









Comprehensive Nutritional Composition of Wild Meat: A Systematic Review Using Data Imputation with Artificial Intelligence

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ABSTRACT

While not promoting wild animal consumption, this study acknowledges its crucial role for Indigenous Peoples and Local Communities (IPLC) worldwide, making comprehensive nutritional data essential for informed dietary assessments and policy decisions. Employing advanced data imputation techniques to address data gaps ethically, this systematic review, following PRISMA guidelines, analyzed 20 peer-reviewed articles and one grey literature document. We focused on the nutritional composition of wild meat from 26 species across mammals, birds, and reptiles. We assessed 10 key nutrients, revealing significant variations. Bird muscle tissue did not demonstrate statistically higher iron concentrations than previously recognized in mammalian muscle ($p < 0.05$), challenging established nutritional understanding of red and white meat. Reptile muscles contained 60% more iron than mammalian muscles, while bird muscles showed 200% higher potassium and omega-6 fatty acid levels compared to mammals ($p < 0.01$). Mammalian muscles exhibited the highest zinc content among taxonomic classes. As in the case of non-wild animals, viscera consistently showed higher mineral concentrations than muscle tissues across all species. These findings enhance understanding of wild meat's nutritional value, contributing vital data to food composition databases and supporting evidence-based policy decisions for communities reliant on these resources.

Keywords: Wild Meat; Nutritional Composition; Food Security; Artificial Intelligence; Systematic Review.

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SIGNIFICANCE STATEMENT

This systematic review offers a detailed analysis of the nutritional composition of wild meat (mammals, birds, and reptiles). By employing AI-driven data imputation, we innovatively address existing gaps while considering conservation and ethical concerns in wild species research. Our findings demonstrate significant variations in nutrient profiles across species and anatomical parts, providing essential data to understand the role of wild meat in food security and ecosystem-based nutrition, particularly for Indigenous Peoples and Local Communities. The study underscores the nutrient-rich potential of viscera. By integrating ethnobiological knowledge with nutritional science, this research supports conservation strategies, sustainable dietary practices, and culturally appropriate food policies for traditional food systems reliant on wild meat.

INTRODUCTION

Wild animals have been integral to human diets throughout history, playing a crucial role in both ecosystem dynamics and food security (Cawthorn and Hoffman 2015). Known as wild meat, bushmeat, or game meat, these resources are particularly vital for Indigenous Peoples and Local Communities (IPLC), who often maintain traditional ecological knowledge about sustainable harvesting practices (Nasi *et al.* 2018). In this study, we define wild meat as being derived from wild, non-domesticated vertebrates, excluding insects, crustaceans, larvae, mollusks, and fish (Ingram *et al.* 2021). Globally, an estimated 230 to 833 million people rely on wild meat as a primary protein source, with consumption patterns closely tied to local ecological conditions and seasonal availability (Nielsen *et al.* 2018; Tregdigo *et al.* 2020).

Beyond protein provision, wild meat contributes significantly to micronutrient adequacy in traditional food systems (Cawthorn and Hoffman 2015; Fa *et al.* 2015). For instance, in the Amazon, wild meat consumption correlates with increased hemoglobin levels in rural children (Torres *et al.* 2022), while in Madagascar, reduced access to wildlife increases anemia risk fourfold among dependent communities (Golden *et al.* 2011). Despite its importance, the nutritional composition of wild animals remains under-researched, with data dispersed across various fields (Dannenberger *et al.* 2013; Sevillano-Caño *et al.* 2020; Zimmerman *et al.* 2008). This scarcity and dispersion hinder our understanding of how environmental factors and animal diets influence wild meat's nutrient content.

Compounding this challenge is the frequent occurrence of missing data in wild meat nutritional studies. This is often due to the inherent difficulties in obtaining samples and conducting analyses on diverse wild species. Data imputation techniques have emerged as a valuable tool in nutritional research to address these gaps. For example, Wei *et al.* (2018) successfully employed imputation methods in metabolomics studies to address missing data in nutritional analyses. Masson (1999) noted that wild foods often have datasets with significant gaps, particularly in direct data, making data imputation techniques valuable for

filling these gaps. Therefore, by employing artificial intelligence techniques to address missing values (Rizvi *et al.* 2023), we can maximize the use of existing data while acknowledging the practical constraints of wild meat research.

To address these knowledge gaps, we conducted a systematic review examining how anatomical parts (viscera vs. muscles) and taxonomic classes (mammals, birds, reptiles) influence wild meat's nutritional composition. Different tissues serve distinct physiological functions, and species classification may reflect both physiological and environmental influences on nutrient content (Damodaran and Parkin 2018; Dannenberger *et al.* 2013). Therefore, we hypothesized that these factors significantly affect the nutritional profiles of wild meat. Our systematic review aims to identify patterns in the nutritional composition of wild meat by compiling existing data and applying artificial intelligence techniques to address missing values. This approach provides a detailed analysis of wild meat's nutritional profile, offering insights crucial for understanding its role in food security and ecosystem-based nutrition. Additionally, it represents a viable strategy in the face of ethical challenges in studying wild species, considering the legal and ethical limitations in sample collection (Soulsbury *et al.* 2020).

MATERIAL AND METHODS

This systematic review followed PRISMA guidelines (Moher *et al.* 2009). The protocol was not pre-registered due to the non-health-related focus of the research (see Additional File 1).

Selection Criteria and Search

To address the research question posed in this project, "How does the nutritional composition of anatomical parts and taxonomic classes of wild animals vary?", we included original articles in any language, with no date restrictions, that provided data on wild animal meat composition consumed by humans. Articles recommended by experts were also considered if they met these criteria. We excluded studies lacking nutritional data, using secondary data, or without

detailed methodologies.

From June 2022 to March 2024, we searched Web of Science, Scopus, and Medline/PubMed using descriptors: (BUSHMEAT OR “WILD MEAT” OR “GAME MEAT” OR “INDIGENOUS MEAT” OR “WILD ANIMALS” OR “HUNTING ANIMALS MEAT”) AND (“FOOD CONSUMPTION” OR “FOOD INTAKE” OR DIETARY) AND (MICRONUTRIENT OR NUTRIENT OR NUTRITION OR “FOOD COMPOSITION” OR MINERAL) and received papers recommended by experts.

Study Selection

We used Rayyan to organize records and remove duplicates. Three authors (ALSM, MFAM, ALBO) independently screened articles, excluding those not meeting criteria. Discrepancies were resolved by consulting two additional authors (MCMJ, JKSM). Selected articles were stored in Zotero.

Data Extraction

Three authors independently extracted data, focusing on study characteristics, food composition methods, taxonomy, animal class, analyzed part, and nutrient levels (iron, selenium, zinc, potassium, magnesium, manganese, sodium, proteins, fat, omega-6). Nutritional data were standardized to grams per 100 grams wet weight. Articles with dry weight data were converted using described moisture information. Nutrient values were expressed per Dietary Reference Intakes (Padovani *et al.* 2006). Raw data from original analyses were not accessible in the primary studies. We also extracted the methods used in food composition analyses from the papers to ensure they were recognized by the AOAC (Association of Official Analytical Chemists), supporting the comparison of the obtained results.

Quality Analysis

We developed a 9-item quality assessment tool, integrating elements from existing protocols such as LatinFoods/FAO, QUADAS, OHAT, Cochrane, and STROBE, to evaluate methodological robustness (see Additional File 2, see also Oliveira *et al.* 2025). Three evaluators independently assessed articles, with results discussed to refine the tool. Fleiss’ Kappa measured inter-rater agreement. Articles were classified as low (0-2.9 points), medium (3.0-5.9 points), or high quality (>6.0 points).

Data Preparation

We tested several imputation methods, selecting the best via cross-validation: Multiple Imputa-

tion by Chained Equations (MICE), K-Nearest Neighbors (KNN), Soft Impute, Matrix Factorization, Nuclear Norm Minimization, and Iterative Singular Value Decomposition (SVD). The multivariate approach considered all nutrient data, capturing complex interactions. Imputation performance was evaluated using Symmetric Mean Absolute Percentage Error (SMAPE) and Mean Absolute Error (MAE). All analyses were conducted using Python (see Additional File 3 for Raw data with imputation). Code is available on GitHub (Menezes-Neto 2024).

Variables Related to Hypothesis Testing

The dependent variables were the nutritional compositions of 10 nutrients. For hypothesis 1, the independent variables were anatomical parts (muscle, viscera), and for hypothesis 2, they were animal classes (mammals, birds, reptiles). Although factors such as animal anatomy, cause of death, geographical location, seasonality, physical activity level, and physiological characteristics could act as confounders, we could not control for them due to inconsistent reporting in the primary studies.

Data Analysis

Descriptive statistics summarized findings. Normality was assessed using the Shapiro test. ANOVA or Kruskal-Wallis tests determined significance ($p < 0.05$), with post hoc tests (Tukey or Bonferroni) for significant differences. Analyses were conducted using R through RStudio.

RESULTS

Study Selection

Our database search yielded 565 articles (Web of Science: 68, Medline/PubMed: 325, Scopus: 172) (Figure 1).

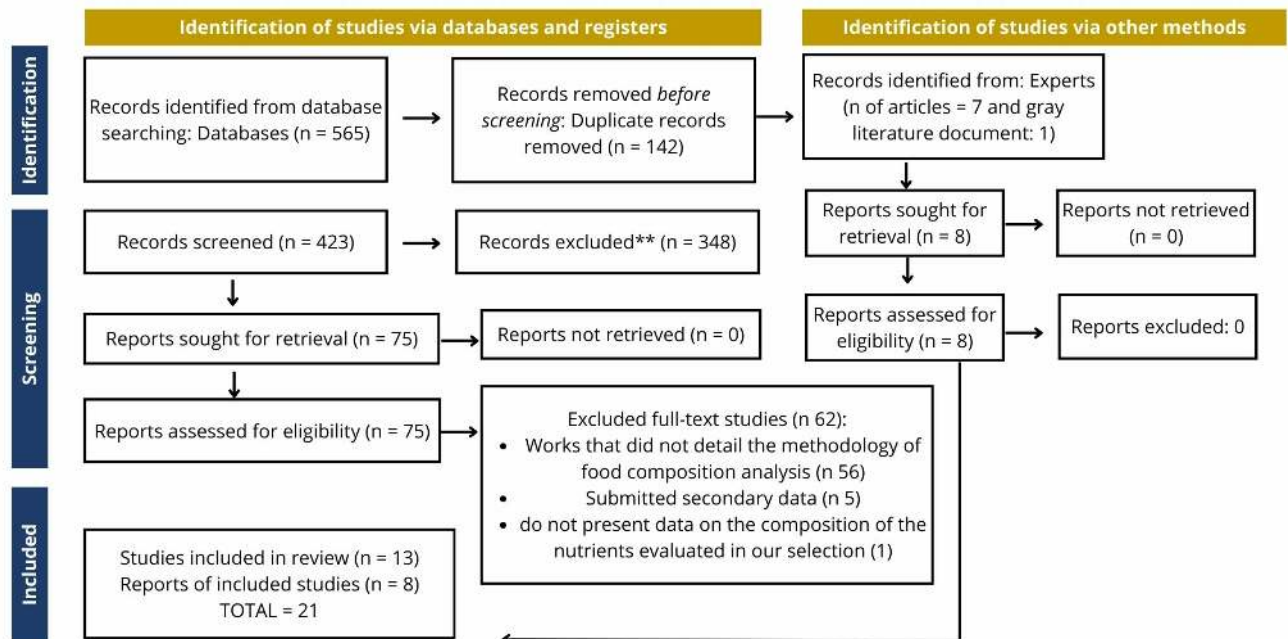
After removing 142 duplicates, 423 articles underwent title and abstract screening. Of the 75 articles selected for full-text review, 62 were excluded due to secondary data (5), incomplete information (56), or lack of relevant nutritional data (1). The final analysis included 21 articles: 13 from the database search, 7 expert-recommended articles and 1 grey literature document.

Characteristics of the Studies

The review analyzed 26 species (13 mammals, 6 birds, 7 reptiles; see Additional File 4) from 11 countries, with most studies from Italy, Spain, Poland, and South Africa. Table 2 presents detailed study characteristics.

Table 1. Shows missing data for each nutrient across 76 observations. We used machine learning to impute missing data, framing each as a regression problem. Missing data were classified as Missing Completely at Random (MCAR), justified by limited study availability and legal/ethical constraints (Soulsbury *et al.* 2020).

| Nutrients | Fe | Mn | Se | Zn | K | Mg | Na | Protein | Fat | w6 |
|-----------|----|----|----|----|----|----|----|---------|-----|----|
| Missing | 51 | 54 | 63 | 46 | 61 | 61 | 63 | 22 | 26 | 57 |
| Available | 25 | 22 | 13 | 30 | 15 | 15 | 13 | 54 | 50 | 19 |
| Total | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/register).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

Figure 1. Flowchart of the study selection process.

Figure 1. Flowchart of the study selection process.

Quality Analysis

Inter-rater agreement was excellent (Fleiss' Kappa = 1.00). No articles received low-quality ratings, and 72% scored high quality (>6.0 points; Additional File 5). Studies scored highest on sample processing procedures and analysis methods but lower on species nomenclature and funding disclosure.

General Comments on the Dataset

Data imputation techniques with the lowest SMAPE values were selected, showing less error and greater consistency. SMAPE values ranged from 11.06% (protein) to 83.67% (selenium). See Additional File 6 for details.

General Comments on the Nutritional Profile of the Meats

All food composition analysis methods were AOAC-recognized, supporting result comparison (see Additional File 7). Figure 2 presents the main results of our research. Additional File 8 summarizes mean and standard deviation values of nutritional composition. Statistical analysis results are in Additional File 9. Additional File 10 highlights significant specific statistical differences in nutritional composition among wild animal classes and anatomical parts.

Table 2. Characterization of studies on the nutritional composition of wild animals. Names of animals collected are presented exactly as provided in the papers.

| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|---|---------------------|---|--|-----------------------|---|------------------------------------|---|---------------|
| 1 | Aguiar (1996) | Analyze samples of wild animal meat obtained from public markets in the Amazon. | Analyses of the samples' composition were conducted. The results were compiled into a centesimal composition table, and a summary of the findings is available for consultation in this article. | Brazil | Cabeçudo (<i>Peltocephalus dumerilianus</i>); catitu (<i>Pecari tajacu</i>); cutia (<i>Dasyprocta leporina</i>); Iaçã (<i>Podocnemis sextuberculat</i>); jacare-tinga (<i>Caiman crocodilus</i>); paca (<i>Agouti paca</i>); tartaruga (<i>Podocnemis expansa</i>); tracajá (<i>Podocnemis unifilis</i>); veado (<i>Mazama americana</i>) | 31 (muscle) + 4 (viscera) | Protein: Method Kjeldahl - AOAC (1984); Lipid: Soxhlet Method | High (6.50) |
| 2 | Amici et al. (2015) | To examine how different geographic hunting areas influence the chemical composition and quality indices of wild boar meat. | The characteristics of wild animal meat varied due to environmental factors, including diet. Dietary diversity appears to influence aspects of the meat, such as color parameters, cooking losses, dry matter content, protein levels, and fatty acid profiles. These differences were observed in relation to the hunting area. | Italy | Wild boar (<i>Sus scrofa</i>) | 48 (Longissimus thoracis - muscle) | Protein: Method Kjeldahl - AOAC (1995); Lipids: Folch et al. (1957); Lipid Fraction: Method Soxhlet - IUPAC (1992). | Medium (5.50) |

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| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|---|----------------------------|--|---|-----------------------|---|------------------------------|--|---------------|
| 3 | Milczarek et al. (2021) | Compare the proximate nutrient composition of roe deer and wild deer meat. | Regarding the macronutrient profile, no differences were observed with respect to sex, except for the fat content in females, which was higher than in males regardless of the species. As for micronutrients, the levels found are in accordance with the recommended values. | Poland | Roe deer (<i>Capreolus capreolus</i>), Red deer (<i>Cervus elaphus</i>) | 60 (semimembranosus muscles) | Protein: Kjeldahl (990.03); Lipids: Method Soxhlet (991.36); Lipid fractions: GC-FID; Methodology; Minerals: (Cd, Pb, Fe) PN-EN 14084 | High (8.33) |
| 4 | Dannenberger et al. (2013) | Investigate the effects of gender, age, and region on the macronutrients, micronutrients, and fatty acid profiles of wild boar and deer muscles. | The protein content in deer remained constant regardless of region, age, or sex; however, wild boar meat varied across these factors. Fat in deer varied by region, age, and sex, while in wild boar, they remained stable. Selenium and iron were not influenced by region, age, or sex, except for higher iron levels in older females. Zinc concentrations varied according to region, age, and sex. | Germany | Roe deer (<i>Capreolus capreolus</i>), Wild boar (<i>Sus scrofa</i>) | 203 (longissimus muscle) | Proteins and lipids: Meat Analyzer Food-ScanTM (FOSS Analytic, Hillerød, Denmark); Lipid fractions: Gas chromatography analysis; Minerals: ICP-MS (Se, Cu, Fe, and Zn) | High (6.50) |

to be continued...

| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|---|-------------------------|---|--|-----------------------|---|---------------------------------------|--|---------------|
| 5 | Fernandes et al. (2022) | Evaluate the effects of high hydrostatic pressure on the physicochemical parameters of collared peccary meat. | High hydrostatic pressure tenderized the meat of adult collared peccaries and influenced meat quality. The results also showed changes in the protein profiles of animals of different ages subjected to different pressure levels. | Brazil | Peccary (<i>Pecari tajacu</i>) | 40 (muscle) | Proteins: Method Kjeldahl - AOAC (1995); Lipids: Method Soxhlet - AOAC (1995); Lipid fraction: Bligh and Dyer (1959) | High (6.50) |
| 6 | Gálvez et al. (1999) | Determine the nutritional characteristics of wild animal meat. | Wild meats exhibited high protein content and low fat levels. | Peru | Sajino (<i>Tayassu pecari</i>), Motelo (<i>Chelonoidis denticulata</i>), Majaz (<i>Cuniculus paca</i>), Venado colorado (<i>Mazama americana</i>) | 20 (muscle) | Macronutrients and micronutrients: Proteins : Method Kjeldahl - AOAC, 1990; Lipids: Method Soxhlet - .AOAC, 1990 | Medium (5.50) |
| 7 | Jarzyńska et al. (2011) | To determine the content and composition of micronutrients in red deer, relating them to meat intake rates, human nutritional needs, and associated health impacts. | The meats from muscles and organs of red deer exhibited high concentrations of copper, chromium, cobalt, manganese, selenium, and zinc. Additionally, they contained toxic trace elements such as mercury, lead, cadmium, and titanium. The cadmium levels found in the meats exceed tolerance limits. | Poland | Red Deer (<i>Cervus elaphus</i>) | 60 (20 muscle; 20 liver 20 de kidney) | Minerals: ICP-AES (Se) , ICP-MS (Ag, Ba, Cd, Co, Cr, Cs, Cu, Ga, Mn, Mo, Pb, Rb, Sb, Sr, Tl, V e Zn) | Medium (4.50) |

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| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|-----------------------|---|---|--------------------------|---|--|---|---------------|
| 8 | Johnson et al. (2007) | Assess the mineral content of horn, liver and forage to measure deficiencies and toxicities. | The levels of minerals found in the liver and horn varied between animals from two different locations. It was found that antler breakage in elk at one of the locations was related to a copper and phosphorus deficiency. The levels of micronutrients found in forage varied according to location and season. | United States of America | Tule elk (<i>Cervus elaphus</i>) | 240 (liver) | Minerals: Flame atomic absorption spectrophotometry (Cu e Mo); ICP-MS (Ca, Fe, Mg, Mn, S, P, Zn, Cu e Mo) | Medium (5.50) |
| 9 | Lima (2009) | To evaluate the yield and chemical composition of <i>Podocnemis expansa</i> raised in commercial captivity and from natural habitats. | The meat evaluated in both systems showed a low fat content. And the free-living ones had a higher protein content. | Brazil | Tartaruga-da-amazônia (<i>Podocnemis expansa</i>) | 45 (muscle) + 15 (viscera) | Proteins : Method Kjeldahl ; Lipid (Bligh e Dyer,1959) | High (8.50) |
| 10 | Lorenzo et al. (2019) | Investigating the effects of slaughter age on the levels of macro and microminerals in wild deer meat. | Total fat and fraction contents were affected by the slaughter age, showing higher values in older animals. Regarding cholesterol, its levels decreased with increasing slaughter age. | Spain | Red deer (<i>Cervus elaphus</i>) | 150 (muscle) | Lipid: Bligh e Dyer; Fraction lipid analysis: Gas chromatography; Minerals: ICP-OES, Ca, K, Mg, Na, P, Fe, Mn, Zn e Cu. | High (8.50) |
| 11 | Hoffman et al. (2016) | Determine the proximate and fatty acid composition of zebra meat. | The muscles had high protein content and low fat content. In the fat group, high concentrations of saturated fatty acids were found. | South Africa | Zebra (<i>Equus quagga</i>) | 20 (longissimus lumborum muscle, longissimus thoracis et lumborum) | Protein: Method Dumas - AOAC 992.15; Lipid: LEE; Fraction lipid analysis: Gas chromatography; | High (7.33) |

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| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|----------------------|--|---|-----------------------|---|--|---|---------------|
| 12 | Rudman et al. (2018) | Evaluate the sensorial, physical and chemical attributes of wild boar meat. | Analysis of the sensory profile demonstrated that this meat has an undesirable aroma and flavor, described as sour, which was found in the meat of wild boars of all ages. Regarding macronutrient recommendations, these meats were considered healthy sources of protein and polyunsaturated fatty acids. | South Africa | Warthogs (<i>Phacochoerus africanus</i>) | 31 (Longissimus lumborum) | Protein: Method Dumas - 992.15; Lipids: LEE; Ashes (AOAC, 1992; AOAC, 2002a, 2002b) | High (8.0) |
| 13 | Neto et al. (2006) | Determine the proximate composition and cholesterol of meat from the tail and back of alligators, from zoo breeding facilities and natural habitats. | Animals bred in captivity had a lower amount of fat and higher protein levels when compared to animals in their natural habitat. | Brazil | Alligator-swampland (<i>Caiman yacare</i>) | 12 (muscle) | Proteins : Method Kjeldahl - AOAC,1990; Lipids: Method Soxhlet - AOAC, 1990. | High (8.50) |
| 14 | Landi et al. (2018) | Evaluate the nutritional aspects of Eurasian chicken meat. | Urian chicken meat contains high concentrations of high-quality proteins, due to its amino acid composition and low fat content. | Italy | Eurasian woodcock (<i>Scolopax rusticola</i>) | 10 (entire chest and leg muscle, without skin) | Proteins : Method Kjeldahl; lipids: Method Soxhlet - AOAC 991.36; Lipid fractions: GC-FID | High (7.00) |

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| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|--------------------------|---|--|-----------------------|--|-------------|--|---------------|
| 15 | Pérez-Peña et al. (2021) | Know the microbiological and bromatological status of bush meat during the COVID-19 pandemic from two public markets in the Amazon. | Game meat had a low fat content and a high percentage of protein. The calcium content found in wild meat was higher than in domesticated meat. Phosphorus content was also significant in wild meat. | Peru | <i>Pecari tajacu</i> , <i>Tayassu pecari</i> , <i>Cuniculus paca</i> , <i>Chelonoidis denticulatus</i> | 16 (muscle) | Protein:Kjeldahl; Fat: Soxhlet; Vitamins: Chromatography high pressure liquid (HPLC); Minerals: (zinc, sodium, potassium and iron) by Absorption Spectroscopy Atomic (EAA) and Phosphorus by UV Visible Spectroscopy | High (6.50) |

to be continued...

| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|-----------------------|---|---|-----------------------|------------------------------------|---------------------------------------|-----------------------------|---------------|
| 16 | Serrano et al. (2020) | Assess the combined impact of country of origin and type of slaughter and season on the quality and nutritional value of venison. | Wild deer from Spain had a higher protein concentration than meat from animals raised in New Zealand. The calcium, sodium and phosphorus levels found in meat do not differ between countries. New Zealand farm deer had higher concentrations of magnesium, iron, manganese, copper and lower concentrations of zinc when compared to wild deer from Spain. The nutrient profile of meats also varied depending on the season. Meat from winter hunts had higher levels of calcium, sodium, iron and zinc and lower levels of magnesium and phosphorus compared to meat from summer hunts. | Spain and New Zealand | Red deer (<i>Cervus elaphus</i>) | 24 (Longissimus thoracis et lumborum) | Lipids: LEE; Protein: DUMAS | High (9.0) |

to be continued...

| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|------------------------------|---|--|-----------------------|--|--------------------|---|---------------|
| 17 | Sevillano-Caño et al. (2020) | Determine the nutritional and toxicological content of game bird meat. | Iron and chromium contents were similar in all three bird species studied. Meat from thrush had the highest concentrations of copper. Pigeons and doves had the highest concentrations of zinc. The study concluded that the meat of migratory game birds is an excellent dietary source of copper and iron, much better than other types of meat, such as non-wild birds and even red meat. | Spain | Woodpigeon (<i>Columba palumbus</i>), Common turtledove (<i>Streptopelia turtur</i>), Thrush (<i>Turdus philomelos</i>) | 89 (breast; thigh) | Cu, Fe, Zn: flame atomic absorption spectroscopy (FAAS, Varian SpectraAA – model 50B); Cr, Co: Electrothermal Atomic Absorption Spectrometry on an Agilent Model 240Z AA | High (6.50) |
| 18 | Spiegelhaar et al. (2019) | Determine the amino acid and protein composition of wild meats and processed meats | The wild meats analyzed showed high concentrations of proteins and amino acids. | Canada | Moose (<i>Alces alces</i>), Canada Goose (<i>Branta canadensis</i>), Mallard Duck (<i>Anas platyrhynchos</i>) | 25 (muscle) | Proteins : Method Kjeldahl - AOAC 981.10; Amino acids: standardized hydrolysis of NaOH and HCl, and ultra-performance liquid chromatography | High (7.50) |
| 19 | Strazdiņa et al. (2013) | Compare the nutritional value of the meat of different types of wild animals with analogous domesticated animals. | Wild meat samples had a higher content of proteins, essential fatty acids, iron and zinc compared to non-wild animals. The highest cholesterol levels were found in wild boar (<i>Sus scrofa</i>). | Latvia | Elk (<i>Alces alces</i>), Deer (<i>Cervus elaphus</i>), Wild boar (<i>Sus scrofa</i>), Roe deer (<i>Capreolus capreolus</i>) | 54 (muscle) | Proteins : Method Kjeldahl; Lipids: Method Soxhlet - AOAC 991.36; Lipid fractions: Gas-liquid chromatography; Cholesterol: Colorimetric Blur; Minerals: ICP-AES/ISO 6869-2002 | Medium (5.00) |

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| n | Publication | Study objective | Key findings | Country of collection | Wild animals | Samples | Analyses performed | Study quality |
|----|-------------------------|--|--|--------------------------|---|-------------|--|---------------|
| 20 | Zimmerman et al. (2008) | Assess hepatic mineral concentrations of deer from different habitats. | The liver mineral levels found differed. The differences were associated with diet, location and reproductive stage. | United States of America | White-tailed deer (<i>Odocoileus virginianus</i>), Mule deer (<i>Odocoileus hemionus</i>) | 83 (liver) | Minerais: ICP-AES Al, Sb, As, Ba, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, P, K, Se, Na, S, Tl, Zn | Medium (5.50) |
| 21 | Webb et al. (2001) | Evaluate the levels of micronutrients found in buffalo liver and in different regions. | The results demonstrated that there are significant differences in the amounts of micronutrients available in meat depending on the territory in which the buffalo is located. | South Africa | Buffalo (<i>Syncerus caffer</i>) | 311 (liver) | Minerals: ICP-AES copper, manganese and cobalt | High (6.67) |

Nutritional Comparison: Muscle Variation Across Mammals, Birds, and Reptiles

Reptile muscles showed over 60% higher iron ($p < 0.01$) and 75% higher manganese ($p < 0.01$) than mammals, and 400% higher selenium than birds ($p < 0.01$). Bird muscles had the highest potassium and omega-6, surpassing mammals by over 200% ($p < 0.01$). Mammal muscles had the highest zinc, over 100% more than birds ($p < 0.01$), and the lowest fat concentrations.

Nutritional Comparison: Viscera Variation Across Mammals and Reptiles

Mammalian viscera had the highest protein concentrations compared to reptiles ($p < 0.01$). Reptilian viscera had over 300% higher fat content than mammals ($p < 0.01$).

Comparing Anatomical Parts: Macro and Micronutrient Variation in Viscera and Muscle

Reptilian viscera had higher fat (5.37 g) and lower protein (16.33 g) than muscle (2.02 g and 21.34 g, respectively). In mammals, omega-6 was over 400% higher in viscera (1.37 g) than in muscles (0.24 g) ($p < 0.01$). Viscera generally had higher mineral concentrations, with reptilian viscera showing almost 300% more iron and 200% more zinc than muscles. Mammalian viscera had over 300% more iron and manganese, significantly higher selenium, and 90% more zinc than muscles. Potassium was over 60% higher in muscles than in viscera ($p < 0.01$).

DISCUSSION

This study analyzes the nutritional composition of wild animal meat, revealing key findings: (i) wild meats are significant sources of nutrients often scarce in food-insecure populations; (ii) viscera are particularly mineral-rich compared to muscles, similar to domesticated meats; and (iii) micronutrient profiles vary across animal classes. However, attributing these variations solely to intrinsic class characteristics or individual/environmental factors remains inconclusive based on available data.

Wild meat as a Nutrient Source

Comparing wild meat nutrient content with Dietary Reference Intakes (DRI; Additional File 11) reveals its potential contribution to human nutrition across life stages. Wild meats are excellent sources

of protein and micronutrients like iron, zinc, and selenium, often deficient in vulnerable groups, particularly women and children in IPLC contexts (Lemke and Delormier 2017). These deficiencies have severe health implications, including growth delays, anemia, immune dysfunction, and dermatological disorders (Malafaia and Maartins 2009; Torres *et al.* 2022; Pedraza and Sales 2017; Cozzolino 2024). Our findings demonstrate that wild bird, mammal, and reptile meats can contribute significantly to daily nutrient requirements. Restricting access to wild meats through stringent conservation policies or defaunation could negatively impact vulnerable populations reliant on these resources (Jacob *et al.* 2020).

Viscera of Wild Animals are Important Reservoirs of Nutrients

Visceral meats exhibit distinct nutritional profiles compared to muscles, with higher mineral concentrations. Reptilian viscera show higher fat and lower protein than muscles, while mammalian viscera have comparable protein levels but elevated omega-6 and micronutrients. Lower potassium in viscera likely reflects the higher potassium demands of muscle tissue for contraction. Despite their nutrient density, viscera may contain elevated heavy metal levels, exceeding recommended limits (Danieli *et al.* 2012), necessitating cautious consumption, especially for children. Interestingly, selenium's potential role in mitigating heavy metal toxicity through chelation (Marco 2007) highlights the complex interplay of nutrients and environmental factors. Promoting holistic food utilization, as practiced in traditional communities, contributes to both sustainability and dietary diversity (Lemke and Delormier 2017; DeClerck *et al.* 2011).

The Nutritional Composition of Wild Meat Varies Among Classes, Not Necessarily Due to Animal Physiology Factors

Nutrient content in wild meat exhibits significant variability, extending beyond simple taxonomic differences and strongly suggesting the influence of external factors. For example, wild birds often show high levels of potassium, fat, and omega-6, which may be related to their anatomy and migratory lifestyles (Cao and Jin 2020; Price *et al.* 2011). Discrepancies in iron content observed between wild and domesticated birds further highlight how factors like slaughter methods and dietary diversity can contribute to these variations (Sevillano-Caño *et al.* 2020). Similarly, the high selenium levels sometimes found in reptiles might be linked to their ability to absorb nutrients directly from their aquatic environments (Gaspar and Silva 2009).

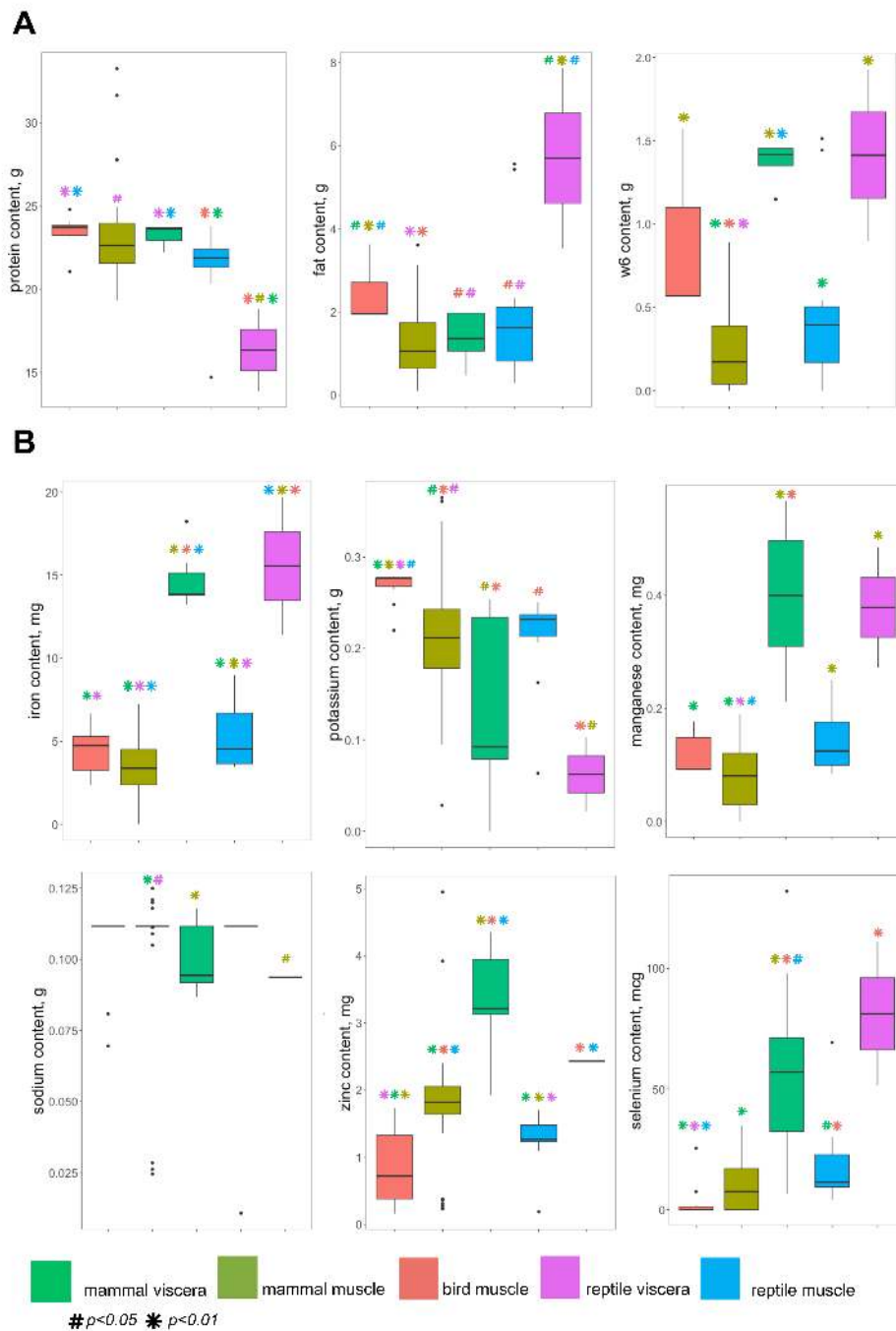


Figure 2. Nutritional composition in muscle and viscera of wild meat, comprising mammals, birds, and reptiles, including original and imputed data. A: Macronutrients. B: Micronutrients.

These examples underscore the critical importance of considering environmental and methodological factors when evaluating the nutritional value of wild meats. Factors such as the animal’s diet, geographic location, seasonality, and the method of harvest or death are recognized as key determinants in the variation of nutrient concentrations (Lawrie, 2005).

The existing literature provides concrete examples

of how these environmental factors affect nutritional composition. The availability and quality of food in the environment, for instance, directly impact meat nutrient content; studies show that both nutrient excess and deficiency in an animal’s diet can lead to atypical development reflected in altered macro- and micronutrient levels (Lawrie, 2005). Regional climate and seasonal temperature variations also play a role,

influencing not only food availability but also animal metabolism and potentially hormone levels. According to Lawrie (2005), species in colder regions may accumulate more body fat and develop more compact bodies and thicker fur compared to those in warmer climates. The method of harvest or death is another relevant factor; for example, hunting with firearms can cause internal hemorrhaging, potentially leading to blood loss and an increase in the concentration of certain nutrients in the muscle tissue (Sevillano-Caño, 2020).

Ethical Considerations in Wild Meat Governance

The intersection of food and nutrition security with environmental sustainability in the context of wild meat consumption presents a multifaceted ethical challenge (Smith *et al.*, 2023). Wild animal meat remains a vital source of high-quality protein and essential micronutrients for traditional and Indigenous populations, often constituting a primary component of local diets (Dannenberger *et al.*, 2013). Restricting access to this resource has the potential to exacerbate food insecurity and increase rates of malnutrition, particularly in low-income regions where alternative sources of nutrition are limited or unavailable (Golden *et al.*, 2011).

Conversely, unsustainable exploitation of wild fauna can lead to population declines and species extinctions, thereby compromising ecosystem integrity and triggering cascading ecological effects. Such ecological disruptions may also heighten the risk of zoonotic disease emergence (Machovina *et al.*, 2015; Ripple *et al.*, 2016). These outcomes raise profound ethical concerns related to intergenerational equity, biodiversity stewardship, and the safeguarding of public health.

Addressing these competing imperatives requires the implementation of governance frameworks that recognize and respect the rights and needs of local communities while ensuring the sustainable use of wildlife resources. A participatory approach—engaging local populations, policymakers, and relevant stakeholders in the development and enforcement of regulations—is essential to achieving outcomes that are both ecologically sustainable and socially equitable (Jacob *et al.*, 2023). Potential strategies include community-managed quotas, seasonal harvesting restrictions, and support for alternative livelihoods that reduce pressure on wild animals.

Novelty of the Research

This study is the first to comprehensively analyze nutritional data from a diverse range of wild animal

species across three classes. We introduce data imputation techniques, specifically K-Nearest Neighbors, to address missing data, a novel approach in wild meat nutritional analysis. Recognizing the lack of standardized quality assessment tools for this field, we developed a questionnaire (Add File 2) to evaluate methodological robustness, considering the ethical and legal complexities associated with wild meat research.

Limitations

This study is subject to several limitations primarily stemming from the nature of relying on compiled data. Firstly, the inability to access original raw data limited our capacity to fully assess and capture the intrinsic data variability. Secondly, inconsistent reporting of key covariates across the diverse source studies hindered efforts to control for confounding factors and prevented a formal meta-analysis. Despite these challenges, we were able to critically analyze the methodologies of the original studies and identify these reporting gaps by employing a quality assessment questionnaire specifically designed for wild foods analysis. In addition to strengthening this review by providing transparency on data quality, this tool may prove useful for future research on wild meat.

Thirdly, the limited sample size for certain taxonomic groups, notably reptiles, means that results for these groups must be interpreted with caution. Finally, high SMAPE values for specific nutrients highlight the potential uncertainty associated with their predicted concentrations, necessitating careful consideration in any application of these results. Given the acknowledged scarcity of wild meat nutritional data and the ethical constraints on new primary sample collection, we employed data imputation as a necessary step despite these limitations. However, this approach introduces its own caveats. Therefore, we recommend cautious interpretation of results concerning nutrients with higher imputation errors, and the imputed data should be regarded as provisional.

Ultimate accuracy and completeness require the generation of new, robust primary data. Such datasets should comprehensively document factors driving nutritional variations, including diet, age, sex, geographic location, ecological characterization of the collection area, identification of the season and period of harvest, meat storage conditions prior to laboratory analysis, and the method of harvest/slaughter. We underscore the critical need for future research employing standardized, rigorous methodologies to provide more reliable nutritional information on wild animal meat. Additionally, we emphasize the importance of future studies that incorporate a greater diversity of species, anatomical parts, and geographic contexts. We believe that strengthening collaborative research

networks, such as research consortiums, can support the development of more robust, reliable, and accessible databases, thereby enhancing the applicability of findings in public policies and strategies aimed at promoting food and nutrition security, especially in communities that rely on wild meat consumption.

CONCLUSION

Wild meat plays a crucial role as a nutrient source for diverse populations. This study reveals significant nutrient variations across animal classes and anatomical parts, emphasizing wild meat's potential to address micronutrient deficiencies in vulnerable groups. While data imputation offers a valuable tool for navigating data scarcity, primary data limitations hinder definitive conclusions regarding the drivers of nutritional variation. Future studies could explore the impact of slaughter methods on nutrient content, environmental influences on selenium levels, and other factors affecting wild meat composition. Enriching databases with detailed information on these variables will enhance wildlife conservation efforts and maximize the benefits of wild meat for IPLC.

DATA AVAILABILITY

The data used in this study is available at "Nutritional Composition Wild Meat" on GitHub: https://github.com/eliasjacob/paper_nutritional_composition_wildmeat

CONFLICT OF INTEREST

The authors report there are no competing interests to declare.

CONTRIBUTION STATEMENT

The authors contributed to the study as follows: ALSM was involved in conceptualization, data curation, methodology, writing the original draft, and review and editing. ALBO and MFAM contributed to data curation, methodology, and review and editing. DT and EBG focused on validation and review and editing. EJMN handled formal analysis, visualization, validation, and review and editing. JKSM and MCMJ were responsible for conceptualization, methodology, project administration, supervision, validation, visualization, funding acquisition, writing the original draft, and review and editing.

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Additional Files

Add File 1. Checklist of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020).

| Section and Topic | Item # | Checklist item | Location where item is reported |
|-------------------------|--------|--|---------------------------------|
| TITLE | | | |
| Title | 1 | Identify the report as a systematic review. | 1 |
| ABSTRACT | | | |
| Abstract | 2 | See the PRISMA 2020 for Abstracts checklist. | 2 |
| INTRODUCTION | | | |
| Rationale | 3 | Describe the rationale for the review in the context of existing knowledge. | 3 |
| Objectives | 4 | Provide an explicit statement of the objective(s) or question(s) the review addresses. | 3 |
| METHODS | | | |
| Eligibility criteria | 5 | Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses. | 4 |
| Information sources | 6 | Specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted. | 4 |
| Search strategy | 7 | Present the full search strategies for all databases, registers and websites, including any filters and limits used. | 4 |
| Selection process | 8 | Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process. | 4 |
| Data collection process | 9 | Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process. | 4 |
| | 10a | List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect. | 5 |
| Data items | 10b | List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information. | 5 |

Continued on next page...

| Section and Topic | Item # | Checklist item | Location where item is reported |
|-------------------------------|--------|---|---------------------------------|
| Study risk of bias assessment | 11 | Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process. | 4 |
| Effect measures | 12 | Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results. | NA |
| | 13a | Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)). | NA |
| | 13b | Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions. | 5 |
| | 13c | Describe any methods used to tabulate or visually display results of individual studies and syntheses. | 5 |
| | 13d | Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used. | NA |
| | 13e | Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression). | NA |
| Synthesis methods | 13f | Describe any sensitivity analyses conducted to assess robustness of the synthesized results. | NA |
| | 14 | Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases). | NA |
| Reporting bias assessment | 14 | Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases). | NA |
| Certainty assessment | 15 | Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome. | NA |
| RESULTS | | | |
| Study selection | 16a | Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram. | Fig 1 |
| | 16b | Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded. | 6 |
| Study characteristics | 17 | Cite each included study and present its characteristics. | 7-16 |
| Risk of bias in studies | 18 | Present assessments of risk of bias for each included study. | 7-16 |
| Results of individual studies | 19 | For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots. | NA |
| | 20a | For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies. | NA |

Continued on next page...

| Section and Topic | Item # | Checklist item | Location where item is reported |
|--|--------|--|---------------------------------|
| Results of syntheses | 20b | Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect. | Table 3 |
| | 20c | Present results of all investigations of possible causes of heterogeneity among study results. | NA |
| | 20d | Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results. | NA |
| Reporting biases | 21 | Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed. | NA |
| Certainty of evidence | 22 | Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed. | NA |
| DISCUSSION | | | |
| Discussion | 23a | Provide a general interpretation of the results in the context of other evidence. | 19-20 |
| | 23b | Discuss any limitations of the evidence included in the review. | 20 |
| | 23c | Discuss any limitations of the review processes used. | 20 |
| | 23d | Discuss implications of the results for practice, policy, and future research. | 20 |
| OTHER INFORMATION | | | |
| Registration and protocol | 24a | Provide registration information for the review, including register name and registration number, or state that the review was not registered. | 4 |
| | 24b | Indicate where the review protocol can be accessed, or state that a protocol was not prepared. | NA |
| | 24c | Describe and explain any amendments to information provided at registration or in the protocol. | NA |
| Support | 25 | Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review. | 20 |
| Competing interests | 26 | Declare any competing interests of review authors. | 20 |
| Availability of data, code and other materials | 27 | Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review. | 5 |

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: [10.1136/bmj.n71](https://doi.org/10.1136/bmj.n71)

Add File 2. Checklist for Assessing the Quality of Reports on the Nutritional Composition of Wild Animals. Scoring Explanation to each criterion: A score of 0 points indicates the information is not available; 0.5 points denote ambiguity or unclear information; and 1.0 point signifies the information is either available or not applicable.

| Item | Section | Criteria | Question | Source |
|------------------------------|-------------------|----------|---|---|
| Study design and sample size | Methods | 1 | They specify the sampling plan (e.g., random, opportunistic) and, when applicable, the method used for sample size calculation? | LatinFoods/FAO; "QUADAS Tool/ Timmer's Analisis Tool" |
| Sample Processing | Methods | 2 | Do they mention the scientific name of the species? | Original authorship |
| | Methods | 3 | The procedures used for processing the samples are reported (e.g., if the sample was washed, type of water used, type of knife, time after hunting, storage of the game until reaching the laboratory, type of freezing, type of drying). | LatinFoods/FAO, QUADAS Tool |
| 5 Analysis | Methods | 4 | The methods of sample analysis are described? | LatinFoods/FAO, QUADAS Tool, Timmer's, OHAT |
| Analysis | Methods | 5 | Were the analyses conducted at least in triplicate or on at least three animals of the sampled species? | LatinFoods/FAO / Original authorship |
| Quantitative variables | Methods | 6 | Do they present results with coefficients of variance or standard deviation or standard error? | LatinFoods/FAO |
| Incomplete data | Methods | 7 | In the case of losses, incomplete results (losses and exclusions during the experiment) were adequately justified? | Cochrane, QUADAS, Timmers |
| Funding | Other information | 8 | Do they specify the study's funding source and the role of the funders? | STROBE |
| Conflicts of interest | Other information | 9 | Do they report the existence or absence of potential conflicts of interest? | Original authorship |

Add File 3. Raw data used for analysis, with imputed data highlighted in red. All values are expressed in g/100g. (classification = C, m = mammal, b = bird, reptile = r), (Muscle = M, Viscera = V)

| taxon tfmed | genus | C | country collects | parts tfmed | Fe | Mn | Se | Zn | K | Mg | Na | Protein | Fat | w6 |
|-------------|--------------|---|------------------|-------------|---------------|-------------------|-------------------|-------------|--------------|-----------|--------------|-------------|--------------|----------------|
| SS | sus | m | Germany | M | 0,0019 | 0,00009106221605 | 0,000013 | 0,0024 | 0,22027611 | 0,0184136 | 0,1116666667 | 22,5 | 2,1 | 0,5712 |
| CC1 | capreolus | m | Germany | M | 0,00321 | 0,0000591035807 | 0,000004 | 0,00235 | 0,23574775 | 0,0184136 | 0,1116666667 | 23,5 | 1 | 0,266 |
| EQ | equus | m | South Africa | M | 0,004019027 | 0,0001129998393 | 0,000009463630789 | 0,00182025 | 0,20372152 | 0,0184136 | 0,1116666667 | 22,29 | 1,47 | 0,00000539 |
| CE | cervus | m | Poland | M | 0,0031535064 | 0,000000759 | 0,00000462 | 0,00495 | 0,25859021 | 0,0184136 | 0,118 | 23,38066667 | 0,4733333333 | 0,03753911567 |
| CE | cervus | m | Poland | V | 0,01364190824 | 0,000396 | 0,0000066 | 0,0033 | 0,10550066 | 0,0184136 | 0,118 | 23,52133333 | 0,4733333333 | 1,14965687 |
| CE | cervus | m | Poland | V | 0,01364190178 | 0,0002178 | 0,0000132 | 0,00429 | 0,10550238 | 0,0184136 | 0,118 | 23,698 | 0,4733333333 | 1,1496546 |
| CE | cervus | m | USA | V | 0,015131 | 0,000214 | 0,000068899335309 | 0,00204 | 0,000000082 | 0,015988 | 0,1116666667 | 23,698 | 1,0533333333 | 1,351696766 |
| CE | cervus | m | USA | V | 0,013225 | 0,000211 | 0,000068898971195 | 0,001924 | 0,000000014 | 0,016113 | 0,1116666667 | 23,614 | 1,0533333333 | 1,351597832 |
| SR | scolopax | b | Italy | M | 0,004776317 | 0,0001425301578 | 0,000001622334867 | 0,001731182 | 0,27874793 | 0,0184136 | 0,0695275 | 24 | 2,75 | 1,157 |
| SR | scolopax | b | Italy | M | 0,006659536 | 0,0001771961461 | 0,00002545166003 | 0,001571666 | 0,21972185 | 0,0184136 | 0,1116666667 | 21,05 | 2,6 | 1,04 |
| CE | cervus | m | Poland | M | 0,0038 | 0,00007251743076 | 0,00001682398232 | 0,002044 | 0,24143027 | 0,0184136 | 0,1116666667 | 21,54 | 0,16 | 0,01400752607 |
| CC1 | capreolus | m | Poland | M | 0,003531 | 0,00005958437646 | 0 | 0,00224258 | 0,24269201 | 0,0184136 | 0,1116666667 | 23,92 | 0,1 | 0,0150522476 |
| PA | phacochoerus | m | South Africa | M | 0 | 0 | 0 | 0,00238075 | 0,36081690 | 0,0184136 | 0,1116666667 | 33,25 | 1,18 | 0,000412 |
| PA | phacochoerus | m | South Africa | M | 0 | 0 | 0 | 0,0020285 | 0,33893063 | 0,0184136 | 0,1116666667 | 31,64 | 1,12 | 0,000338 |
| CE | cervus | m | New Zealand | M | 0,00341 | 0,000017 | 0,000007484600198 | 0,00201 | 0,365 | 0,037 | 0,12 | 22,7 | 0,75 | 0,17818 |
| CE | cervus | m | Spain | M | 0,00295 | 0,000014 | 0 | 0,00392 | 0,297 | 0,022 | 0,125 | 24,1 | 0,51 | 0,27552 |
| CP1 | columba | b | Spain | M | 0,00535 | 0,00009208805641 | 0 | 0,00073 | 0,277009161 | 0,0184136 | 0,1116666667 | 23,82866667 | 1,9533333333 | 0,5696985885 |
| TP2 | turdus | b | Spain | M | 0,00508 | 0,00009208614459 | 0 | 0,00061 | 0,277009961 | 0,0184136 | 0,1116666667 | 23,82866667 | 1,9533333333 | 0,5696889849 |
| ST | streptopelia | b | Spain | M | 0,00419 | 0,00009207968525 | 0 | 0,00071 | 0,27701348 | 0,0184136 | 0,1116666667 | 23,41266667 | 1,9533333333 | 0,5696562898 |
| ST | streptopelia | b | Spain | M | 0,00293 | 0,00009207073613 | 0 | 0,000236 | 0,27701738 | 0,0184136 | 0,1116666667 | 23,15266667 | 1,9533333333 | 0,5699113133 |
| CP1 | columba | b | Spain | M | 0,00258 | 0,00009206818842 | 0 | 0,000299 | 0,27701881 | 0,0184136 | 0,1116666667 | 23,82866667 | 1,9533333333 | 0,5695984053 |
| TP2 | turdus | b | Spain | M | 0,00235 | 0,00009206657152 | 0 | 0,00016 | 0,27701943 | 0,0184136 | 0,1116666667 | 23,15266667 | 1,9533333333 | 0,569590307 |
| AA | alces | m | Canada | M | 0,004502568 | 0,0001052242388 | 0,00001474563839 | 0,00168358 | 0,20856854 | 0,0184136 | 0,1116666667 | 21,84 | 1,74 | 0,3898955465 |
| BC | branta | b | Canada | M | 0,00470404 | 0,0001504320955 | 0 | 0,00140134 | 0,26497294 | 0,0184136 | 0,0808061666 | 24,78 | 3,63 | 1,164602938 |
| AP2 | anas | b | Canada | M | 0,005518131 | 0,0001653701626 | 0,000007417101101 | 0,00106687 | 0,247984238 | 0,0184136 | 0,1116666667 | 23,61 | 3,54 | 1,12023411 |
| SC | syncerus | m | South Africa | V | 0,0138371901D | 0,000567 | 0,0000245 | 0,00312616 | 0,07900123 | 0,0184136 | 0,09185133 | 23,08666667 | 1,9733333333 | 1,45413893 |
| SC | syncerus | m | South Africa | V | 0,01383719008 | 0,00056 | 0,0000343 | 0,00312616 | 0,07900123 | 0,0184136 | 0,09185133 | 22,20533333 | 1,9733333333 | 1,454138924 |
| SC | syncerus | m | South Africa | V | 0,0138371897D | 0,000518 | 0,0000343 | 0,00312616 | 0,07900123 | 0,0184136 | 0,09185133 | 22,20533333 | 1,9733333333 | 1,45413888 |
| SC | syncerus | m | South Africa | V | 0,01383718956 | 0,00049 | 0,0000266 | 0,00312616 | 0,07900123 | 0,0184136 | 0,09185133 | 22,366 | 1,9733333333 | 1,454138849 |
| OH | odocoileus | m | USA | V | 0,018227 | 0,000387 | 0,000098 | 0,003569 | 0,24924 | 0,018805 | 0,086821 | 23,70866667 | 1,36 | 1,415285114 |
| OH | odocoileus | m | USA | V | 0,015747 | 0,000403 | 0,00005 | 0,004353 | 0,24437 | 0,018605 | 0,09539 | 23,698 | 1,36 | 1,41736958 |
| OH | odocoileus | m | USA | V | 0,015128 | 0,00034 | 0,000078 | 0,004056 | 0,23058 | 0,018184 | 0,098926 | 23,698 | 1,36 | 1,420885875 |
| OH | odocoileus | m | USA | V | 0,014043 | 0,000407 | 0,000064 | 0,003909 | 0,25371 | 0,018329 | 0,093343 | 23,614 | 1,36 | 1,415095576 |
| SS | sus | m | Latvia | M | 0,000344 | 0,00004 | 0,00001002581615 | 0,000373 | 0,2116242698 | 0,001996 | 0,1116666667 | 22,92 | 2,82 | 0,391698 |
| AA | alces | m | Latvia | M | 0,000326 | 0,00002 | 0,00000546188719 | 0,000242 | 0,2171705759 | 0,002004 | 0,1116666667 | 22,72 | 1,33 | 0,156009 |
| CE | cervus | m | Latvia | M | 0,00023 | 0,00003 | 0,00001485013182 | 0,000233 | 0,2446918043 | 0,002105 | 0,1116666667 | 22,36 | 1,9 | 0,32395 |
| CC1 | capreolus | m | Latvia | M | 0,000206 | 0,00003 | 0,000009072168022 | 0,00031 | 0,2197948008 | 0,002076 | 0,1116666667 | 22,82 | 1,59 | 0,270936 |
| TT | tayassu | m | Peru | M | 0,00480102 | 0,0001275633375 | 0,00001701319306 | 0,00168358 | 0,11574680 | 0,0184136 | 0,1116666667 | 21,4 | 0,64 | 0,258989132 |
| CD | chelonoidis | r | Peru | M | 0,00345876 | 0,00008458133256 | 0,0000111761975 | 0,00126358 | 0,16243710 | 0,0184136 | 0,1116666667 | 21,4376 | 2,33 | 0,02977349604 |
| CP2 | cuniculus | m | Peru | M | 0,00605393 | 0,0001659564331 | 0,00002199816119 | 0,00168358 | 0,02827235 | 0,0184136 | 0,1116666667 | 21,4038 | 1,9433333333 | 0,5772433648 |
| MA | mazama | m | Peru | M | 0,00423877 | 0,0001229903086 | 0,000006929259964 | 0,00180191 | 0,14130999 | 0,0184136 | 0,1113333333 | 22,8636 | 1,8366666667 | 0,4304324484 |
| CE | cervus | m | Spain | M | 0,00337 | 0,000017 | 0 | 0,001832 | 0,289 | 0,03 | 0,109 | 24,942 | 1,0533333333 | 0,102544 |
| CE | cervus | m | Spain | M | 0,003142 | 0,000018 | 0 | 0,001641 | 0,279 | 0,038 | 0,121 | 24,942 | 1,0533333333 | 0,041952 |
| CE | cervus | m | Spain | M | 0,002731 | 0,000022 | 0 | 0,001362 | 0,288 | 0,034999 | 0,105 | 24,942 | 1,0533333333 | 0,01911 |
| TT | tayassu | m | Brazil | M | 0,00337234 | 0,00008948746602 | 0,000007770309886 | 0,00153441 | 0,20778914 | 0,0184136 | 0,1116666667 | 22,06 | 0,5 | 0,03864843864 |
| TT | tayassu | m | Brazil | M | 0,003531331 | 0,00009387555512 | 0,000008727818138 | 0,00153441 | 0,20669952 | 0,0184136 | 0,1116666667 | 22 | 0,61 | 0,06605123296 |
| TT | tayassu | m | Brazil | M | 0,00317611 | 0,00008552172606 | 0,00000570020017 | 0,00167941 | 0,21134246 | 0,0184136 | 0,1116666667 | 22,3 | 0,49 | 0,04039925787 |
| TT | tayassu | m | Brazil | M | 0,002970301 | 0,00008056080205 | 0,000004019985069 | 0,00212833 | 0,21384866 | 0,0184136 | 0,1116666667 | 22,46 | 0,41 | 0,02257450229 |
| TT | tayassu | m | Brazil | M | 0,00107742 | 0,00004261167485 | 0 | 0,00226983 | 0,24858938 | 0,0184136 | 0,1116666667 | 24,81 | 0,34 | 0,04694783748 |
| TT | tayassu | m | Brazil | M | 0,00475887 | 0,0001202686583 | 0,00002070688408 | 0,0019815 | 0,18688471 | 0,0184136 | 0,1116666667 | 20,68 | 0,81 | 0,09397402834 |
| TT | tayassu | m | Brazil | M | 0,00539236 | 0,000132235211 | 0,00002789895238 | 0,0019815 | 0,17414667 | 0,0184136 | 0,1116666667 | 19,81 | 0,77 | 0,06787997787 |
| TT | tayassu | m | Brazil | M | 0,003204211 | 0,00008918649447 | 0,000004099693262 | 0,00193025 | 0,21554970 | 0,0184136 | 0,1113333333 | 22,62 | 0,76 | 0,116111742 |
| TT | tayassu | m | Brazil | M | 0,00237343 | 0,0000717318753 | 0 | 0,00209833 | 0,22958081 | 0,0184136 | 0,1116666667 | 23,56 | 0,66 | 0,1072144174 |
| TT | tayassu | m | Brazil | M | 0,00494283 | 0,0001205341694 | 0,00002476201068 | 0,0018135 | 0,17829667 | 0,0184136 | 0,1116666667 | 20,06 | 0,52 | 0,007566128878 |
| SS | sus | m | Italy | M | 0,00512365 | 0,0001441361605 | 0,00002633328719 | 0,00184966 | 0,20141719 | 0,0184136 | 0,1116666667 | 21,2 | 3,13 | 0,875461 |
| SS | sus | m | Italy | M | 0,00502917 | 0,0001368075923 | 0,00002884157632 | 0,00184966 | 0,19291984 | 0,0184136 | 0,1116666667 | 20,67 | 2,66 | 0,70091 |
| SS | sus | m | Italy | M | 0,00399644 | 0,000115152284 | 0,00001845169261 | 0,00205458 | 0,21016850 | 0,0184136 | 0,1116666667 | 21,84 | 2,54 | 0,685292 |
| TP1 | tayassu | m | Peru | M | 0,00439355 | 0,0001449946627 | 0 | 0,00037719 | 0,1570768 | 0,0184136 | 0,0284185 | 24,84 | 3,61 | 0,89214566 |
| CP2 | cuniculus | m | Peru | M | 0,00000378 | 0,00003468341434 | 0 | 0,00028207 | 0,1238664 | 0,0184136 | 0,02861632 | 27,78 | 1,55 | 0,4102425726 |
| PQ | pecari | m | Peru | M | 0 | 0,000006453259046 | 0 | 0,00035875 | 0,1378125 | 0,0184136 | 0,0245 | 27,75 | 0,64 | 0,174404692 |
| CD | chelonoidis | r | Peru | M | 0,00898679 | 0,0001964189855 | 0,00006928973619 | 0,00018801 | 0,063328 | 0,0184136 | 0,0106866 | 14,7 | 0,29 | 0 |
| PE | podocnemis | r | Brazil | M | 0,004520731 | 0,0001276078253 | 0,000009264940747 | 0,00122858 | 0,23952415 | 0,0184136 | 0,1116666667 | 22,58 | 1,9 | 0,5440819576 |
| PE | podocnemis | | | | | | | | | | | | | |

| taxon tfmed | genus | C | country collects | parts tfmed | Fe | Mn | Se | Zn | K | Mg | Na | Protein | Fat | w6 |
|----------------|------------|---|---------------------|----------------|-------------|------------------|-------------------|-------------|-------------|-----------|--------------|---------|------|--------------|
| API | agouti | m | Brazil | M | 0,007240168 | 0,000190302097 | 0,00003470687792 | 0,0018185 | 0,177282606 | 0,0184136 | 0,1116666667 | 19,92 | 2,66 | 0,5595274171 |
| PE | podocnemis | r | Brazil | M | 0,004795421 | 0,0001237728106 | 0,00001791210479 | 0,001426333 | 0,220256333 | 0,0184136 | 0,1116666667 | 21,17 | 1,1 | 0,3113956284 |
| PU | podocnemis | r | Brazil | M | 0,006062796 | 0,0001553293684 | 0,00002764173691 | 0,001704333 | 0,20635737 | 0,0184136 | 0,1116666667 | 20,3 | 1,68 | 0,445870038 |
| MA | manzama | m | Brazil | M | 0,00252157 | 0,00007972535929 | 0 | 0,002098333 | 0,23955552 | 0,0184136 | 0,1116666667 | 23,95 | 1,1 | 0,2284029172 |
| CY | caiman | r | Brazil | M | 0,003633746 | 0,00009452100072 | 0,000009194370988 | 0,001231833 | 0,232497831 | 0,0184136 | 0,1116666667 | 21,93 | 0,54 | 0,1801113897 |
| CY | caiman | r | Brazil | M | 0,008712726 | 0,0002505653274 | 0,00003005530549 | 0,00153025 | 0,221763716 | 0,0184136 | 0,1116666667 | 21,83 | 5,43 | 1,444579614 |

Add File 4. Information on the species, taxonomic classes, and nutrients evaluated in the systematic review, including family, order, popular name, evaluated nutrients, number of studies mentioning the species, number of samples assessed in the original studies for the nutrients of interest, country of collection, and analyzed part. Species names were updated according to The IUCN Red List of Threatened Species.

| Taxonomy | Class | Family | Order | Evaluated nutrients | Studies mentioning | Samples | Country | Part |
|-------------------------|---------|---------------|----------------|---|--------------------|---------|--|-----------------|
| Alces alces | Mammal | Cervidae | Artiodactyla | Iron, manganese, zinc, magnesium, protein, lipid and omega 6 | 2 | 13 | Canada, Latvia | Muscle |
| Anas platyrhynchos | Bird | Anatidae | Anseriformes | Protein, lipids | 1 | 5 | Canada | Muscle |
| Branta canadensis | Bird | Anatidae | Anseriformes | Protein, lipids | 1 | 5 | Canada | Muscle |
| Caiman crocodilus | Reptile | Alligatoridae | Crocodylia | Protein, lipids | 1 | 5 | Brazil | Muscle, viscera |
| Caiman yacare | Reptile | Alligatoridae | Crocodylia | Protein, lipids | 1 | 6 | Brazil | Muscle, viscera |
| Capreolus capreolus | Mammal | Cervidae | Artiodactyla | Iron, manganese, selenium, zinc, magnesium, protein, lipids and omega 6 | 3 | 88 | Latvia, Poland, Germany | Muscle |
| Cervus elaphus | Mammal | Cervidae | Artiodactyla | Iron, manganese, selenium, zinc, potassium, magnesium, sodium, protein, lipid and omega 6 | 6 | 513 | Poland, Spain, New Zealand, Latvia, United States of America | Muscle, viscera |
| Chelonoidis denticulata | Reptile | Testudinidae | Testudines | Zinc, potassium, sodium, protein | 2 | 6 | Peru | Muscle |
| Columba palumbus | Bird | Columbidae | Columbiformes | Iron, zinc | 1 | 24 | Spain | Muscle |
| Cuniculus paca | Mammal | Cuniculidae | Rodentia | Zinc, potassium, sodium, protein | 3 | 15 | Peru, Brazil | Muscle, viscera |
| Dasyprocta leporina | Mammal | Dasyproctidae | Rodentia | Protein, lipids | 1 | 4 | Brazil | Muscle, viscera |
| Equus quagga | Mammal | Equidae | Perissodactyla | Protein, lipids and omega 6 | 1 | 20 | South Africa | Muscle |
| Mazama americana | Mammal | Cervidae | Artiodactyla | Protein, lipids | 2 | 9 | Peru, Brazil | Muscle, viscera |
| Odocoileus hemionus | Mammal | Cervidae | Artiodactyla | Iron, manganese, selenium, zinc, potassium, magnesium, sodium | 1 | 38 | United States of America | Viscera |
| Odocoileus virginianus | Mammal | Cervidae | Artiodactyla | Iron, manganese, selenium, zinc, potassium, magnesium, sodium | 1 | 42 | United States of America | Viscera |

Continued on next page...

| Taxonomy | Class | Family | Order | Evaluated nutrients | Studies mentioning | Samples | Country | Part |
|-----------------------------------|---------|----------------|-------------------------------|---|--------------------|---------|------------------------|-----------------|
| <i>Pecari tajacu</i> | Mammal | Tayassuidae | Artiodactyla | Zinc, potassium, sodium, protein | 3 | 46 | Brazil, Peru | Muscle, viscera |
| <i>Peltocephalus dumerilianus</i> | Reptile | Podocnemididae | Testudines | Protein, lipids | 1 | 4 | Brazil | Muscle, viscera |
| <i>Phacochoerus africanus</i> | Mammal | Suidae | Artiodactyla | Protein, lipids and omega 6 | 1 | 31 | South Africa | Muscle |
| <i>Podocnemis expansa</i> | Reptile | Podocnemididae | Testudines | Protein, lipids | 1 | 19 | Brazil | Muscle, viscera |
| <i>Podocnemis sextuberculata</i> | Reptile | Podocnemididae | Testudines | Protein, lipids | 1 | 5 | Brazil | Muscle, viscera |
| <i>Podocnemis unifilis</i> | Reptile | Podocnemididae | Testudines | Protein, lipids | 1 | 4 | Brazil | Muscle, viscera |
| <i>Scolopax rusticola</i> | Bird | Scolopacidae | Charadriiformes | Protein, lipid, omega 6 | 1 | 20 | Italy | Muscle |
| <i>Streptopelia turtur</i> | Bird | Columbidae | Columbiformes | Iron, zinc | 1 | 38 | Spain | Muscle |
| <i>Sus scrofa</i> | Mammal | Suidae | Artiodactyla/ Artiodactyls | Iron, manganese, selenium, zinc, magnesium, protein, lipids and omega 6 | 3 | 104 | Italy, Germany, Latvia | Muscle |
| <i>Tayassu pecari</i> | Mammal | Tayassuidae | Artiodactyla | Zinc, potassium, sodium, protein | 1 | 1 | Peru | Muscle |
| <i>Turdus philomelos</i> | Bird | Turdidae | Passeriformes | Iron, zinc | 1 | 45 | Spain | Muscle |

Add File 5. Quality Assessment of Included Studies, Based on Reviewers' Judgments Using the Quality Assessment Questionnaire. Scoring Explanation - A score of 0 points indicates the information is not available; 0.5 points denote ambiguity or unclear information; and 1.0 point signifies the information is either available or not applicable.

| N° | ARTICLE DATA | QUESTIONS | | | | | | | | | FINAL |
|----|--|-----------|-----|---|---|-----|---|-----|---|-----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | NOTE |
| 1 | DANNENBERGER, D. et al. The effects of gender, age and region on macro- and micronutrient contents and fatty acid profiles in the muscles of roe deer and wild boar in Mecklenburg-Western Pomerania (Germany). <i>Meat Science</i> , [S.L.], v. 94, n. 1, p. 39-46, maio 2013. Elsevier BV. 10.1016/j.meatsci.2012.12.010 . | 1 | 0 | 1 | 1 | 1 | 1 | 0,5 | 1 | 0 | 6,5 |
| 2 | HOFFMAN, Louwrens C; GELDENHUYS, Greta; CAWTHORN, Donna-Mareè. Proximate and fatty acid composition of zebra (<i>Equus quagga burchellii</i>) muscle and subcutaneous fat. <i>Journal Of The Science Of Food And Agriculture</i> , [S.L.], v. 96, n. 11, p. 3922-3927, 24 fev. 2016. Wiley. 10.1002/jsfa.7623 . | 0,5 | 0,5 | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 7,33 |
| 3 | JARZYŃSKA, Grażyna et al. Selenium and 17 other largely essential and toxic metals in muscle and organ meats of Red Deer (<i>Cervus elaphus</i>) — Consequences to human health. <i>Environment International</i> , [S.L.], v. 37, n. 5, p. 882-888, jul. 2011. Elsevier BV. 10.1016/j.envint.2011.02.017 | 0 | 0 | 0 | 1 | 1 | 1 | 0,5 | 1 | 0 | 4,5 |
| 4 | JOHNSON, Heather E. et al. MINERAL DEFICIENCIES IN TULE ELK, OWENS VALLEY, CALIFORNIA. <i>Journal Of Wildlife Diseases</i> , [S.L.], v. 43, n. 1, p. 61-74, jan. 2007. Wildlife Disease Association. 10.7589/0090-3558-43.1.61 . | 0,5 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 5,5 |
| 5 | LANDI, Nicola et al. Nutritional profiling of Eurasian woodcock meat: chemical composition and myoglobin characterization. <i>Journal Of The Science Of Food And Agriculture</i> , [S.L.], v. 98, n. 13, p. 5120-5128, 17 maio 2018. Wiley. 10.1002/jsfa.9051 . | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 7 |
| 6 | MILCZAREK, Anna et al. Health-Promoting Properties of the Wild-Harvested Meat of Roe Deer (<i>Capreolus capreolus</i> L.) and Red Deer (<i>Cervus elaphus</i> L.). <i>Animals</i> , [S.L.], v. 11, n. 7, p. 2108, 15 jul. 2021. MDPI AG. 10.3390/ani11072108 . | 1 | 1 | 1 | 1 | 0,5 | 1 | 1 | 1 | 1 | 8,33 |
| 7 | RUDMAN, Monlee et al. Quality characteristics of Warthog (<i>Phacochoerus africanus</i>) meat. <i>Meat Science</i> , [S.L.], v. 145, p. 266-272, nov. 2018. Elsevier BV. 10.1016/j.meatsci.2018.07.001 . | 1 | 0,5 | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 8 |
| 8 | SERRANO, Martina Pérez et al. Quality of main types of hunted red deer meat obtained in Spain compared to farmed venison from New Zealand. <i>Scientific Reports</i> , [S.L.], v. 10, n. 1, 22 jul. 2020. Springer Science and Business Media LLC. 10.1038/s41598-020-69071-2 . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| 9 | SEVILLANO-CAÑO, Jesús et al. Trace Element Concentrations in Migratory Game Bird Meat: contribution to reference intakes through a probabilistic assessment. <i>Biological Trace Element Research</i> , [S.L.], v. 197, n. 2, p. 651-659, 24 dez. 2019. Springer Science and Business Media LLC. 10.1007/s12011-019-02014-9 . | 1 | 0,5 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 6,5 |

Continued on next page...

| N° | ARTICLE DATA | QUESTIONS | | | | | | | | | FINAL NOTE |
|----|---|-----------|-----|-----|---|-----|---|-----|---|-----|------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 10 | SPIEGELAAR, Nicole et al. Indigenous Subarctic Food Systems in Transition: amino acid composition (including tryptophan) in wild-harvested and processed meats. <i>International Journal Of Food Science</i> , [S.L.], v. 2019, p. 1-14, 27 jun. 2019. Hindawi Limited. 10.1155/2019/7096416 . | 1 | 0 | 0,5 | 1 | 1 | 1 | 1 | 1 | 1 | 7,5 |
| 11 | WEBB, Edward C. et al. Copper, manganese, cobalt and selenium concentrations in liver samples from African buffalo (<i>Syncerus caffer</i>) in the Kruger National Park Presented at ENVIROMIN 2001 at Skukuza, Kruger National Park, South Africa, 14–18 July 2001. <i>Journal Of Environmental Monitoring</i> , [S.L.], v. 3, n. 6, p. 583-585, 6 nov. 2001. Royal Society of Chemistry (RSC). 10.1039/b106307n . | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 1 | 0 | 6,67 |
| 12 | ZIMMERMAN, Teresa J. et al. HEPATIC MINERALS OF WHITE-TAILED AND MULE DEER IN THE SOUTHERN BLACK HILLS, SOUTH DAKOTA. <i>Journal Of Wildlife Diseases</i> , [S.L.], v. 44, n. 2, p. 341-350, abr. 2008. Wildlife Disease Association. 10.7589/0090-3558-44.2.341 . | 1 | 0 | 0,5 | 1 | 1 | 1 | 0 | 1 | 0 | 5,5 |
| 13 | STRAZDIŅA, Vita et al. Nutrition Value of Wild Animal Meat. <i>Proceedings Of The Latvian Academy Of Sciences. Section B. Natural, Exact, And Applied Sciences</i> , [S.L.], v. 67, n. 4-5, p. 373-377, 1 nov. 2013. Walter de Gruyter GmbH. 10.2478/prolas-2013-0074 . | 1 | 0 | 0 | 1 | 1 | 0 | 0,5 | 1 | 0,5 | 5 |
| 14 | C., Hugo Gálvez et al. VALOR NUTRITIVO DE LAS CARNES DE SAJINO (<i>Tayassu tajacu</i>), VENADO COLORADO (<i>Mazama americana</i>), MAJAZ (<i>Agouti paca</i>) Y MOTELO (<i>Geochelone denticulata</i>). <i>Revista de Investigaciones Veterinarias del Perú</i> , [S.L.], v. 10, n. 1, 3 jul. 2014. Universidad Nacional Mayor de San Marcos, Vicerectorado de Investigacion. 10.15381/rivep.v10i1.6707 . | 0,5 | 0,5 | 1 | 1 | 0,5 | 1 | 0 | 1 | 0 | 5,5 |
| 15 | LORENZO, José M et al. Effect of age on nutritional properties of Iberian wild red deer meat. <i>Journal Of The Science Of Food And Agriculture</i> , [S.L.], v. 99, n. 4, p. 1561-1567, 11 out. 2018. Wiley. 10.1002/jsfa.9334 . | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 1 | 1 | 8,5 |
| 16 | Hugo Rangel Fernandes Rosires Deliza Otávio Cabral Neto Caroline Mellinger Silva Natália Inagaki de Albuquerque Thayrine Rodrigues Martins See More Amauri Rosenthal; 2022 | 0 | 0 | 1 | 1 | 1 | 1 | 0,5 | 1 | 1 | 6,5 |
| 17 | AMICI, Andrea et al. Hunting area affects chemical and physical characteristics and fatty acid composition of wild boar (<i>Sus scrofa</i>) meat. <i>Rendiconti Lincei</i> , [S.L.], v. 26, n. 3, p. 527-534, 1 abr. 2015. Springer Science and Business Media LLC. 10.1007/s12210-015-0412-7 . | 0 | 1 | 1 | 1 | 1 | 1 | 0,5 | 0 | 0 | 5,5 |
| 18 | PÉREZ-PEÑA, Pedro Eleodoro et al. Consumo, microbiología y bromatología de la carne silvestre durante la COVID-19 en Iquitos, Perú. <i>Ciencia Amazónica (Iquitos)</i> , [S.L.], v. 9, n. 2, p. 51-68, 20 abr. 2022. Universidad Científica del Peru. 10.22386/ca.v9i2.339 . | 0 | 1 | 0,5 | 1 | 1 | 1 | 1 | 0 | 1 | 6,5 |
| 19 | Lima AT. Caracterização Físico Química da Tartaruga da Amazônia de água proveniente de cativeiro e de habitat natural do estado do Amazonas. Universidade Federal do Amazonas; 2009. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 8,5 |
| 20 | Aguiar, Jaime Paiva Lopes et al. Aspectos nutritivos de alguns frutos da Amazonia[()]. <i>Acta Amazonica [online]</i> . 1980, v. 10, n. 4 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0,5 | 6,5 |

Continued on next page...

| N° | ARTICLE DATA | QUESTIONS | | | | | | | | | FINAL |
|----|--|-----------|---|---|---|---|---|---|---|-----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | NOTE |
| 21 | VICENTE NETO, João et al. Composição centesimal e colesterol da carne de jacaré-do-pantanal (Caiman yacare Daudin 1802) oriundo de zoológico e habitat natural. <i>Ciência e Agrotecnologia</i> , [S.L.], v. 30, n. 4, p. 701-706, ago. 2006. FapUNIFESP (SciELO). 10.1590/s1413-70542006000400016 . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0,5 | 8,5 |

Add File 6. Metrics resulting from the data imputation process (considering the best imputer for each nutrient).

| Imputation technique | Nutrient | RMSE | MAE | SMAPE |
|-----------------------------|---------------------|-----------------------|-----------------------|--------------------|
| KNN (k=15) | Protein | $3.739 \cdot 10^0$ | $2.283 \cdot 10^0$ | $1.106 \cdot 10^1$ |
| Iterative Imputer (MICE) | Mn | $1.054 \cdot 10^{-4}$ | $6.236 \cdot 10^{-5}$ | $4.656 \cdot 10^1$ |
| KNN (k=3) | Na | $4.074 \cdot 10^0$ | $1.151 \cdot 10^0$ | $4.902 \cdot 10^1$ |
| Iterative Imputer (MICE) | K | $1.125 \cdot 10^{-1}$ | $6.571 \cdot 10^{-2}$ | $5.168 \cdot 10^1$ |
| Iterative Imputer (MICE) | Fe | $3.308 \cdot 10^{-3}$ | $1.870 \cdot 10^{-3}$ | $6.228 \cdot 10^1$ |
| KNN (k=3) | Total fat | $1.847 \cdot 10^0$ | $1.225 \cdot 10^0$ | $6.509 \cdot 10^1$ |
| KNN (k=15) | Mg | $2.261 \cdot 10^{-2}$ | $1.404 \cdot 10^{-2}$ | $6.547 \cdot 10^1$ |
| KNN (k=12) | Zn | $1.161 \cdot 10^{-2}$ | $3.038 \cdot 10^{-3}$ | $6.951 \cdot 10^1$ |
| Iterative Imputer (MICE) | Omega-6 fatty acids | $2.553 \cdot 10^{-1}$ | $1.775 \cdot 10^{-1}$ | $8.153 \cdot 10^1$ |
| Iterative Imputer (MICE) | Se | $1.068 \cdot 10^{-3}$ | $3.279 \cdot 10^{-4}$ | $8.367 \cdot 10^1$ |

Add File 7. Methods used for nutrient analysis by the articles included in the research.

| Nutrient | Methods |
|---------------|---|
| Protein | AOAC (1984) |
| | AOAC (1995) |
| | Kjeldahl (990,03) |
| | FoodScanTM (FOSS Analytic, Hillerod, Denmark) |
| | AOAC (992.15) |
| | DUMAS (992.15) |
| | AOAC (1990) |
| | AOAC (981,10) |
| | Soxhlet Method |
| Folch | |
| AOAC (991.36) | |
| Fat | FoodScanTM |
| | AOAC (1995) |
| | Bligh and Dyer (1959) LEE |
| | AOAC (1990) |
| | IUPAC (1992) GC-FID |
| Fat fraction | gas chromatography |
| w-6 | Bligh and Dyer (1959) |
| | GC-FID |

| | |
|----------------|---|
| | PN-EN 14084 |
| | ICP-MS |
| | AOAC (1990) |
| | ICP-AES |
| Micronutrients | Flame Atomic Absorption Spectrophotometry |
| | ICP-OES |
| | Atomic Absorption Spectroscopy (AAS) |
| | Flame Atomic Absorption Spectroscopy (FAAS, Varian SpectraAA – Model 50B) |
| | ICP-AES/ISO (6869-2002) |
| | ICP-AES AI |

Add File 8. Summary of the mean and standard deviation values of the nutritional composition of wild animals included in this systematic review including original and imputed data. The column “n” measurements of classes and parts equal to 76 refer to the number of observations available in the papers. The column "Sample" refers to the number of samples used by authors in the original papers to generate results. We did not have access to the raw data of these samples. Nutrients are measured using units of DRI (Dietary Reference Intakes) as defined by the IOM (Institute of Medicine). All nutrients are expressed on a wet basis.

| Nutrient | Sample | Bird muscle | Mammal muscle | Mammal viscera | Reptile muscle | Reptile viscera |
|----------|--------|--------------|---------------|----------------|----------------|-----------------|
| | | (n = 10) | (n = 41) | (n = 12) | (n = 11) | (n = 2) |
| Fe (mg) | 793 | 4.41 (1.4) | 3.21 (1.95) | 14.51 (1.39) | 5.39 (2.07) | 15.55 (5.86) |
| Mn (mg) | 910 | 0.12 (0.04) | 0.08 (0.05) | 0.39 (0.13) | 0.14 (0.06) | 0.38 (0.15) |
| Se (mcg) | 537 | 3.45 (8.09) | 10.61 (11.03) | 57.19 (35.27) | 19.37 (18.39) | 81.17 (42.24) |
| Zn (mg) | 797 | 0.86 (0.57) | 1.76 (0.9) | 3.33 (0.78) | 1.24 (0.39) | 2.43 (0) |
| K (g) | 498 | 0.27 (0.02) | 0.21 (0.07) | 0.13 (0.09) | 0.21 (0.05) | 0.06 (0.06) |
| Mg (mg) | 539 | 18.41 (0) | 18.52 (7.45) | 18.04 (0.94) | 18.41 (0) | 18.41 (0) |
| Na (g) | 258 | 0.1 (0.02) | 0.11 (0.02) | 0.1 (0.01) | 0.1 (0.03) | 0.09 (0) |
| Ptn (g) | 473 | 23.46 (0.97) | 23.15 (2.87) | 23.26 (0.63) | 21.34 (2.39) | 16.33 (3.51) |
| Fat (g) | 453 | 2.42 (0.68) | 1.27 (0.85) | 1.37 (0.54) | 2.02 (1.83) | 5.7 (3.07) |
| w-6 (g) | 400 | 0.83 (0.36) | 0.24 (0.25) | 1.37 (0.11) | 0.5 (0.52) | 1.41 (0.73) |

Add File 9. Results of the Statistical Analyses. Nutrients are measured using units of DRI (Dietary Reference Intakes) as defined by the IOM (Institute of Medicine). Statistical results refer to groups that were significantly different ($p < 0.05$).

| Nutrient | Results |
|--------------------------------------|---|
| Iron (mg) | Shapiro-Wilk: p-value = 0.4185 |
| | Bartlett: p-value = 0.0725 |
| | ANOVA one-way: p-value: <0.0000000000000022 |
| | Tukey: |
| | ave mus x mam vis: p adj = 0.0000000 |
| | rep vis x ave mus: p adj = 0.0000000 |
| | mam vis x mam mus: p adj = 0.0000000 |
| | rep mus x mam mus: p adj = 0.0129368 |
| | rep vis x mam mus: p adj 0.0000000 |
| rep mus x mam vis: p adj 0.0000000 | |
| rep vis x rep mus: p adj 0.0000000 | |
| Manganese (mg) | Shapiro-Wilk: p-value = 0.169 |
| | Bartlett: p-value = 0.00007194 |
| | Kruskal-Wallis: p-value = 0.00000002468 |
| | Bonferroni: |
| | ave mus x mam vis: p-value = 0.00157 |
| | mam mus x mam vis: p-value = 0.00000000272 |
| mam mus x rep mus: p-value = 0.00874 | |
| mam mus x rep vis: p-value = 0.00713 | |

Continued on next page...

| Nutrient | Results |
|----------------|---|
| Selenium (mcg) | Shapiro-Wilk: p-value = 0.00002133 Kruskal-Wallis: p-value = 0.0000007854 Bonferroni: ave mus x mam vis: p-value = 0.000000937 ave mus x rep mus: p-value = 0.00379 ave mus x rep vis: p-value 0.00161 mam mus x mam vis: p-value = 0.0000114 mam vis x rep mus: p-value = 0.0454 Shapiro-Wilk: p-value = 0.000001639 Kruskal-Wallis: p-value = 0.00000003986 Bonferroni: ave mus x mam mus: p-value = 0.00192 |
| Zinc (mg) | ave mus x mam vis: p-value = 0.0000000756 ave mus x rep vis: p-value = 0.00500 mam mus x mam vis: p-value = 0.000232 mam mus x rep mus: p-value = 0.00938 mam vis x rep mus: p-value = 0.000000551 rep mus x rep vis: p-value = 0.0107 |

Continued on next page...

| Nutrient | Results |
|--------------------------------------|---|
| Potassium (g) | Shapiro-Wilk: p-value = 0.02408 |
| | Kruskal-Wallis: p-value = 0.0002719 |
| | Bonferroni: |
| | ave mus x mam mus: p-value = 0.00300 |
| | ave mus x mam vis: p-value = 0.0000363 |
| | ave mus x rep mus: p-value = 0.0211 |
| | ave mus x rep vis: p-value = 0.00136 |
| Magnesium (mg) | mam mus x mam vis: p-value = 0.0279 |
| | mam mus x rep vis: p-value = 0.0476 |
| | Shapiro-Wilk: p-value = 0.00000000000001257 |
| | Kruskal-Wallis: p-value = 0.8098 |
| Sodium (g) | Shapiro-Wilk: p-value = 0.00000000000002014 |
| | Kruskal-Wallis: p-value = 0.03357 |
| | Bonferroni: |
| | mam mus x mam vis: p-value = 0.0107 |
| | mam mus x rep vis: p-value = 0.0316 |
| | Shapiro-Wilk: p-value = 0.0000007099 |
| | Kruskal-Wallis: p-value = p=0.004149 |
| Protein (g) | Bonferroni: |
| | ave mus x rep mus: p-value = 0.00478 |
| | ave mus x rep vis: p-value = 0.00387 |
| | mam mus x rep vis: p-value = 0.0225 |
| | mam vis x rep mus: p-value = 0.0133 |
| mam vis x rep vis: p-value = 0.00762 | |

Continued on next page...

| Nutrient | Results | |
|--------------------------------------|---|---|
| Lipids (g) | Shapiro-Wilk: p-value = 0.0001092 | |
| | Kruskal-Wallis: p-value = 0.001214 | |
| | Bonferroni: | |
| | ave mus x mam mus: p-value = 0.000327 | |
| | ave mus x mam vis: p-value = 0.0203 | |
| | ave mus x rep mus: p-value = 0.0376 | |
| | mam mus x rep vis: p-value = 0.00965 | |
| | mam vis x rep vis: p-value = 0.0361 | |
| | rep mus x rep vis: p-value = 0.0486 | |
| | Shapiro-Wilk: p-value = 0.00001904 | |
| | Kruskal-Wallis: p-value = 0.00000002067 | |
| | Bonferroni: | |
| | Omega 6 (g) | ave mus x mam mus: p-value = 0.000288 |
| | | mam mus x mam vis: p-value = 0.0000000153 |
| mam mus x rep vis: p-value = 0.0107 | | |
| mam vis x rep mus: p-value = 0.00108 | | |

Add File 10. Nutritional composition in muscle and viscera of wild meat, comprising mammals, birds, and reptiles, including original and imputed data. Pairs of comparisons with statistically significant differences are highlighted in black.(M=Mammal, B=Bird, R=Reptile)

| Nutrient | M. Viscera | M. Viscera | M. Viscera | M. Viscera | M. Muscle | M. Muscle | M. Muscle | B. muscle | B. Muscle | R. Viscera |
|------------|------------|------------|------------|------------|-----------|------------|-----------|------------|-----------|------------|
| | x | x | x | x | x | x | x | x | x | x |
| | M. Muscle | B. Muscle | R. Viscera | R. Muscle | B. Muscle | R. Viscera | R. Muscle | R. Viscera | R. Muscle | R. Muscle |
| Protein, g | 23.26 | 23.26 | 23.26 | 23.26 | 23.15 | 23.15 | 23.15 | 23.46 | 23.46 | 16.33 |
| | x | x | x | x | x | x | x | x | x | x |
| | 23.15 | 23.46 | 16.33 | 21.34 | 23.46 | 16.33 | 21.34 | 16.33 | 21.34 | 21.34 |
| | (>0.05) | (>0.05) | (<0.01) | (<0.01) | (>0.05) | (<0.05) | (>0.05) | (<0.01) | (<0.01) | (>0.05) |
| Fat, g | 1.37 | 1.37 | 1.37 | 1.37 | 1.27 | 1.27 | 1.27 | 2.42 | 2.42 | 5.7 |
| | x | x | x | x | x | x | x | x | x | x |
| | 1.27 | 2.42 | 5.7 | 2.02 | 2.42 | 5.7 | 2.02 | 5.7 | 2.02 | 2.02 |
| | (>0.05) | (<0.05) | (<0.05) | (>0.05) | (<0.01) | (<0.01) | (>0.05) | (>0.05) | (<0.05) | (<0.05) |
| w6, g | 0.24 | 1.37 | 1.37 | 1.37 | 0.24 | 0.24 | 0.24 | 0.83 | 0.83 | 1.41 |
| | x | x | x | x | x | x | x | x | x | x |
| | 1.37 | 0.83 | 1.41 | 0.5 | 0.83 | 1.41 | 0.5 | 1.41 | 0.5 | 0.5 |
| | (<0.01) | (>0.05) | (>0.05) | (<0.01) | (<0.01) | (<0.01) | (>0.05) | (>0.05) | (>0.05) | (>0.05) |
| Fe, mg | 14.51 | 4.41 | 14.51 | 14.51 | 3.21 | 3.21 | 3.21 | 3.21 | 4.41 | 15.55 |
| | x | x | x | x | x | x | x | x | x | x |
| | 3.21 | 14.51 | 15.55 | 5.39 | 4.41 | 5.39 | 5.39 | 15.55 | 5.39 | 5.39 |
| | (<0.01) | (<0.01) | (>0.05) | (<0.01) | (>0.05) | (<0.01) | (<0.01) | (<0.01) | (>0.05) | (<0.01) |
| K, g | 0.13 | 0.13 | 0.13 | 0.13 | 0.21 | 0.21 | 0.21 | 0.27 | 0.27 | 0.06 |
| | x | x | x | x | x | x | x | x | x | x |
| | 0.21 | 0.27 | 0.06 | 0.21 | 0.27 | 0.06 | 0.21 | 0.06 | 0.21 | 0.21 |
| | (<0.05) | (<0.01) | (>0.05) | (>0.05) | (<0.01) | (<0.05) | (>0.05) | (<0.01) | (<0.05) | (>0.05) |

Continued on next page...

| Nutrient | M. Viscera | M. Viscera | M. Viscera | M. Viscera | M. Muscle | M. Muscle | M. Muscle | B. muscle | B. Muscle | R. Viscera |
|----------|------------|------------|------------|------------|-----------|------------|-----------|------------|-----------|------------|
| | x | x | x | x | x | x | x | x | x | x |
| | M. Muscle | B. Muscle | R. Viscera | R. Muscle | B. Muscle | R. Viscera | R. Muscle | R. Viscera | R. Muscle | R. Muscle |
| Mn, mg | 0.39 | 0.39 | 0.39 | 0.39 | 0.08 | 0.08 | 0.08 | 0.12 | 0.12 | 0.38 |
| | x | x | x | x | x | x | x | x | x | x |
| | 0.08 | 0.12 | 0.38 | 0.14 | 0.12 | 0.38 | 0.14 | 0.38 | 0.14 | 0.14 |
| | (<0.01) | (<0.01) | (>0.05) | (>0.05) | (>0.05) | (<0.01) | (<0.01) | (>0.05) | (>0.05) | (>0.05) |
| Na, g | 0.1 | 0.11 | 0.1 | 0.1 | 0.11 | 0.11 | 0.11 | 0.1 | 0.1 | 0.09 |
| | x | x | x | x | x | x | x | x | x | x |
| | 0.11 | 0.1 | 0.09 | 0.1 | 0.1 | 0.09 | 0.1 | 0.09 | 0.1 | 0.1 |
| | (<0.01) | (>0.05) | (>0.05) | (>0.05) | (>0.05) | (<0.05) | (>0.05) | (>0.05) | (>0.05) | (>0.05) |
| Zn, mg | 2.43 | 3.33 | 3.33 | 3.33 | 1.76 | 1.76 | 1.76 | 0.86 | 0.86 | 2.43 |
| | x | x | x | x | x | x | x | x | x | x |
| | 1.24 | 0.86 | 2.43 | 1.24 | 0.86 | 2.43 | 1.24 | 2.43 | 1.24 | 1.24 |
| | (<0.01) | (<0.01) | (>0.05) | (<0.01) | (<0.01) | (>0.05) | (<0.01) | (<0.01) | (>0.05) | (<0.01) |
| Se, mcg | 57.19 | 57.19 | 57.19 | 3.33 | 10.61 | 10.61 | 10.61 | 3.45 | 3.45 | 81.17 |
| | x | x | x | x | x | x | x | x | x | x |
| | 10.61 | 3.45 | 81.17 | 1.24 | 3.45 | 81.17 | 19.37 | 81.17 | 19.37 | 19.37 |
| | (<0.01) | (<0.01) | (>0.05) | (<0.05) | (>0.05) | (>0.05) | (>0.05) | (<0.01) | (<0.01) | (>0.05) |

Add File 11. Comparison of the nutritional content of 100 g of muscle and offal of wild meat from different classes with the DRI (Dietary Reference Intakes) recommendations for Adequate Intake (AI) or Recommended Dietary Allowances (RDA) for target populations for various nutrients. Reference values for nutritional needs are provided by the Institute of Medicine (IOM).

| Life stage | Nutrient | DRI | Bird Muscle | % DRI | Mammal Muscle | %DRI | Mammal viscera | %DRI | Reptile muscle | %DRI | Reptile viscera | %DRI |
|---------------------------|----------|------|-------------|-------|---------------|------|----------------|-------|----------------|------|-----------------|-------|
| Children: 01 - 03 a | Fe (mg) | 7.0 | 4.41 | 63 | 3.21 | 45.9 | 14.51 | 207.3 | 5.39 | 77 | 15.55 | 222.1 |
| Men: 31 - 50 a | Fe (mg) | 8.0 | 4.41 | 55.1 | 3.21 | 40.1 | 14.51 | 181.4 | 5.39 | 67.4 | 15.55 | 194.4 |
| Women: 31 - 50 a | Fe (mg) | 8.0 | 4.41 | 55.1 | 3.21 | 40.1 | 14.51 | 181.4 | 5.39 | 67.4 | 15.55 | 194.4 |
| Pregnant women: 19 - 30 a | Fe (mg) | 27.0 | 4.41 | 16.3 | 3.21 | 11.9 | 14.51 | 53.7 | 5.39 | 20 | 15.55 | 57.6 |
| Children: 01 - 03 a | Mn (mg) | 1.2 | 0.12 | 10 | 0.08 | 6.7 | 0.39 | 32.5 | 0.14 | 11.7 | 0.38 | 31.7 |
| Men: 31 - 50 a | Mn (mg) | 2.3 | 0.12 | 5.2 | 0.08 | 3.5 | 0.39 | 17 | 0.14 | 6.1 | 0.38 | 16.5 |
| Women: 31 - 50 a | Mn (mg) | 1.8 | 0.12 | 6.7 | 0.08 | 4.4 | 0.39 | 21.7 | 0.14 | 7.8 | 0.38 | 21.1 |
| Pregnant women: 19 - 30 a | Mn (mg) | 2 | 0.12 | 6 | 0.08 | 4 | 0.39 | 19.5 | 0.14 | 7 | 0.38 | 19 |
| Children: 01 - 03 a | Se (mcg) | 20 | 3.45 | 17.3 | 10.61 | 53.1 | 57.19 | 286 | 19.37 | 96.9 | 81.17 | 405.9 |
| Men: 31 - 50 a | Se (mcg) | 55 | 3.45 | 6.3 | 10.61 | 19.3 | 57.19 | 104 | 19.37 | 35.2 | 81.17 | 147.6 |
| Women: 31 - 50 a | Se (mcg) | 55 | 3.45 | 6.3 | 10.61 | 19.3 | 57.19 | 104 | 19.37 | 35.2 | 81.17 | 147.6 |
| Pregnant women: 19 - 30 a | Se (mcg) | 60 | 3.45 | 5.8 | 10.61 | 17.7 | 57.19 | 95.3 | 19.37 | 32.3 | 81.17 | 135.3 |
| Children: 01 - 03 a | Zn (mg) | 3 | 0.86 | 28.7 | 1.76 | 58.7 | 3.33 | 111 | 1.24 | 41.3 | 2.43 | 81 |
| Men: 31 - 50 a | Zn (mg) | 11 | 0.86 | 7.8 | 1.76 | 16 | 3.33 | 30.3 | 1.24 | 11.3 | 2.43 | 22.1 |
| Women: 31 - 50 a | Zn (mg) | 8 | 0.86 | 10.8 | 1.76 | 22 | 3.33 | 41.6 | 1.24 | 15.5 | 2.43 | 30.4 |
| Pregnant women: 19 - 30 a | Zn (mg) | 11 | 0.86 | 7.8 | 1.76 | 16 | 3.33 | 30.3 | 1.24 | 11.3 | 2.43 | 22.1 |
| Children: 01 - 03 a | K (g) | 3 | 0.27 | 9 | 0.21 | 7 | 0.13 | 4.3 | 0.21 | 7 | 0.06 | 2 |
| Men: 31 - 50 a | K (g) | 4.7 | 0.27 | 5.7 | 0.21 | 4.5 | 0.13 | 2.8 | 0.21 | 4.5 | 0.06 | 1.3 |
| Women: 31 - 50 a | K (g) | 4.7 | 0.27 | 5.7 | 0.21 | 4.5 | 0.13 | 2.8 | 0.21 | 4.5 | 0.06 | 1.3 |
| Pregnant women: 19 - 30 a | K (g) | 4.7 | 0.27 | 5.7 | 0.21 | 4.5 | 0.13 | 2.8 | 0.21 | 4.5 | 0.06 | 1.3 |
| Children: 01 - 03 a | Mg (mg) | 80 | 18.41 | 23 | 18.52 | 23.2 | 18.04 | 22.6 | 18.41 | 23 | 18.41 | 23 |
| Men: 31 - 50 a | Mg (mg) | 400 | 18.41 | 4,6 | 18.52 | 4,6 | 18.04 | 4,5 | 18.41 | 4,6 | 18.41 | 4,6 |

Continued on next page...

| Life stage | Nutrient | DRI | Bird Muscle | % DRI | Mammal Muscle | %DRI | Mammal viscera | %DRI | Reptile muscle | %DRI | Reptile viscera | %DRI |
|---------------------------|----------|-----|-------------|-------|---------------|-------|----------------|-------|----------------|-------|-----------------|-------|
| Women: 31 - 50 a | Mg (mg) | 310 | 18.41 | 5.9 | 18.52 | 6 | 18.04 | 5.8 | 18.41 | 5.9 | 18.41 | 5.9 |
| Pregnant women: 19 - 30 a | Mg (mg) | 350 | 18.41 | 5.3 | 18.52 | 5.3 | 18.04 | 5.2 | 18.41 | 5.3 | 18.41 | 5.3 |
| Children: 01 - 03 a | Na (g) | 1 | 0.1 | 10 | 0.11 | 11 | 0.1 | 10 | 0.1 | 10 | 0.09 | 9 |
| Men: 31 - 50 a | Na (g) | 1.5 | 0.1 | 6.7 | 0.11 | 7.3 | 0.1 | 6.7 | 0.1 | 6.7 | 0.09 | 6 |
| Women: 31 - 50 a | Na (g) | 1.5 | 0.1 | 6.7 | 0.11 | 7.3 | 0.1 | 6.7 | 0.1 | 6.7 | 0.09 | 6 |
| Pregnant women: 19 - 30 a | Na (g) | 1.5 | 0.1 | 6.7 | 0.11 | 7.3 | 0.1 | 6.7 | 0.1 | 6.7 | 0.09 | 6 |
| Children: 01 - 03 a | Ptn (g) | 13 | 23.46 | 180.5 | 23.15 | 178.1 | 23.26 | 178.9 | 21.34 | 164.2 | 16.33 | 125.6 |
| Men: 31 - 50 a | Ptn (g) | 56 | 23.46 | 41.9 | 2.15 | 41.3 | 23.26 | 41.5 | 21.34 | 38.1 | 16.33 | 29.2 |
| Women: 31 - 50 a | Ptn (g) | 46 | 23.46 | 51 | 23.15 | 50.3 | 23.26 | 50.6 | 21.34 | 46.4 | 16.33 | 35.5 |
| Pregnant women: 19 - 30 a | Ptn (g) | 71 | 23.46 | 33 | 23.15 | 32.6 | 23.26 | 32.8 | 21.34 | 30.1 | 16.33 | 23 |
| Children: 01 - 03 a | Fat (g) | nd | 2.42 | nd | 1.27 | nd | 1.37 | nd | 2.02 | nd | 5.7 | nd |
| Men: 31 - 50 a | Fat (g) | nd | 2.42 | nd | 1.27 | nd | 1.37 | nd | 2.02 | nd | 5.7 | nd |
| Women: 31 - 50 a | Fat (g) | nd | 2.42 | nd | 1.27 | nd | 1.37 | nd | 2.02 | nd | 5.7 | nd |
| Pregnant women: 19 - 30 a | Fat (g) | nd | 2.42 | nd | 1.27 | nd | 1.37 | nd | 2.02 | nd | 5.7 | nd |
| Children: 01 - 03 a | w-6 (g) | 7 | 0.83 | 11.9 | 0.24 | 3.4 | 1.37 | 19.6 | 0.5 | 7.1 | 1.41 | 20.1 |
| Men: 31 - 50 a | w-6 (g) | 17 | 0.83 | 4.9 | 0.24 | 1.4 | 1.37 | 8.1 | 0.5 | 2.9 | 1.41 | 8.3 |
| Women: 31 - 50 a | w-6 (g) | 12 | 0.83 | 6.9 | 0.24 | 2 | 1.37 | 11.4 | 0.5 | 4.2 | 1.41 | 11.8 |
| Pregnant women: 19 - 30 a | w-6 (g) | 13 | 0.83 | 6.4 | 0.24 | 1.8 | 1.37 | 10.5 | 0.5 | 3.8 | 1.41 | 10.8 |