia become difficult to locate, poachers now target pangolins from all over the world [130].

**b. The Animals Suffer**

The majority of animals require room to roam, dangle from branches, and fly. When animals are captured, however, these privileges are taken away, and they typically do not flourish in cages, suitcases, sacks, or boxes. If they survive, they endure hardship in their new, unnatural environments. Occasionally, humans settle in locations that were formerly animal habitats. This forces animals to inhabit habitats with limited space, making it difficult for them to survive [131].

**c. Compounds Criminal Network Activities and Increase the Global Health Risk**

The unreported cases of the murder of park rangers, poaching, and the ensuing ivory trade led to other crimes such as money laundering, human trafficking, and corruption [132].

1. **An Imbalance in the Ecosystem**

Predators and prey are essential for the health of an ecosystem. Generally, keystone species, such as the top predators, prey on the population to prevent it from expanding and to maintain the overall diversity. Therefore, many wild animals contribute to the maintenance of the food chain and food web balance in the open, so their removal would disrupt the ecosystem. This may result in the extinction of even more animal and plant species as a result of the exponential growth of other species [133].

### **Disruption in the Food Chain**

Wildlife crime can alter the food chain by causing the extinction of predators. This can alter how organisms transfer energy. People hunt animals that consume plants and eat animals that eat other animals in every corner of the globe [134].

**VII. IMPACT OF WILDLIFE CRIME ON SOCIETY**

1. **Social Disturbance**

The tribal people believed that they had a strong relationship with certain plants and animals; consequently, they never collected or consumed plants and never slaughtered or consumed animals. It is a common characteristic of the tribal population, and all these tribes believe that the totemic plants or animals have aided or protected their respective ancestors of the clan in question, or have proven to be of some unique use or service; therefore, the people revere and do not destroy their totem objects. Additionally, they do not consume their crops or flowers. Totems consist of a variety of animals and natural objects. Totems are revered and protected, and they are never destroyed. They are revered and managed with special attention. People from nearby villages and forest areas are likely to kill, capture, and consume these animal and plant species as delicacies as a result of extreme poverty, financial hardship, and the need for a means of subsistence, which leads to a feeling of rage, anger, and violence among tribal communities and an unhealthy environment [135].

**b. Economic Impact**

The economic impact of the extinction of a species can be detrimental to local tourism. Not only does the area become less appealing to potential travelers, but it also increases the likelihood of a tourist boycott. A boycott could hurt a local economy because restaurants, hotels, rental properties, and other attractions would incur significant revenue losses. Some nations attract visitors due to their abundance of wild animals. If they become extinct or their numbers decrease, tourism will cease to exist and the economies that rely on tourism will begin to collapse. This would have a significant financial impact, which would likely result in employment losses, especially in the tourism industry. Not only does it pose a threat to traditional modes of life, but it also relies on state weaknesses and corruption to profit. Wildlife and forest crimes, as well as "green crime," can also endanger rural livelihoods. Due to the involvement of poachers and larger criminal enterprises, trade-in species with a high value in the international community diminishes the profits of impoverished communities. The illegal wildlife trade has significant regional and global economic repercussions because it eliminates legitimate markets' means of generating income or profit. Therefore, it is particularly detrimental to low-income communities with few or no alternatives [136].

**c. Health Issues**

Wildlife Crime can result in zoonotic disease transmission. Zoonotic diseases are infectious diseases transmitted from animals to humans, and they pose a substantial hazard to global public health. When animals are illegally pursued, they may cross international borders or be sold without proper inspection or regulation. This increases the risk of disease transmission between humans. Recently, poaching has been linked to the transmission of viral and fatal diseases from animals to humans, endangering the survival of humanity. Recently, the COVID-19 pandemic has refocused global attention on the issue of wildlife trafficking. The World Health Organization has determined that COVID-19, like SARS, Ebola, Bird Flu, and MERS, is an animal-borne pandemic that has caused thousands of deaths. In addition, wildlife crime can inflict havoc on ecosystems and alter the behavior of animals, which increases the likelihood of disease transmission (137). When poachers kill large predators like lions or tigers, for instance, lesser predators like rodents may flourish and become more likely to interact with humans and their livestock. Many of the world's most harmful virus diseases originated from the domestication and consumption of wild animals, according to research. In the past ten years, Ebola and avian influenza have arisen as new virus diseases associated with trading activities and the consumption of contaminated wildlife products. Scientists assert that the illegal trade in pangolins may be one of the causes of the current crisis, as these animals were infected with coronavirus-related viruses [138].

1. **Violence and Other Criminal Activities**

Lastly, illegal wildlife offenses frequently involve violence, such as murder and severe bodily harm. Hunters and poachers frequently bring firearms and other weapons, which are used not only to hunt animals but also to fight or kill wildlife protection officials. The victims may include park rangers, police officers, and members of the local community who reside near a specific habitat. As they safeguard wildlife, rangers are typically the victims of such conflicts Poachers have allegedly murdered nearly one thousand rangers over the past decade. Illegal wildlife trade is frequently linked to a larger criminal enterprise, such as money laundering, terrorist financing, bribery and corruption, the establishment of black markets, and numerous others, thereby fuelling illegal economies [139].

**VIII. PREVENTIVE MEASURES**

There are the following methods to prevent wildlife crimes [140].

**Table. 3 List of Preventive Measures against Wildlife Crime**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Traditional Methods** | **Modern Methods** |
| 1. | Recruitment of More Scouts and Rangers | e- Eye |
| 2. | Making and Enacting Severe and Tough laws | GPS-tagged dummy eggs |
| 3. | Providing Sanctuary to Animals | RhODIS (Rhino DNA Indexing System) |
| 4. | Zoning and Demarcation of Land for Wild Animals | e- RhODIS |
| 5. | Putting off More trackers and Sensors | Alarm fences |
| 6. | Outlaw the Purchase and Sale of Animal Parts and Products | Stealthy hidden cameras |
| 7. | Educate the Public on the Dangers of Poaching | Google Earth and GPS collars |
| 8. | Segregate Endangered Species and Foster International Cooperation | Anti-snare collars with emergency alerts |
| 9. | Tracking of Endangered Species and Disrupting the Supply Chain | Aerial Surveillance Drones |
| 10. | Raise Awareness and Strengthening Border Control and Customs | Embedded GPS Chips |
| 11. | Strengthening Legislation and Law Enforcement | Hidden Cameras |
| 12. | Support Local Communities and Enhancing Conservation Efforts | Satellites |
| 13. | Promotion of Responsible Tourism and Mobilize Public-Private Partnerships | Artificial Intelligence |

**IX**. **ORGANIZATIONS WORKING AGAINST WILDLIFE CRIME**

The following organizations are working against Wildlife Crime:

**Table. 4 Anti-Wildlife Crime Organizations**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Name of the Organization** | **Year of Establishment** | **Headquarter** |
| 1. | WCS (Wildlife Conservation Society) | 1895 | New York, USA |
| 2. | National Wildlife Federation | 1936 | Reston, Virginia, USA. |
| 3. | Defenders of Wildlife | 1947 | Washington, D.C |
| 4. | IUCN (International Union of Conservation of Nature) | 1948 | Gland, Switzerland |
| 5. | WWF (World Wildlife Fund for Nature) | 1961 | Gland, Switzerland |
| 6. | IFAW (International Fund for Animal Welfare) | 1969 | Washington D.C |
| 7. | CITES (Convention on International Trade of Endangered Species of Wild Flora and Fauna) | 1975 | Geneva, Switzerland |
| 8. | TRAFFIC (Trade and Record Analysis of Flora and Fauna in Commerce) | 1976 | Cambridge, UK |
| 9. | WII (Wildlife Institute of India) | 1982 | Dehradun, India |
| 10. | WPSI (Wildlife Protection of Society) | 1994 | New Delhi, India |
| 11. | Wildlife SOS | 1995 | New Delhi, India |
| 12. | WTA (Wildlife Trafficking Alliance) | 1998 | Noida, India |
| 13. | WTI (Wildlife Trust of India) | 1998 | Noida, India |
| 14. | WCCB (Wildlife Crime Control Bureau) | 2006 | New Delhi, India |
| 15. | Biglite Foundation | 2010 | Tanzania, Africa |
| 16. | ICCWC (International Consortium on Combating Wildlife Crime) | 2010 | Cambridge, UK |

**X. CONCLUSION**

Wildlife is an essential component of our natural heritage because it plays a vital role in sustaining healthy ecosystems and provides numerous benefits to humans directly or indirectly. As a component of any ecosystem, fauna provides stability and equilibrium to the natural processes. A keystone species is a particular species in an ecosystem that has a disproportionately large impact on the surrounding species. The abundance of keystone species will aid the survival and growth of numerous other species. The purpose of wildlife conservation is to ensure the survival of these species and to highlight the importance of the coexistence of all species for a more stable ecosystem because the more diverse the ecosystem more stable it will be. Initially, wildlife crime occurred locally but due to the enormous economic value associated with wildlife products now, wildlife crime has become an organized crime that operates at the global level. Wildlife crimes are a significant threat to biodiversity and to the ecosystem which ultimately leads to adverse effects on humankind. These adverse effects of wildlife crimes are not instant and due to its long-term irreversible effects, it is of utmost importance to develop policy to preserve the biodiversity. As the most advanced animal of any ecosystem, the responsibility of humans is greatest in this regard. There have been various laws and regulations developed to protect wildlife at both national and international levels but without the involvement of general people, the law will be always ineffective. The proper coordination at the international level is crucial since it is a fact that the same wildlife is protected in some countries but has not been given the same level of protection in other countries. To combat wildlife crime, continuous and coordinated national efforts from all pertinent sectors, as well as global cooperation are crucial. These efforts must include (1) raising awareness at all levels; (2) enacting and enforcing adequate laws and policies; (3) deterring wildlife crime with realistic punishments and forfeiture of proceeds; (4) bolstering enforcement and intelligence capacities in all source, destination, and transit countries; (5) addressing governance challenges; and (6) attempting to eradicate markets or at least reduce demand for illegal wildlife products and most importantly (7) involvement of local human population. Moreover, if the world wishes to protect iconic species and preserve this beautiful diversity of nature, effort should be required at both individual and social levels. It will need efforts at all levels to devise a means to make a fine balance between infrastructure development and wildlife preservation. The global effort and substantial support should not be regarded as a contribution but as a shared obligation to achieve this crucial objective. Finally, we may have to acknowledge that eradicating wildlife crime may not be possible. There is neither a miraculous cure nor a single culprit. However, integrated efforts to reduce these offenses must be increased at all levels One can deny that the ever-increasing population of humans has its own need to survive but we have to remember that even the life of a tiny micro-organism holds the same importance as our life in the eye of nature.

**XI. References**

[1]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[2]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[3]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[4]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[5]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[6]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[7]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[8]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[9]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[10]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[11]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[12]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[13]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[14]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[15]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[16]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[17]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[18]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[19]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[20]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[21]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[22]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[23]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[24]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[25]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[26]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[27]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[28]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[29]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[30]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[31]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[32]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[33]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[34]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[35]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[36]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[37]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[38]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[39]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[40]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[41]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[42]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[43]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[44]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[45]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[46]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[47]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[48]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[49]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[50]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[51]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[52]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[53]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[54]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[55]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[56]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[57]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[58]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[59]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[60]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[61]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[62]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[63]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[64]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[65]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[66]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[67]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[68]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[69]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[70]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[71]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[72]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[73]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[74]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[75]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[76]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[77]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[78]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[79]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[80]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[81]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[82]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[83]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[84]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[85]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[86]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[87]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[88]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[89]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[90]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[9]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[92]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[93]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[94]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[95]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[96]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[97]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[98]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[99]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[100]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[101]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[102]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[103]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[104]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[105]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[106]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[107]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[108]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[109]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[110]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[111]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[112]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[113]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[114]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[115]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[116]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[117]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[118]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[119]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[120]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[121]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[122]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[123]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[124]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[125]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[126]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[127]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[128]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[129]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[130]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.

[131]. Sollund R. The victimisation of women, children and non-human species through trafficking and trade: Crimes understood through an ecofeminist perspective. InRoutledge international handbook of green criminology 2020 Apr 14 (pp. 512-528). Routledge.

[132]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[133]. Mozer A, Prost S. An Introduction to Illegal Wildlife Trade and its Effects on Biodiversity and Society. Forensic Science International: Animals and Environments. 2023 Feb 17:100064.

[134]. Luypaert T, Hagan JG, McCarthy ML, Poti M. Status of marine biodiversity in the Anthropocene. InYOUMARES 9-The oceans: Our research, Our future: proceedings of the 2018 conference for YOUng MArine RESearcher in oldenburg, Germany 2020 (pp. 57-82). Springer International Publishing.

[135]. Davidson MD. On the relation between ecosystem services, intrinsic value, existence value and economic valuation. Ecological Economics. 2013 Nov 1;95:171-7.

[136]. Bernardo C, de Lima Adachi AM, da Cruz VP, Foresti F, Loose RH, Bornatowski H. The label “Cação” is a shark or a ray and can be a threatened species! Elasmobranch trade in Southern Brazil unveiled by DNA barcoding. Marine Policy. 2020 Jun 1;116:103920.

[137]. Bosire O. Risk Regulation and Management against Illegal Wildlife Trade: Europe and America. Sustainable Dev. L. & Pol'y. 2020;21:17.

[138]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[139]. Rana AK, Kumar N. Current wildlife crime (Indian scenario): major challenges and prevention approaches. Biodiversity and Conservation. 2023 Apr;32(5):1473-91.

[140]. Brown VF. The extinction market: Wildlife trafficking and how to counter it. Oxford University Press; 2017 Nov 15.