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Research Article

Human–wildlife interactions in a rural Amazonian community: Linking productive land use, domestic animals and local perceptions

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Abstract

In tropical biodiversity hotspots, understanding the socio-ecological aspects of human-wildlife interactions is crucial for effective conservation. This study offers an integrated assessment of the Campesino Community of Corosha in the Peruvian Amazon. Using 155 household surveys, we characterised the productive landscape, documented the presence of wildlife and analysed local perceptions. First, we describe a community dependent on subsistence agriculture, where most families (92.9%) have chacras (agricultural plots), mainly growing tubers (85.4%) with frequent daily visits (66.7%). Second, we report a high prevalence of domestic animals (~ 80% of households), creating a multi-species interface, with poultry (52.9%) and cattle (43.6%) exhibiting high disease rates. Notably, domestic dogs were identified as significant predators, responsible for 83.3% of recorded wildlife hunting events (n = 12). Third, perception analysis reveals a dual co-existence: while wildlife is culturally valued, negative perceptions prevail (63.2%), primarily due to crop damage (51.6%) and are strongly linked to rodents (49.7%) and parrots (33.5%). These interconnected findings across various aspects, including livelihoods, animal health, predation and human perception, highlight the need for an integrated One Health approach. We recommend that conservation strategies combine participatory crop protection, community-based animal health programmes and environmental education to support sustainable co-existence in Amazonian communities.

Key words: Domestic dogs, human-wildlife conflict, local perceptions, One Health, Peruvian Amazon, subsistence agriculture

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Introduction

Interactions between human communities and wildlife are a central focus of conservation biology, particularly in tropical biodiversity hotspots where human livelihoods are intimately linked to natural ecosystems (Margules and Pressey 2000). The Peruvian Amazon, a region of immense biological and cultural diversity, epitomises this complex dynamic. Here, rural communities depend on subsistence agriculture and forest resources, creating a mosaic landscape where human and wildlife spheres consistently overlap.

A critical and often understudied dimension of this socio-ecological system is the role of domestic animals, which create a tripartite interface amongst humans, livestock and wildlife (Kessler et al. 2018). This interface can be a source of significant conflict, notably through wildlife-caused crop damage, which often leads to negative perceptions and, in some cases, retaliation against species perceived as pests (Hockings and McLennan 2012). Conversely, domestic dogs themselves can act as prolific predators of wild fauna, a frequently overlooked threat in Neotropical rural settings (Sepúlveda et al. 2014; Zapata-Ríos and Branch 2018). Furthermore, this proximity raises concerns about disease transmission, highlighting the need for a One Health perspective that recognises the interconnected health of people, animals and ecosystems (Destoumieux-Garzón et al. 2018).

Although studies on human-wildlife conflict have been carried out in various Amazonian regions, many focus on conflicts involve a single species or are limited to crop damage. There is a lack of comprehensive studies that simultaneously explore productive land use, the dual role of domestic animals as assets and sources of conflict and the detailed local perceptions of a wide array of wildlife species (Tscharntke et al. 2012). A holistic approach that connects these aspects is essential to truly understand the complexity of these relationships and to identify key points for community-based conservation.

This study aims to provide a comprehensive assessment of human-wildlife interactions in the Campesino Community of Corosha, located in the Peruvian Department of Amazonas. Specifically, we seek to: (1) characterise the productive landscape and how the community uses it, including the role of domestic animals; (2) document the diversity of wild species found in agricultural plots (chacras) and record interactions with domestic animals, such as predation events; and (3) analyse local perceptions of different wildlife species and the factors that influence these views. By integrating these aspects, this research aims to develop a thorough understanding to support conservation and public health efforts suited to the local context.

Materials and methods

Study area

The study was conducted in the Campesino Community of Corosha, located in the Corosha District, Bongará Province, Amazonas Department, within Peru's north-eastern corridor (5°50.47'S, 77°49.30'W DDM). The community's territory borders and partially overlaps with the Hierba Buena-Allpayacu Private Conservation Area. This conservation area includes montane forests, shrublands and grasslands at elevations ranging from 2000 to 3000 metres above sea level and hosts important species, such as the Andean cock-of-the-rock (*Rupicola peruvianus*), puma (*Puma concolor*), spectacled bear (*Tremarctos ornatus*) and the endemic yellow-tailed woolly monkey (*Oreanax flavicauda*).

Population and Sampling

The study included 250 families living in the Corosha Campesino Community (sampling period: July 2023). The unit of analysis was the family or household, with the adult responsible for the household acting as the respondent.

The sampling frame was created from an updated family registry provided by the Community's Board of Directors.

The sample size was calculated for finite populations using Epidat v.4.2, with a 95% confidence level and an expected proportion of 50%, resulting in a minimum of 152 surveys. We ultimately collected 155 valid surveys, representing 62% of the total population. Due to the rural setting, characterised by dispersed housing and logistical challenges, the sampling method was based on accessibility; however, the high coverage rate (62%) and inter-coder reliability measures help mitigate potential selection bias. All residential households in the community with at least one adult (≥ 18 years old) who had been a resident for ≥ 6 months were included, and one survey was conducted per family. Households that were temporarily vacant during the entire sampling period or where the responsible adult declined to participate were excluded.

Data collection instrument and procedure

A semi-structured survey was explicitly created for this study. It included both open- and closed-ended questions aimed at understanding family interactions with the forest and wildlife, as well as key socioeconomic factors, such as age, gender, number of household members, primary and secondary activities, use of the chacra [agricultural plot], type of crops, domestic animal ownership and perceptions of wildlife interactions. The questionnaire was developed, based on existing literature on human-wildlife interactions and local experiences in rural communities. To ensure content validity and cultural relevance, the questionnaire was reviewed by two conservation experts and tested with two families from the community, which enabled modifications to better fit the local language. Formal quantitative validation, such as reliability analysis, was not performed because the study was exploratory and descriptive; however, thematic consistency and relevance to the socio-ecological context were maintained. The survey was divided into four sections:

- Demographic characteristics of the respondent include age, gender, the number of family members and primary and secondary subsistence activities;
- Land use and management involve the chacra and crops: ownership and use of the chacra, crop types (maize, tubers, others), frequency of visits and whether visits include animals;
- Presence of domestic animals covers animals in the chacra (horses, cattle, chickens, others), household animals and reported diseases amongst these animals;
- Interactions with wildlife include wild visitors to the chacra (species and frequency), the perceived nature of interaction (positive, negative, mixed), related activities (observation, predation, crop destruction etc.) and whether wildlife hunting occurs (yes/no, species).

The two local assistants (interviewers) received hands-on training. To assess inter-coder reliability, both interviewers independently coded 30 randomly selected interviews, resulting in an average kappa coefficient of 0.72. The questionnaire was conducted in person, producing 155 valid surveys. Informed consent was obtained from all individual participants included in the study.

Data analysis

The information, collected through the surveys, was coded and organised in a database. Descriptive analyses of sociodemographic variables, land use, ownership of domestic animals, presence of wildlife and reported interactions, were performed. Absolute and relative frequencies (%) were calculated for qualitative variables. For quantitative variables (such as age, number of family members and frequency of visits to the chacra), measures of central tendency and dispersion (mean, median, standard deviation) were estimated. Additionally, associations between respondent characteristics and reported interactions with wildlife were examined. Contingency tables and association tests (Pearson's χ^2 or Fisher's exact test, as appropriate) were used for this purpose. Specifically, comparisons of observed wild species, predation events by domestic animals and interaction categories by gender were evaluated. All analyses were conducted using STATA v.19 (StataCorp LLC, College Station, TX, USA) with a significance level of $p < 0.05$.

Results

Characterisation of respondents and their productive environment

A total of 155 families from the community were surveyed. The sociodemographic profile (Appendix 1: Table A1) showed an average age of 39.3 ± 13.3 years (range: 18–77), with a higher proportion of female participants (86.4%) compared to male participants (13.6%). The average household size was 3.9 ± 1.5 members (range: 1–9). Agriculture was the primary economic activity for most households (80.0%).

Regarding land use, most respondents (92.9%) reported owning a chakra (small-scale subsistence farm). The main crops were tubers (85.4%), maize (48.6%) and sugarcane (48.6%), followed by legumes, such as beans (46.5%) (Table 1). Visits to the chacra were mostly daily (66.7%) and animals, mainly dogs, accompanied most respondents (66.7%). Notably, the vast majority (97.9%) reported not crossing the Private Conservation Area (PCA).

The spatial distribution of domestic animal ownership revealed a clear distinction between production and companion species (Fig. 1). Most families kept animals in both their household (82.6%) and their chacra (79.9%). Livestock, such as cattle and horses, were predominantly associated with farm plots, while companion animals, such as dogs and cats, were primarily kept in dwellings. For complete numerical data, see Appendix 2: Table A2.

Regarding animal health (Table 2), poultry had the highest share of reported diseases (52.9%), mainly infectious outbreaks and respiratory infections. Cattle were the second most affected (43.6%), with reports of parasitosis, fever and bovine rabies (herbivore rabies). Health issues in other species (dogs, pigs, guinea pigs, horses and cats) were reported less frequently.

Perceptions and interactions with wildlife

Domestic dogs were the predominant agents of wildlife predation, involved in significantly more hunting events than cats (Fisher's Exact Test, OR = 25.0, p = 0.0033), accounting for 83.3% of the 12 documented incidents (Table 3). Their

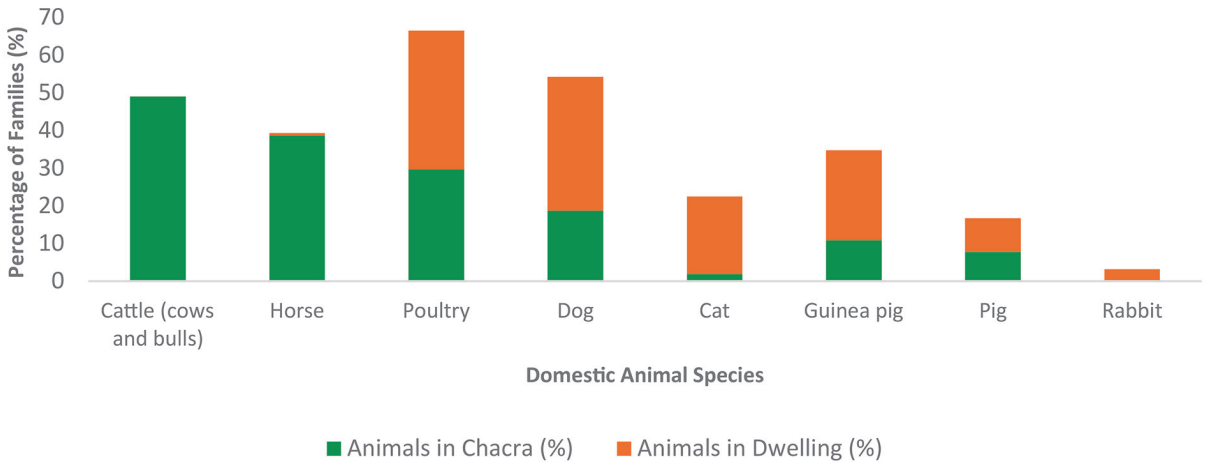

Figure 1. Distribution of domestic animal ownership in the chacra and the dwelling amongst families. Percentages are calculated, based on the total number of surveys (n = 155) to allow for direct comparison. The number of respondents for the chacra is n = 144, as not all families owned one.

Table 1. Productive land uses reported by respondents in the Campesino Community of Corosha, Amazonas, 2023 (n = 155).

Variable	N	%
Ownership of a chacra (agriculture plot)		
Yes	144	92.9
No	11	7.1
Main Crops Grown (n = 144)		
Tubers	123	85.4
Sugarcane	70	48.6
Legumes (beans)	67	46.5
Coffee	25	17.4
Plantains	18	12.5
Pasture	15	10.4
Frequency of Visits to the chacra (n = 144)		
Daily or more than once a day	96	66.7
1 or 2 times per week	30	20.8
3 or 4 times per week	10	6.9
Monthly	7	4.8
Accompanied during visit (n = 144)		
Alone	48	33.3
With animals (dog)	96	66.7
Transit through the ACP (n = 144)		
Yes	3	2.1
No	141	97.9

Note: PCA: Private Conservation Area. Percentages for main crops, frequency of visits and accompaniment are calculated, based on the 144 chacra-owning families. Visit frequency and accompaniment refer to the activity reported within the chacra during the last month.

prey included a range of vertebrates, from birds like parrots and hummingbirds to mammals, such as monkeys, a sloth and a deer. In contrast, cats were reported to hunt only parrots.

Table 2. Diseases reported in domestic animals by respondents in the Campesino Community of Corosha, Amazonas, 2023 (n = 155).

Domestic Species	Reported Diseases	n (%)
Horses	Undetermined infection	2 (1.3)
Pigs	Swine fever (or infectious outbreak)	4 (2.6)
	Parasitosis	3 (1.9)
	Undetermined infection	1 (0.6)
Guinea pigs	Diarrhoea	2 (1.3)
	Parasitosis	3 (1.9)
	Respiratory infection (cough or flu)	2 (1.3)
	Mange	2 (1.3)
Poultry	Newcastle disease (or infectious outbreak)	44 (28.4)
	Respiratory infection (cough, flu or coryza)	38 (24.5)
	Diarrhoea	6 (3.9)
	Fowlpox	4 (2.6)
	Parasitosis	2 (1.3)
Cattle	External parasitosis (tick infestation)	21 (13.6)
	Internal parasitosis	8 (5.2)
	Fever	8 (5.2)
	Vampire bat bite / Bovine rabies	7 (4.5)
	Hydatidosis	6 (3.9)
	External parasitosis (myiasis)	5 (3.2)
	Haemorrhagic septicaemia (or infectious outbreak)	5 (3.2)
	Anthrax	3 (1.9)
	Diarrhoea	3 (1.9)
Dog	Distemper	8 (5.2)
	Undetermined infection	7 (4.5)
	Cough	7 (4.5)
	Mange	4 (2.6)
	Parasitosis	3 (1.9)
Cats	Mange	1 (0.6)

Table 3. Wildlife hunting events by domestic animals (negative interactions) reported in the Campesino Community of Corosha, Amazonas, 2023 (n = 12 events).

Domestic species	Wildlife Species Hunted	Frequency n (%)
Dog	Non-psittacine birds (e.g. Sparrow and Hummingbird)	3 (25.0)
	Parrots	3 (25.0)
	Monkey	2 (16.7)
	Sloth	1 (2 (16.7)
	Deer	1 (8.3)
Dog Subtotal		10 (83.3)
Cats	Parrot	2 (16.7)
Cat Subtotal		2 (16.7)
Total		**12 (100.0)**

Notes: Dogs were significantly more involved in hunting events than cats (Fisher's Exact Test, p = 0.0033).

The observation of wildlife in chacra revealed a highly skewed frequency distribution across taxonomic groups (χ^2 = 480.84, p < 0.001; Fig. 2). Agoutis (70.8% of families) and parrots (56.3%) were the most commonly reported

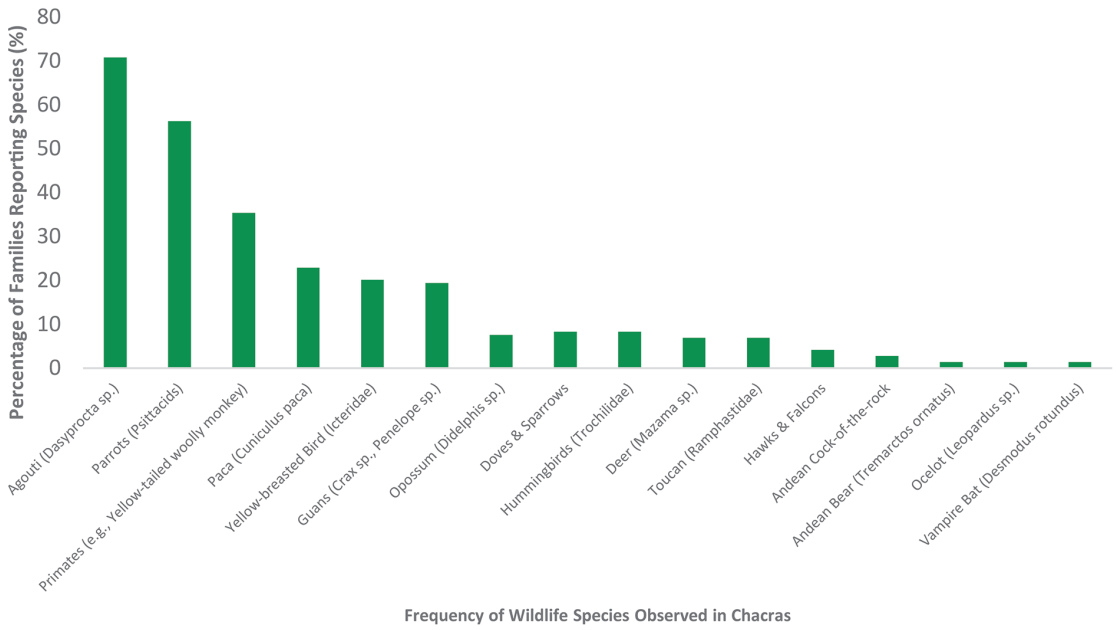

Figure 2. Frequency of wildlife species observed in chacras (n = 144 families) in the Campesino Community of Corosha. Species are ordered by reporting frequency. The distribution of observed species was not homogeneous ($\chi^2 = 480.84$, $p < 0.001$).

species, indicating their widespread presence and potential as focal species for human-wildlife interaction. Primates were also frequently observed (35.4%), while mammals, such as carnivores (e.g. ocelot) and vampire bats were rarely reported (< 2% of families). For a complete list of all reported species and their frequencies, see Appendix 3: Table A3.

Perceptions of human-wildlife interactions were mainly negative, with nearly half of respondents (49.7%) reporting conflicts with rodents, such as the paca and agouti and over a third (33.5%) with parrots, mainly due to crop damage. In contrast, the views of monkeys and hummingbirds were more complex, often showing both positive and negative feelings. Notably, positive opinions were rare and mostly limited to specific species, including the Andean bear, the toucan and certain birds like the 'yellow-breasted bird' and guans (Table 4).

The characterisation of human-wildlife interactions revealed a predominance of negative perceptions (63.2%), which were primarily driven by crop damage (51.6% of all respondents). Positive interactions, such as aesthetic appreciation and visual enjoyment, were less frequent (16.8%). A notable proportion of respondents (11.0%) held mixed perceptions, acknowledging both recreational benefits and conflicts. Furthermore, a significant gender-based disparity was observed (Fisher's exact test, $p < 0.05$; Fig. 3), with women reporting more negative and mixed interactions, while positive interactions were more balanced between genders. For a detailed breakdown of interaction subtypes, see Appendix 4: Table A4.

Discussion

This study offers vital evidence on the complex interactions between humans and wildlife in a rural community in the Peruvian Amazon, combining socioeconomic, ecological and perceptual views. Our results reveal a duality in

Table 4. Perception of interactions with wildlife by species or taxonomic group in the Campesino Community of Corosha, Amazonas, 2023 (n = 155 respondents).

Species / Group	Positive n (%)[1]/(%)[2]	Negative n (%)[1]/(%)[2]	Mixed n (%)[1]/(%)[2]	Total n (%)[1]
Mammals				
Monkey	9 (5.8/26.5)	21 (13.5/61.8)	4 (2.6/11.7)	34 (21.9)
Rodents (paca, agutí)	4 (2.6/4.5)	77 (49.7/85.5)	11 (7.1/12.4)	92 (59.4)
Marsupial (*Didelphis* sp.)	0	6 (3.9/85.7)	1 (0.6/14.3)	7 (4.5)
Carnivores (ocelot, *Leopardus* sp.)	0	1 (0.6/100)	0	1 (0.6)
Andean bear (*T. ornatus*)	2 (1.3/100)	0	0	2 (1.3)
Deer (*Mazama* sp.)	0	6 (3.9/100)	0	6 (3.9)
Vampire bat	0	1 (0.6/100)	0	1 (0.6)
Birds				
Parrot	1 (0.6/1.7)	52 (33.5/88.1)	6 (3.9/10.2)	59 (38.1)
Hummingbird	1(0.6/16.7)	1 (0.6/16.7)	4 (2.6/66.6)	6 (3.9)
Yellow-breasted bird (Icteridae)	1 (0.6/7.1)	9 (5.8/64.3)	4 (2.6/28.6)	14 (9.0)
Doves and sparrows	3 (1/75.0)	0	1 (0.6/25.0)	3 (2.6)
Guans (*Crax* sp., *Penelope* sp.)	2 (1.3/50.0	1 (0.6/25.0)	1(0.6/25.0)	4 (2.6)
Toucan (Ramphastidae)	2 (1.3/50.0)	0	2 (1.3/50.0)	4 (2.6)
Total reports	26 (16.1)	175 (112.9)	34 (21.9)	235*

[1] Percentage calculated from the total number of respondents (n = 155). This shows the frequency of each perception in the entire community.
[2] Percentage calculated from the subtotal of reports for each specific species (variable denominator). This shows the perception distribution for those who reported an interaction with that particular species.
* The total number of reports (235) exceeds the number of respondents because some participants reported multiple interactions with types per species.

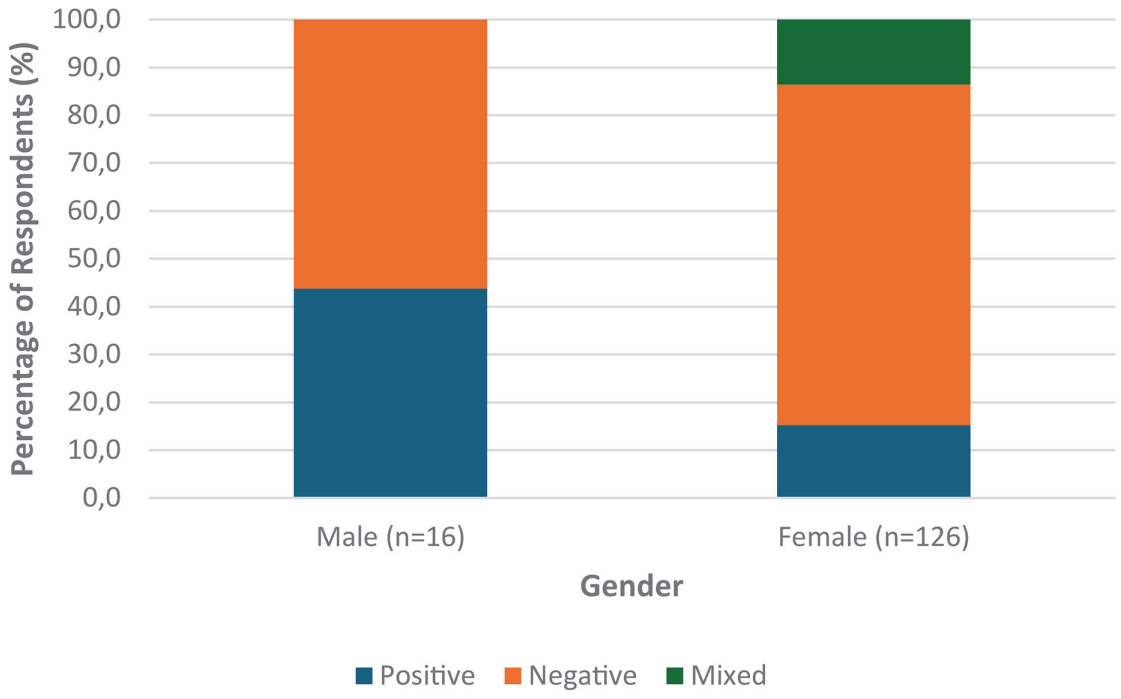

Figure 3. Distribution of human-wildlife interaction perceptions by gender amongst respondents who reported interactions (n = 141. The composition of perception categories (Negative, Positive, Mixed) differed significantly between men and women (Fisher's exact test, $p < 0.05$). Percentages are calculated, based on the total respondents per gender (Men: n = 16; Women: n = 125).

co-existence: while wildlife is valued for its beauty and cultural significance, it also generates significant conflicts, mainly through crop damage. This tension highlights that human perceptions, influenced by direct economic impacts, are a key factor in the success of conservation efforts (Sena-Vittini et al. 2023).

The sociodemographic profile of the Corosha community shows a young adult population with small family units and a notable over-representation of women amongst respondents. This pattern is common in rural settings, where women not only take on domestic roles, but are also vital to subsistence agriculture, often making them more available for community participation (Alary et al. 2025). Their key role in food security and natural resource management (Antriyandarti et al. 2024) is evident in our study, where most respondents involved in agriculture were women.

The local economy depends heavily on subsistence farming, with limited diversification into livestock or other non-farm activities. As studies in other Amazonian communities have shown, when agriculture underpins subsistence, land-use patterns strongly influence the frequency and type of human-wildlife interactions (Mere Roncal et al. 2018). This reliance on a single economic sector can make livelihoods more vulnerable to external shocks, such as severe weather events, crop pests or price fluctuations (Coomes et al. 2010).

The findings show that 85.4% of families in Corosha grow tubers, a number consistent with patterns seen in traditional chacras in the Colombian Amazon, where tubers are the main food crop (Orjuela-Baquero et al. 2016). The frequency of visits to the chacras in Corosha, with nearly two-thirds of farmers going daily or more, indicates a high level of management and care. This pattern matches observations from fruit gardens in Loreto, where proximity and visit frequency were linked to higher productivity and fewer pests (Guerra-Teixeira et al. 2022).

The use of diverse crops, such as legumes, sugarcane and coffee in Corosha, reflects diversification strategies also seen in other Amazonian communities. While this polyculture can improve resilience to climate variability and ensure household nutrition, it also increases interaction with wildlife. This raises the risk of crop depredation conflicts, a common trade-off in tropical agricultural landscapes (Tscharntke et al. 2012).

A notable finding of our study is the common practice of bringing domestic animals to chacras during visits, a phenomenon rarely documented in literature. This practice serves as a direct and frequent means for interaction and potential conflict with wildlife, especially through predation events reported in our results. It deserves more attention in future research on human-wildlife interfaces (Hughes and Macdonald 2013).

Our data show that many households in Corosha keep domestic animals both on their chacra and inside their homes. Cattle (49%) and poultry (~ 30–37%) are the main production animals, while dogs, cats and guinea pigs are common companion and small-livestock animals. This pattern aligns with studies across Amazonian communities, where poultry is widespread, providing a key source of protein, secondary income and food security. For example, in peri-urban communities of Iquitos, chickens are often raised in free-ranging systems with access to household areas, raising concerns about hygiene and human health (Schiaffino et al. 2021).

Similarly, the high prevalence of domestic dogs links wild ecosystems with human activities. As documented in other rural Amazonian contexts with

limited veterinary services, dogs serve not only as guardians and companions, but also as potential vectors of zoonotic diseases, forming a crucial connection in the disease transmission network (Sepúlveda et al. 2014).

The extensive maintenance of both production and companion animals indicates a frequent, complex interaction amongst humans, domestic animals and wildlife. This interaction can enhance benefits (such as nutritional and cultural), but also increase risks like predation on wildlife and livestock, pathogen spread and competition for resources (Kessler et al. 2018). In Corosha, the high level of domestic animal ownership (~ 80–83% of families) provides vital economic and cultural support. However, this must be explicitly incorporated into conservation and public health strategies to prevent unintended consequences, such as zoonotic disease spill-over and conflicts over land use, following a One Health approach (Destoumieux-Garzón et al. 2018).

A variety of health issues were reported in domestic animals, including respiratory infections, parasitosis, dermal conditions, such as mange and potential zoonotic diseases, like rabies or vampire bat bites, especially in cattle. These findings match broader health challenges documented across the Amazon biome. For example, a study in Rondônia, Brazil, found a high prevalence of internal and external parasites in domestic dogs, which can help spread pathogens to other livestock and humans (Mendonça et al. 2024). The relatively high rate of respiratory diseases and unknown infections in poultry and companion animals indicates that underlying risk factors are probably involved in Corosha. These could include free-ranging outdoor access and insufficient veterinary hygiene practices. Research supports that, in rural Amazonian communities, the combination of limited veterinary services, little knowledge of sanitary protocols and prioritising animal health for immediate subsistence creates an ideal environment for persistent communicable diseases at the wildlife-livestock-human interface (Menajovsky et al. 2024; Mendonça et al. 2024).

Domestic dogs were involved in the majority of reported wildlife-hunting events in Corosha (83.3%), a significantly higher proportion than that for cats (16.7%; Fisher's Exact Test, $p = 0.0033$). This supports previous findings across Amazonia and other tropical regions, where free-roaming or semi-domestic dogs are recognised as important predators of birds and small mammals, often causing negative interactions with wildlife in rural and protected areas; for example, Corosha (83.3%), a proportion significantly higher than that for cats (16.7%; Fisher's Exact Test, $p = 0.0033$). This aligns with previous findings across Amazonia and other tropical regions, where free-roaming or semi-domestic dogs are recognised as significant predators of birds and small mammals, frequently driving negative interactions with wildlife in rural and protected areas (Sepúlveda et al. 2014). The activity patterns of these free-ranging dogs in rural areas often overlap with those of vulnerable wildlife, increasing chances of predation (Carvalho et al. 2019).

Although cats in Corosha were reported to hunt only parrots, their impact should not be overlooked. Studies, such as those by Turner (2022), warn that domestic cats with outdoor access can significantly impact bird populations, especially in rural areas where barriers and human supervision are minimal. Focused predation on a single, often threatened, taxonomic group, such as parrots, highlights a specific conservation concern (Turner 2022).

Negative perceptions of rodents and parrots align with descriptions from other Amazonian communities, where these species are recognised as major

agricultural pests (Nasi et al. 2011). Such perceptions can increase human-wildlife conflict and may justify hunting or controlling these species, even when they fulfil vital ecological roles, such as seed dispersal and forest regeneration (Parry et al. 2009). Meanwhile, the optimistic view of the Andean bear highlights its status as a charismatic and protected species, aligning with findings across the Amazon and the Andes, where local communities often acknowledge its cultural and ecological significance (Velez-Liendo and García-Rangel 2017).

The relatively high observation frequency of particular wildlife species, such as parrots, agoutis and primates in chacras, indicates that these agricultural landscapes in the Peruvian Amazon retain significant ecological value. This pattern aligns with other Amazonian studies, which show that bird richness and diversity in agroforestry systems depend on proximity to forest and the level of habitat disturbance (Ocampo 2022). Furthermore, recent analyses show that, while forest conversion and agricultural intensity decrease the richness of sensitive species, certain generalist groups, such as psittacids and rodents, continue to thrive in landscapes with relatively complex vegetation structures (Glass and Arcilla 2024).

Local negative perceptions of crop-damaging species often reflect a tension between conservation and production. This is a common reason for intolerance towards wildlife, as shown in studies on human-wildlife conflict in the Amazon. These results collectively indicate that conservation strategies in rural communities should include landscape management approaches to mitigate agricultural impacts, promote wildlife corridors and enhance environmental education programmes that foster an appreciation for the ecosystem services provided by wildlife, rather than focusing solely on the damage they cause.

The recognition of mixed interactions, as seen with hummingbirds and yellow-breasted birds, demonstrates the co-existence of utilitarian and symbolic appreciation of fauna. This highlights the need to incorporate local perceptions into conservation strategies, as community attitudes can determine the acceptance or rejection of management measures (Marchini and Macdonald 2012; Kahler and Gore 2015). These findings suggest that perceptions of wildlife in Corosha vary widely, with some species being viewed as resources, pests or symbols of natural identity. This variety creates both challenges and opportunities for developing participatory conservation efforts.

Furthermore, our study highlights the role of domestic animals as predators of wildlife, an often-overlooked ecological disturbance in Neotropical ecosystems that deserves more management focus (Zapata-Ríos and Branch 2018). The high level of domestic animal ownership, reported wildlife predation and widespread animal diseases in Corosha, highlight the urgent need to enhance animal health and zoonotic disease strategies. This should involve veterinary extension programmes focusing on vaccination and parasite control, sanitary education for domestic animal owners and integrated One Health surveillance (Mackenzie and Jeggo 2019). These measures are essential to prevent common illnesses from becoming larger public health and productivity problems, while also addressing a hidden cause of wildlife deaths. Ultimately, our results demonstrate that successful conservation in this Amazonian community necessitates a coordinated approach that addresses the interconnected issues of sustainable livelihoods, human-wildlife conflicts and animal health within a One Health framework.

Conclusions

This study highlights the complex dynamics of human-wildlife interactions in Corosha, Peruvian Amazon, where subsistence farming and biodiversity conservation meet. Three main findings emerge: (1) Wildlife perceptions are dualistic, with species seen as both cultural treasures and agricultural pests, especially rodents and parrots damaging crops; (2) Domestic animals create critical conflict zones, shown by wildlife predation by dogs and widespread animal health problems; (3) Agricultural landscapes retain ecological value, supporting diverse wildlife while causing conservation conflicts. These findings support an integrated One Health approach that addresses human-wildlife conflicts, domestic animal management and public health simultaneously. Conservation efforts should focus on participatory crop protection, community-based animal health programmes and environmental education that underscores the ecological roles of conflict species. This combined approach offers the best chance for sustainable co-existence in Amazonian communities.

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Appendix 1

Table A1. Sociodemographic characteristics and economic activities related to the productive use of land in the Corosha Campesino Community, Amazonas, 2023 (n = 155).

Variable	n	%	Mean ± SD / Range
Sociodemographic characteristics			
Age (years)			39.3 ± 13.3 (18–77)
Gender			
Male	21	13.5	
Female	134	86.5	
Household size			3.9 ± 1.5 (1–9)
Economic activity			
Agriculture	124	80.0	
Agriculture and other activities	8	5.2	
Agriculture and livestock	6	3.9	
Other activities	17	10.9	

Note: SD = standard deviation. Percentages are calculated, based on the total number of respondents (n = 155).

Appendix 2

Table A2. Domestic animals kept by respondents in the Campesino Community of Corosha, Amazonas, 2023.

Domestic species	Households with animals in the chacra (n = 144) n (%)	Households with animals in the dwelling (n = 155) n (%)
Production Animals		
Cattle (cows and bulls)	76 (49.0)	–
Horse	60 (38.7)	1 (0.6)
Poultry (chicken, turkey and duck)	46 (29.7)	57 (36.8)
Guinea pig	17 (10.9)	37 (23.8)
Pig	12 (7.7)	14 (9.0)
Rabbit	–	5 (3.2)
Companion Animals		
Dog	29 (18.7)	55 (35.5)
Cat	3 (1.9)	32 (30.6)
Total households with animals	**115 (79.86%)**	**138 (82.6)**

Note: The difference in the number of respondents (n = 144 for chacra; n = 155 for dwelling) is because not all families owned a chacra.

Appendix 3

Table A3. Frequency of wildlife observation in chacras (farm plots) in the Campesino Community of Corosha, Amazonas, 2023 (n = 144 families).

Taxonomic Group / Reported Species		n (%)
Birds	Parrots (psittacids)	81 (56.3)
	Guans (*Crax* sp., *Penelope* sp.)	28 (19.4)
	Yellow-breasted bird (Icteridae)	29 (20.1)
	Hawks and falcons (Accipitridae, Falconidae)	6 (4.2)
	Doves and sparrows (Columbidae, Passeridae)	12 (8.3)
	Hummingbirds (Trochilidae)	12 (8.3)
	Toucan (Ramphastidae)	10 (6.9)
	Andean cock-of-the-rock (*Rupicola peruvianus*)	4 (2.8)
Primates (e.g. yellow-tailed woolly monkey)		51 (35.4)
Roedores	Agutí (*Dasyprocta* sp.)	102 (70.8)
	Paca (*Cuniculus paca*)	33 (22.9)
Carnivores (ocelot, *Leopardus* sp.)		2 (1.4)
Deer (*Mazama* sp.)		10 (6.9)
Andean bear (*Tremarctos ornatus*)		2 (1.4)
Marsupials (opossum, *Didelphis* sp.)		11 (7.6)
Vampire bat (*Desmodus rotundus*)		2 (1.4)

Note: Chi-square test of homogeneity across taxonomic groups: $\chi^2 = 480.84$, $p < 0.001$. The distribution of observed species was not uniform. Fisher's exact test comparing the presence of parrots to other birds: OR = 8.46, $p < 0.001$, indicating a higher likelihood of observing parrots in chacras. Percentages are calculated, based on the total number of families that owned a chacra (n = 144).

Appendix 4

Table A4. Types of wildlife interactions reported by respondents in the Campesino Community of Corosha, Amazonas, 2023, by gender (n = 155).

Category	Subcategory	Men n (%)	Women n (%)	Total n (%)
Positive	Aesthetic appreciation/Visual enjoyment	3 (1.9)	9 (5.8)	12 (7.7)
	Observational/Learning value	2 (1.3)	4 (2.6)	6 (3.9)
	Playful and behavioural interaction	1 (0.6)	4 (2.6)	5 (3.2)
	Spiritual/Symbolic value	0 (0.0)	1 (0.6)	1 (0.6)
	Other (unspecified)	1 (0.6)	1 (0.6)	2 (1.3)
	Positive Subtotal	7 (4.5)	19 (12.1)	26 (16.6)
Negative	Crop damage (maize, fruits etc.)	6 (3.9)	74 (47.7)	80 (51.6)
	Crop damage + domestic animal predation	2 (1.3)	13 (8.4)	15 (9.7)
	Dislike of the animal	0 (0.0)	1 (0.6)	1 (0.6)
	Predation of domestic animals	1 (0.6)	1 (0.6)	2 (1.3)
	Negative Subtotal	9 (5.7)	89 (57.4)	98 (63.2)
Mixed	Combination of observation and conflict	0 (0.0)	17 (11.0)	17 (11.0)
Total Respondents Reporting Interactions		16 (10.2)	125 (80.5)	141* (90.9)

Note: The total corresponds to the respondents who reported interactions (141 out of 155). The distribution of interaction types differed significantly by gender (Fisher's Exact Test, $p < 0.05$). Percentages are calculated, based on the total number of surveyed families (n = 155).

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

The study received approval from the Institutional Research Ethics Committee of the Universidad Científica del Sur. Before administering the surveys, the objectives and scope of the research were explained to all participants, ensuring confidentiality of information and voluntary participation. Verbal informed consent was obtained from each respondent, taking into account the community's rural setting and the non-invasive nature of the research. The collected data were used solely for academic and research purposes, maintaining participant anonymity throughout all phases of the study.

Artificial Intelligence (AI) use

The authors accept full responsibility for the content of the manuscript, including the disclosure of any use of AI.
No AI tools were used in the preparation of this manuscript.

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Data availability

All of the data that support the findings of this study are available in the main text.