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COMPARATIVE LEGAL ANALYSIS OF HUNTER-LAND USER INTERACTIONS IN WILDLIFE AND LAND MANAGEMENT REGULATIONS

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ABSTRACT

Hunting is a multifaceted form of natural resource management that involves the use of both wildlife and land resources, necessitating clear legal frameworks to govern interactions between hunters and land users. This study examines the common and unique challenges in various systems regulating these interactions and evaluates the potential for applying successful strategies across different countries. Three primary models of hunter-land user relationships are analyzed: direct interaction, cooperation, and division of rights. Each model addresses specific objectives and varies in effectiveness depending on the context. The direct interaction model prioritizes landowner rights, the cooperation model enhances hunting accessibility, and the division of rights model facilitates management over large wildlife habitats. The choice of model in a given country is influenced by factors such as economic conditions, property laws, legal systems, social norms, and government policies. No single model is universally optimal, as each excels under specific circumstances. In Russia, issues in the hunting sector stem not from the division of rights model itself but from insufficient state oversight and support. The study proposes recommendations to refine...: improve the development and implementation of these interaction models, aiming to enhance their effectiveness and adaptability across diverse global contexts.

Keywords: *law; hunting grounds; land use; wildlife management; rights and duties*

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1. INTRODUCTION

Hunting, as a traditional practice, fundamentally revolves around the utilization of wildlife resources, which rely on nature's inherent capacity for self-renewal. However, contemporary hunting operations have evolved significantly, with hunters increasingly adopting roles akin to "game producers" by actively managing wild animal populations. This shift involves employing advanced techniques to bolster animal numbers through improved food availability and disease control measures. Such strategies are particularly prominent for managing populations of high-demand big game species, such as deer and wild boars, which are prized by hunters (Ginelli, 2012; Ivanova et al., 2022a). The rise of sport hunting has made these interventions an economic necessity, driven by the commercial services provided by hunting organizations and clubs to their clientele. These entities are progressively embracing a comprehensive management approach, aiming to sustain optimal populations of diverse wild animal species. Consequently, in many nations, the hunting industry has emerged as a vital tool for wildlife management, complementing state-issued hunting licenses and broader conservation efforts (Allgood et al., 2022).

Beyond its ecological role, hunting plays a significant economic part in funding conservation initiatives. In the United States, for instance, the decline in hunter numbers poses a challenge to conservation funding, as hunters and anglers contribute approximately 65% of state wildlife agency budgets. These contributions come through hunting license sales, permits, and taxes imposed under the Federal Aid in Wildlife Restoration Act of 1937, which levies an 11% excise tax on firearms, archery equipment, and ammunition, and a 10% tax on handguns (Price Tack et al., 2018). The American Model of Wildlife Conservation heavily depends on hunters and anglers, often sidelining the contributions of other societal groups, which highlights a certain bias in its approach (Fedpausch-Parcer et al., 2017). This financial dependency underscores the need for robust legal and organizational frameworks to maximize the potential of hunting and the hunting economy in supporting nature conservation.

To fully harness the benefits of hunting for environmental protection, several legal and organizational prerequisites must be established. A critical requirement is fostering incentives for effective collaboration between hunters and landowners, ensuring their activities are well-coordinated. Hunting is unique in that it involves the simultaneous use of multiple natural resources, each governed by distinct management regimes. Hunters directly utilize wildlife resources while also interacting with the habitats of these animals, which include lands, forests, and water bodies such as rivers and lakes. The extent of hunters' impact on these habitats varies widely, ranging from minimal activities like the movement of hunters and their dogs to intensive management practices, such as establishing aviaries, feed fields, feeders, and other hunting infrastructure. Therefore, effective hunting regulation must address not only the harvesting and breeding of wild animals but also the protocols for hunters' use of lands, forests, or water areas that constitute wildlife habitats.

Wildlife populations are inherently tied to specific territories, defined by spatial boundaries that often exceed the scale of land used for agriculture or forestry. As Lueck (2018) notes, wildlife constitutes “landscape assets,” contrasting with smaller-scale land plots managed for specific purposes. Without coordinated management at the landscape level, the quality of wildlife habitats tends to degrade, as individual land users often lack the resources or motivation to enhance them (Lueck, 2018). One effective strategy for managing wildlife habitats involves coordinating the use of multiple land plots by both landowners and hunting leaseholders. Hunting management can be integrated with various forms of land use, such as agriculture or forestry. For example, in the United States, lands enrolled in the Conservation Reserve Program, which are temporarily set aside from agricultural production, are frequently utilized for hunting activities (Ferris & Siikamäki, 2009). When properly organized, such joint land use benefits both hunters and landowners. For landowners, hunting provides an additional revenue stream, while hunters’ activities, such as controlling herbivore populations or strategically placing feeders and forage plots, can enhance the economic efficiency of primary land uses. These efforts also support reforestation by mitigating damage caused by herbivorous animals, such as deer and wild boars, which can harm young tree saplings in reforestation areas, as observed in France (Office National des Forêts, 2022).

The complexity of hunting as a form of resource management necessitates clear legal frameworks to regulate the interactions between hunters and other land users sharing the same territory. These interactions can take various forms, depending on the legal, economic, and social context of a given country. This study conducts a comparative analysis of legal systems in different nations to explore diverse approaches to organizing hunter-land user interactions. The primary objective is to identify common and specific challenges within these systems and assess the feasibility of applying successful practices across different countries. By examining how various jurisdictions balance the interests of hunters and landowners, this research aims to highlight effective strategies and propose solutions to enhance the regulation of hunting activities. The analysis considers factors such as land ownership structures, the scale of land holdings, historical traditions of hunting as either an elite or accessible activity, and the unique characteristics of each country’s legal system. Through this comparative lens, the study seeks to contribute to the development of more effective and adaptable models for managing the complex interplay between hunting and land use.

2. RESULTS

Hunting, as a multifaceted form of natural resource management, necessitates a nuanced legal framework that acknowledges its dual reliance on wildlife and land resources. This dual dependency underscores the importance of regulating the interactions between hunters and other land users who share the same territorial spaces. The legal systems governing these interactions must address the simultaneous use of wild animals and the land that constitutes their habitats, ensuring that both resources are managed sustainably and equitably. This study identifies and analyzes three distinct models for organizing the relationships between hunters and land users: the direct interaction model, the cooperation model, and the division of rights model. Each model operates within specific legal, economic, and social contexts, and their application varies depending on factors such as land ownership structures, the scale of land holdings, cultural attitudes toward hunting, and the legal traditions of a given country. These models are not mutually exclusive and can, in some cases, be combined to address specific challenges or leverage unique opportunities within a jurisdiction. Below, we explore each model in detail, examining their mechanisms, strengths, and limitations, with specific examples drawn from the United States, France, and Russia.

2.1. Direct Interaction Model (Using the Example of the USA)

The direct interaction model is characterized by direct contractual relationships between hunters and landowners, enabling hunters to access private or public lands for hunting purposes. This model emphasizes the autonomy of landowners in determining the terms of land use, often through private agreements, though public legal mechanisms may also apply, particularly for public lands. The United States serves as a primary example of this model, where it dominates the regulation of hunting activities due to the country's significant private land ownership and decentralized legal framework.

2.1.1. Organization of Interaction between Hunters and Land Users

The direct interaction model hinges on the establishment of legally binding agreements between hunters and landowners, primarily through private contracts such as hunting leases. These agreements grant hunters access to private lands for specified activities, typically hunting, under conditions set by the landowner. However, public lands, managed by federal or state agencies, are also subject to this model, with access regulated through public law mechanisms. The diversity of land ownership in the United States—spanning private farms, ranches, and vast public lands—necessitates a flexible approach to organizing these interactions.

In the U.S., the legal framework for hunting on private lands varies significantly across states, reflecting the federal system's delegation of land-use authority to state governments. According to Sigmon (2004), state legislation generally follows two approaches. Approximately half of the states mandate that hunters obtain explicit permission from landowners to access any private property, typically formalized through a hunting lease agreement. This requirement ensures that landowners retain control over who may enter their property and under what conditions. In contrast, the other half of the states require permission only for lands explicitly marked as "posted," meaning that unposted private lands are presumed to be accessible to the public for recreational purposes, including hunting, under an implied license (Hynes, 2013). This distinction highlights the balance between landowner rights and public access, with posted lands requiring direct permission, often formalized through contracts, while unposted lands allow broader access unless otherwise restricted.

For posted lands, landowners can issue permissions to specific hunters, excluding others, which reinforces their authority over their property. Sigmon (2004) notes that posting statutes enable landowners to grant selective access, often through hunting lease agreements, which specify the terms of use, such as the duration, type of game, and hunting methods permitted. Proposals to modernize this system, such as transitioning from physical posting to centralized databases integrated with GPS technology, aim to streamline access management and enhance transparency (Hynes, 2013). These innovations reflect the evolving nature of land-use regulation in response to technological advancements and changing recreational demands.

Public lands in the U.S. are governed by federal legislation, which has increasingly prioritized recreation and conservation since the 1960s. Laitos and Carr (1999) highlight that federal acts have directed land management agencies to prioritize these uses, with specific regulations varying by land type. For instance, hunting is generally permitted on lands managed by the Bureau of Land Management (BLM), which oversees 10.6% of U.S. lands, and the Forest Service, which manages National Forests covering 8.4% of the country's land area. Wetland Management Districts also typically allow hunting. However, hunting is prohibited on National Parks, State Parks, and National Wildlife Refuges, reflecting the diverse management regimes for public lands. Agencies managing these lands may use both private and public law mechanisms to regulate access, with some lands offering free public access and others requiring affordable fees, making hunting more accessible than on private lands leased through hunting agreements (Laitos & Carr, 1999).

The direct interaction model's reliance on direct agreements ensures that both hunters and landowners can negotiate terms that suit their needs, fostering a market-driven approach to land access. However, this model also raises challenges, particularly regarding equitable access for hunters and the coordination of wildlife management across large landscapes, as discussed in subsequent sections.

2.1.2. Hunting Lease

A hunting lease in the U.S. context is a contractual agreement between a landowner (lessor) and a hunter or group of hunters (lessees) that grants access to private property for hunting and other specified activities for a defined period. These agreements are highly flexible, allowing parties to tailor terms to their specific needs. Miller (2016) defines a hunting lease as a contract that provides hunters with access rights without transferring exclusive possession of the land, distinguishing it from traditional land leases. This legal distinction, emphasized by Fambrough (2015), classifies hunting leases as licenses rather than leases, as they permit specific activities without granting control over the land itself. This structure allows landowners to continue their primary activities, such as farming or logging, while generating additional income from hunting.

Hunting leases vary widely in scope and terms. They may be short-term, lasting from a single day to a few weeks, or long-term, spanning a season, a year, or multiple years. Some leases are free, particularly when granted to friends or family, while others involve significant fees, reflecting the economic value of hunting rights. The agreements may permit hunting for all game species or restrict it to specific types, such as deer or waterfowl, and can specify allowable hunting methods, such as rifles only or excluding traps (Miller, 2016; Fambrough, 2015). This flexibility enables landowners to align hunting activities with their land management goals, ensuring minimal disruption to their primary operations.

A notable feature of hunting leases is the ability to grant multiple leases on the same property to different groups of hunters, provided the terms prevent conflicts. For example, a landowner might lease hunting rights for waterfowl to one group and deer to another, with different hunting seasons or areas designated to avoid overlap (Miller, 2016). This practice maximizes the economic potential of the land without necessitating its exclusive use by a single party.

The responsibility for managing the hunting environment typically falls to the landowner, unless otherwise stipulated in the lease. This includes maintaining food resources, installing feeders, creating habitats like pebble beds for birds, and providing infrastructure such as hunting bases or observation towers. In long-term leases, hunters may assume some of these responsibilities, such as combating poaching or organizing feeding programs, often in exchange for reduced fees (Miller, 2016; Fambrough, 2015). When the lessee is a hunting club, these obligations may be formalized to ensure sustainable wildlife management, aligning with broader conservation goals.

2.1.3. The Relationship of the Hunting Right with the Right of Ownership of Land and the Right to Wild Animals as a Resource

In the U.S., the right to hunt is closely tied to land ownership, allowing landowners to control access and set conditions for hunting activities. This connection enables landowners to dictate not only who may hunt but also the methods and species permitted, such as limiting hunting to rifles or specific game like deer. Landowners may also retain partial hunting rights for themselves or their families, ensuring flexibility in how the land is used (Miller, 2016).

This legal structure contrasts with systems where hunting rights are separate from land ownership, such as in Russia. The linkage of hunting rights to land ownership is a cornerstone of the direct interaction and cooperation models, as it empowers landowners to make decisions about wildlife use on their property. In contrast, the division of rights model, prevalent in countries like Russia, vests hunting rights with the state, limiting landowners' authority over hunting activities (Sigmon, 2004).

However, obtaining hunting rights through a lease is not sufficient for legal hunting in the U.S. Hunters must also secure a state-issued hunting license, which specifies the species and number of animals that may be harvested. For certain waterfowl, a federal license is required under the Ramsar Convention. Licenses are issued by state authorities, with lotteries used in cases of limited availability to ensure sustainable population management (Arnosti & Randolph, 2019). Revenue from license sales is a critical funding source for wildlife conservation, supporting state agencies' efforts to balance resource use and preservation (Price Tack et al., 2018).

The legal foundation for these regulations is the Public Trust Doctrine, which recognizes wildlife as a resource held in trust by the state for the benefit of current and future generations. This doctrine, developed over two centuries, distinguishes wildlife from private property, placing the state in a fiduciary role to manage it sustainably (Sagarin & Turnipseed, 2012). This approach contrasts with civil law systems, where different principles, such as res nullius, may apply, as seen in France.

2.1.4. Additional Elements of the Direct Interaction Model in the USA: Mechanisms for Ensuring Hunting Assessment and Cooperation of Land Owners

While the direct interaction model offers flexibility and protects landowner rights, it faces challenges in ensuring broad access to hunting and effective wildlife management at the landscape level. The model's reliance on landowner discretion can limit hunting opportunities, particularly in regions dominated by private ownership, where access costs can be prohibitive. Additionally, managing wildlife across fragmented private lands is complex, as individual landowners may lack the incentive or resources to coordinate habitat management (Lueck, 2018).

To address these issues, the U.S. employs mechanisms like Walk-In Hunting Access (WIHA) programs, which compensate landowners for opening their lands to licensed hunters at no cost to the hunters. Kansas, with 99% of its land privately owned, has been a pioneer, opening over a million acres to public hunting through such programs (Niedermier, 2019; Congressional Research Service, 2020). These initiatives enhance hunting accessibility, countering the exclusivity that can arise from private land dominance.

For landscape-level wildlife management, Deer Management Assistance Programs (DMAPs) and deer management cooperatives play a crucial role. DMAPs, organized by state wildlife agencies, provide landowners with technical support, training, and coordination to manage deer populations effectively. Landowners with sufficient land or those collaborating with others can participate, fostering collective management efforts (Matzenbacher, 2022). Deer management cooperatives, voluntary associations of landowners and hunters, establish shared guidelines for deer habitat improvement, enhancing population management across large areas (Adams & Ross, 2017). These cooperatives focus on habitat conservation, though participation in government cost-share programs remains limited due to bureaucratic complexities (Pruitt et al., 2022).

Unlike cooperatives in other models, U.S. deer management cooperatives do not grant hunting rights or generate direct income from hunting, relying instead on member contributions. They serve as platforms for coordination and education, aligning with the direct interaction model's emphasis on voluntary, market-driven solutions.

2.2. Cooperation Model (Using the Example of France)

The cooperation model organizes hunter-landowner interactions through cooperative organizations that include both parties as members. This model, exemplified in France, facilitates collective management of hunting rights and wildlife habitats, particularly on small landholdings, while complementing the direct interaction model for larger estates or public lands.

2.2.1. Municipal Hunting Associations as the Basis of the Cooperation Model of Interaction

In France, the cooperation model is anchored in municipal hunting associations (Association Communale de Chasse Agréée, ACCA), established under the Code de l'Environment and the Loi Verdeille of 1964. These associations operate in 70 of France's 101 departments, with mandatory establishment in 29 departments and voluntary creation in others (Gervasoni, 2012). ACCAs form a hierarchical system, integrated into departmental and national hunting federations, enabling coordinated management across multiple scales.

ACCA membership includes official members—residents or landowners in the municipality—and external members, admitted annually based on quotas set by the association. Official members, particularly landowners, have voting rights and can hold leadership positions, ensuring their influence over hunting activities. Membership fees, primarily paid by hunters, fund ACCA operations, with non-hunting landowners exempt, enhancing affordability for local residents (Le Goffe, 2012).

The cooperation model assumes that hunting rights are an attribute of land ownership, similar to the direct interaction model. Landowners may transfer these rights to ACCAs, which manage hunting activities collectively. ACCAs are recognized as public services, tasked with ensuring technical hunting organization, promoting game breeding, regulating harmful species, and adhering to hunting plans (Gervasoni, 2012). This structure balances accessibility with sustainable wildlife management, though it faces challenges related to compulsory rights transfers and economic incentives.

2.2.2. The Problem of the Compulsory Transfer of Hunting Rights to the ACCA

A significant challenge in the French cooperation model is the mandatory transfer of hunting rights from landowners to ACCAs in designated municipalities. This requirement, enforced by administrative decisions, limits landowners' autonomy, particularly for small plots. Exceptions exist for safety, agricultural interests, or public lands, and owners of larger plots (over 20 hectares) can opt out for any reason, including to establish private hunting operations (Domas-Descos, 2012).

The compulsory transfer raised legal concerns, culminating in the 1999 Chassagnou vs. France case, where the European Court of Human Rights found violations of freedom of association and property rights. Subsequent legislation (Loi n° 2000-698) allowed small landowners to object to ACCA inclusion based on personal beliefs, provided they renounce their own hunting rights and wait for periodic boundary adjustments (Domas-Descos, 2012). These conditions balance landowner rights with the need for stable hunting management.

2.2.3. Agro-Forest-Hunting Balance

France faces challenges in maintaining an agro-forest-hunting balance, as hunters' incentives to maximize game populations can harm agriculture and forestry. The concept of l'équilibre agro-sylvo-cynégétique seeks to harmonize wildlife presence with economic sustainability in these sectors (Le Goffe, 2012). Hunting plans and compensation funds address damages caused by game, but rising costs strain these mechanisms. Conversely, agricultural practices degrade habitats for smaller game, highlighting the need for better economic alignment between hunters and land users.

2.3. The Division of Rights Model (on the Example of Russia)

The division of rights model separates hunting rights from land ownership, vesting the former with the state as the owner of wildlife resources. This model, rooted in Soviet-era policies, persists in Russia and other post-Soviet states, despite shifts toward private land ownership.

2.3.1. Hunting Grounds and Hunting Agreements

In Russia, hunting rights are derived from state ownership of wildlife, granted through hunting agreements to organizations or entrepreneurs who win competitive bids (Vasilyeva, 2016). These agreements confer rights to hunt on designated hunting grounds and lease smaller plots for infrastructure. Hunting grounds are divided into publicly accessible and fixed categories, with the latter managed by hunting organizations for a fee, offering higher game populations but limited accessibility (Gorokhov & Shunaeva, 2019).

The inclusion of private lands in hunting grounds without owner consent raises legal tensions, as seen in Supreme Court rulings challenging such practices (Vasilyeva, 2016). Unlike the cooperation model, Russia lacks clear mechanisms for landowners to opt out, complicating the balance of rights.

2.3.2. Coordination of the Activities of Hunters and Land Users

The division of rights model limits hunters' ability to alter private lands without consent, restricting infrastructure development to leased plots. However, Russian legislation lacks detailed regulations on hunters' conduct on agricultural or reforestation lands, leaving landowners vulnerable to damage. Similarly, mining and logging activities within hunting grounds can degrade wildlife habitats without coordination, highlighting the model's reliance on state oversight, which is often inadequate due to sectoral fragmentation and historical legacies (Prosekov, 2022).

3. DISCUSSION

The comparative analysis of legal frameworks governing the interactions between hunters and land users reveals three distinct models: direct interaction, cooperation, and division of rights. Each model offers unique approaches to managing the complex interplay of hunting and land use, shaped by the specific economic, legal, social, and historical contexts of the countries where they are applied. This section synthesizes the findings, highlighting the strengths, weaknesses, and applicability of these models, and explores their implications for effective wildlife and land management. By examining how these models address the core question of who holds the authority to grant hunting rights on a given land parcel, we can better understand their operational dynamics and potential for cross-country application.

The direct interaction model facilitates direct agreements between landowners and hunters, typically through hunting lease contracts that grant access to land for hunting purposes. In this model, the right to hunt is often tied to land ownership, allowing landowners to specify conditions such as hunting methods, target species, or the extent of game harvest. This model is prevalent in countries like the United States, Finland, Great Britain, and, to some extent, France for larger landholdings (Krassov, 2014). The flexibility of contractual arrangements enables tailored solutions that balance the interests of both parties. For instance, landowners can generate additional income without relinquishing primary land use, while hunters gain access to specific territories. In the U.S., hunting leases are legally considered licenses rather than traditional leases, ensuring that landowners retain control over their property while permitting hunting activities (Fambrough, 2015). This model excels in protecting landowner rights but can limit hunting accessibility due to high costs, particularly in regions dominated by private land ownership (Eliason, 2021).

The cooperation model involves the establishment of cooperative organizations, such as France's Municipal Hunting Associations (ACCA), which include both landowners and hunters as members. These cooperatives manage hunting rights collectively, often assuming responsibilities for wildlife management and habitat enhancement. In France, this model applies primarily to small landholdings, complementing the direct interaction model used for larger estates (Domas-Descos, 2012). The cooperation model promotes broad access to hunting by integrating local communities and ensuring affordability through tiered membership fees. It also facilitates coordinated wildlife management across multiple land parcels, addressing the challenge of managing landscape-scale habitats (Le Goffe, 2012). However, the mandatory transfer of hunting rights to cooperatives, as seen in France, can restrict landowner autonomy, raising legal concerns about property rights, as evidenced by the 1999 Chassagnou vs. France case (Harpum, 1999). Despite these challenges, the model's emphasis on collective management makes it effective in regions with fragmented land ownership.

The division of rights model, exemplified by Russia, separates hunting rights from land ownership, vesting the authority to grant hunting rights in the state as the public owner of wildlife. Hunters and land users must obtain hunting permissions through state-issued agreements or permits, often bypassing direct negotiations with landowners (Gorokhov & Shunaeva, 2019). This model simplifies access to large territories for hunting organizations, as seen in Russia's vast hunting grounds, but it often fails to adequately protect the interests of landowners or other land users, such as those engaged in agriculture or forestry (Vasilyeva, 2016). The administrative approach to defining hunting ground boundaries can lead to conflicts, as landowners may face restrictions without sufficient recourse, a point underscored by Russian Supreme Court rulings (Gorokhov & Shunaeva, 2019). While this model streamlines management over expansive areas, its reliance on state oversight can result in inefficiencies and limited coordination between hunters and other resource users (Prosekov, 2022).

The U.S. provides a nuanced example where elements of all three models coexist, reflecting the complexity of its land ownership landscape. The direct interaction model dominates, particularly in the eastern U.S., where private land ownership is prevalent, and landowners play a critical role in conservation through hunting leases and cooperative initiatives like Deer Management Cooperatives (DMCs) (Adams & Ross, 2017; Vincent et al., 2017). These cooperatives, while voluntary and distinct from the French cooperation model, foster collective habitat management, aligning with Quality Deer Management (QDM) principles (QDMA, 2005). In contrast, the division of rights model is evident in the management of federal lands, which constitute 95% of U.S. public land under agencies like the Bureau of Land Management (BLM), Forest Service, and Fish and Wildlife Service (Vincent et al., 2017). These agencies regulate hunting access through public law mechanisms, ensuring broad access while prioritizing conservation goals. The integration of cooperative elements, such as DMCs, with direct interaction and division of rights approaches demonstrates the U.S.'s adaptive legal framework, which balances private and public interests (Pruitt et al., 2022).

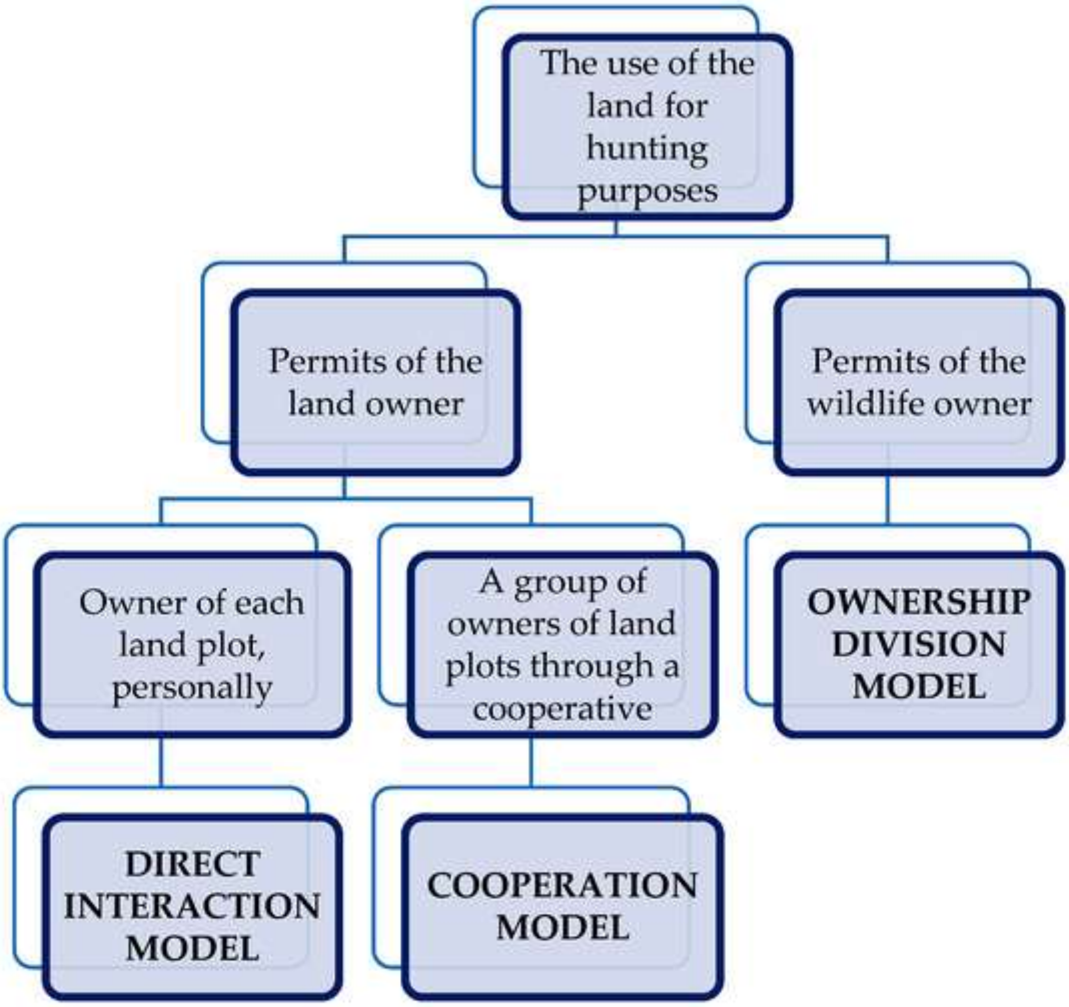

Figure 1. The scheme of interaction of the considered models.

The primary criterion for distinguishing these models is the entity authorized to grant hunting rights on a land parcel. In the direct interaction and cooperation models, this authority rests with the landowner or cooperative, respectively, while in the division of rights model, it lies with the state. This distinction fundamentally shapes the legal and economic dynamics of each model, influencing aspects such as accessibility, landowner rights, and habitat management (see Table 1 for a comparative analysis). For instance, the cooperation model excels in ensuring hunting accessibility for diverse populations, as seen in France's ACCA system, which prioritizes affordability for local residents (Le Goffe, 2012). Conversely, the direct interaction model, as practiced in the U.S., robustly protects landowner rights through contractual flexibility but may restrict access due to high costs (Eliason, 2021). The division of rights model, while effective for managing large-scale habitats in Russia, often neglects landowner interests due to its top-down approach (Vasilyeva, 2016).

Table 1. Comparison of functional solutions of various models of interaction between hunters and land users.

Criterion	Model		
	Direct Interaction	Cooperation	Division of Rights
Correlation of hunting rights and land ownership rights (main criterion)	The right to hunt follows from the ownership of land.	The right to hunt follows from the ownership of land.	The hunting right is separated from the right of ownership of land.
The main tool for organizing the interaction of hunters and land users	Hunting leases: a hunting rights lease agreement.	Membership of both parties in the association.	Public administration, planning of hunters' and land users' activities.
Who runs a hunting farm and who receives income from the use of the site for hunting purposes?	The land owner or a person appointed by them.	The association of which the owner is a member.	A person who has received hunting rights from the state under a hunting agreement.
Ensuring hunters' access to the land	The economic mechanism: the hunter pays for the contract; the management mechanism: owners participate in state programs where the state pays for hunters' free access.	At a discounted price, its members—land owners or local residents—have access to hunting on the territory of the association; at the usual price—a limited number of other persons.	Imposing the obligation not to interfere with the hunting use of land by endowing land with a special legal regime on the owners; hunting grounds—as a result of a special type of zoning carried out by the state.
Ensuring compliance with the rights of owners when	Regulation of the rights and obligations of the parties in the	The owner has the rights of a member of the association,	Damage recovery possibility.

Criterion	Model		
	Direct Interaction	Cooperation	Division of Rights
using their land for hunting purposes	hunting leases agreement, contractual liability, the possibility of early termination of the contract or the owner's refusal to conclude it for a new term, the damage recovery possibility.	including the right to vote at the general meeting, information rights, the right to be elected to governing bodies; strict rules of internal regulations for ordinary hunters; the damage recovery possibility.	
Coordination of economic actions related to the site use	The conformance rules are approved by the parties to the hunting lease agreement and are stipulated in the agreement's text.	Participation of the owner in the general meetings of the association, mandatory coordination of biotechnical measures with the owner.	Mandatory coordination of biotechnical measures with the owner.

Table 2. Advantages and disadvantages of models of organization of interaction between hunters and land users.

Model	Advantages	Disadvantages
Direct interaction	Maximum protection of land owners' rights; a large selection of possible options for organizing a hunting business; easy organization of hunting use of the site as an auxiliary activity of	The maximum complexity of the management organization at the level of the entire habitat of a certain animal species; the complexity of coordinating the actions of different owners of land plots to improve the habitat and control the number of certain animal species;

Model	Advantages	Disadvantages
	land users; the most flexible coordination of the actions of hunters and the land owner on the joint use of the site; flexible possibilities of distribution of duties and responsibilities between hunters and land users.	weak compliance for areas with small land property; facilitating the transformation of sport hunting into an elite type of activity due to the high cost of land use.
Cooperation	Coordinated management at the level of the entire habitat of a certain animal species due to a multi-level system of hunting associations; a permanent source of income for the association thanks to to membership fees, which partially compensates for the high cost of hunting; ensuring the accessibility of hunting for the general public; good adaptability to the conditions of small-land property.	Serious restriction of the right of private ownership of land; the inability to combine hunting business with agriculture or forestry business (except fishing, tourism and similar activities); unsuitable for large-scale land ownership (for large plots, a combination with a direct interaction model is required).
Division of rights	Easy management organization at the level of the entire habitat of a certain animal species; easy coordination of actions of different hunting farms (due to the availability of contracts	Serious restriction of the right of private ownership of land or the right to lease; weak enforcement of the rights of land owners in the process of using their plots for hunting purposes; the inability to combine hunting business with agriculture or forestry

Model	Advantages	Disadvantages
	with the managing state body for all farms); increasing the accessibility of hunting for the general public by minimizing land rent in the cost of hunting services.	business (except fishing, herborization, and similar activities); contributing to the transformation of amateur hunting into an elite type of activity, hunting farms do not have additional sources of income in the form of the main use of plots (as in the direct interaction model) or membership fees of association members (as in the cooperation model).

Each model's strengths and weaknesses are context-dependent (see Table 2). The direct interaction model offers flexibility and strong landowner protections but struggles with accessibility and landscape-scale management. The cooperation model enhances accessibility and collective habitat management but can infringe on landowner autonomy. The division of rights model simplifies large-scale management but often fails to coordinate effectively with other land users, leading to conflicts and inefficiencies (Prosekov, 2022). No single model is universally superior, as their effectiveness depends on factors like land ownership patterns, cultural attitudes toward hunting, and the legal system's structure. For example, the direct interaction model is less effective in countries with small, fragmented landholdings, while the division of rights model may be impractical in nations with dominant private land ownership (Krassov, 2014).

To mitigate these shortcomings, public administration plays a crucial role. In the U.S., programs like Walk-In Hunting Access (WIHA) and Deer Management Assistance Programs compensate for the direct interaction model's accessibility and management challenges by incentivizing landowner participation and fostering cooperative habitat management (Niedermier, 2019; Matzenbacher, 2022). In France, the cooperation model is supported by a multi-level system of hunting federations that coordinate activities and ensure compliance with agro-forest-hunting balance principles, though challenges remain in balancing economic incentives for hunters and landowners (Le Goffe, 2012). In Russia, the division of rights model's reliance on state management highlights the need for enhanced oversight to address conflicts between hunters and other land users, such as through clearer regulations on land access and habitat protection (Gorokhov & Shunaeva, 2019).

The potential for combining models offers a promising approach to overcoming individual limitations. France's legal system, for instance, integrates the cooperation model for small landholdings with the direct interaction model for larger estates, allowing flexibility in addressing diverse land ownership patterns (Domas-Descos, 2012). Similarly, the U.S. employs the division of rights model for federal lands alongside the direct interaction model for private lands, supplemented by cooperative initiatives like DMCs (Vincent et al., 2017). These hybrid approaches demonstrate how legal systems can adapt to specific contexts, enhancing the balance between accessibility, landowner rights, and wildlife management.

The criteria for comparing these models were derived from an extensive review of global literature, legal acts, and regulations, including federal laws, state standards, and environmental guidelines (FAO, 2015). These criteria highlight the models' ability to address key issues such as landowner rights, hunting accessibility, and coordinated habitat management. By refining these models and leveraging their strengths, countries can develop tailored frameworks that not only preserve wildlife populations but also enhance their numbers on land with limited hunting resources (Kozlov, 2014). The Russian case illustrates that the division of rights model's challenges stem not from its inherent structure but from insufficient state support, underscoring the need for robust public administration to maximize its potential (Prosekov, 2022).

In conclusion, the choice of model reflects a country's unique conditions, including land ownership structures, historical traditions, and legal frameworks. The direct interaction and cooperation models share a common foundation in tying hunting rights to land ownership, enabling their integration, while the division of rights model's distinct approach precludes such blending without significant legislative reform. By addressing the identified shortcomings through targeted public policies and hybrid approaches, countries can enhance the effectiveness of hunter-land user interactions, fostering sustainable wildlife management and equitable land use.

4. MATERIALS AND METHODS

This study employs a comparative approach to analyze legal frameworks governing the interactions between hunters and land users across different countries. The functional method serves as the primary analytical tool, focusing on the role of legal institutions in addressing specific societal challenges (Michaels, 2005). By comparing how various legal systems facilitate coordination between hunters and landowners, the research identifies patterns and variations in regulatory approaches. The functional method allows for an assessment of whether legal institutions serve similar purposes across different jurisdictions, even if their forms differ, enabling the identification of both consistent and unique solutions.

The analysis recognizes that legal norms and social issues are interconnected within complex systems, where elements influence one another. Legal institutions are viewed as contingent responses to societal needs, shaped by available alternatives rather than inevitable outcomes (Michaels, 2005). To capture this complexity, the study examines not only the direct regulations governing hunter-land user interactions but also related legal provisions that impact these relationships. This broader context ensures a comprehensive understanding of how different legal systems address the multifaceted nature of hunting as a form of resource management.

To structure the comparison, the research addresses several key questions: (1) What is the ownership status of wildlife? (2) How do hunting rights relate to land ownership? (3) What mechanisms primarily organize hunter-land user interactions? (4) Who manages hunting operations and benefits financially from land use for hunting? (5) How is hunters' access to land secured? (6) How are landowners' rights protected during hunting activities? (7) How are economic activities on shared land coordinated? These questions guide the evaluation of legal frameworks in countries like the United States, France, and Russia, representing diverse models of interaction.

The study draws on a wide range of sources, including legal texts, academic literature, and regulatory documents, to ensure a robust analysis. By applying the functional method, the research highlights the effectiveness of each model in specific contexts, identifying opportunities for cross-country learning and potential improvements in legal regulation. This approach facilitates a nuanced understanding of how legal systems balance the interests of hunters, landowners, and wildlife conservation.

5. CONCLUSIONS

This study's comparative analysis of legal frameworks governing hunter-land user interactions reveals three distinct models—direct interaction, cooperation, and division of rights—each shaped by a country's unique economic, legal, and social conditions. These models address the critical question of who holds the authority to grant hunting rights, influencing their effectiveness in balancing the interests of hunters, landowners, and wildlife conservation. The direct interaction model, prevalent in the United States, empowers landowners to negotiate hunting access through contracts, offering flexibility but often limiting accessibility due to costs. The cooperation model, exemplified by France's Municipal Hunting Associations, fosters collective management and broadens access but may infringe on landowner autonomy. The division of rights model, as seen in Russia, centralizes authority with the state, simplifying large-scale management but often neglecting landowner interests.

No single model is universally superior, as their efficacy depends on contextual factors such as land ownership patterns and cultural attitudes toward hunting. Hybrid approaches, like those in the U.S. and France, demonstrate the potential to combine models to address specific challenges, enhancing flexibility and coordination (Vincent et al., 2017). In Russia, the division of rights model's shortcomings stem not from its structure but from inadequate state oversight, suggesting that improved public administration could enhance its effectiveness.

To optimize these frameworks, countries should tailor regulations to their unique contexts while drawing on successful practices from other systems. For instance, Russia could adopt cooperative elements to better integrate landowner interests, while the U.S. could expand programs like Walk-In Hunting Access to improve affordability

(Niedermier, 2019). Strengthening legal protections and incentives for all parties can enhance coordination and support sustainable wildlife management. This study underscores the importance of adaptive legal systems that align hunting practices with conservation goals, ensuring equitable resource use across diverse global contexts.

Author Contributions

Conceptualization, N.L. and A.U.; methodology, S.I.; formal analysis, N.L., A.U., S.I., and A.P.; writing—original draft preparation, N.L. and A.U.; writing—review and editing, S.I.; visualization, S.I.; project administration, N.L. and A.P. All authors have read and agreed to the published version of the manuscript.

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