International Journal of Life Science and Agriculture Research
ISSN (Print): 2833-2091, ISSN (Online): 2833-2105
Volume 05 Issue 04 April 2026
DOI: https://doi.org/10.55677/ijlsar/V05I04Y2026-05
Impact Factor: 7.88 , Page No : 232-238

Socio-ecological importance of the wild turkey (Meleagris ocellata) in southern Campeche, Mexico: implications for food security and ecotourism

Felix Alejandra Luna-Medina[1], María Del Carmen Gómez-Camal[1], Maximiliano Vanoye-Eligio[1,2]*, Paula Viveros-Moreno[1], Ludwin Jaime Estrada-Ramírez[1], Edith González Lazo[2], Rosa Elena Medina Hernández[2], Jimmy Ricardo Mier Guerra[2]

[1]Tecnológico Nacional de México/ITS de Escárcega. Cuerpo Académico: Recursos Naturales, Turísticos y Pymes en la Región. Escárcega, Campeche, México.

[2]Tecnológico Nacional de México/ITS de Escárcega. Cuerpo Académico: Calidad e Inocuidad en Productos y Procesos Alimentarios. Escárcega, Campeche, México.

ORCID of the Authors:
Felix Alejandra Luna-Medina: https://orcid.org/0000-0002-1052-9253
María Del Carmen Gómez-Camal: https://orcid.org/0000-0003-1693-2753
Maximiliano Vanoye-Eligio: https://orcid.org/0000-0002-6438-9479
Paula Viveros-Moreno: https://orcid.org/0000-0001-7150-9152
Ludwin Jaime Estrada-Ramírez: https://orcid.org/0000-0002-5307-173X
Jimmy Ricardo Mier Guerra: https://orcid.org/ 0000-0003-0120-493X
Edith González Lazo: https://orcid.org/0000-0002-8138-2076 .

ABSTRACT

The ocellated turkey (*Meleagris ocellata*) is a representative bird of the Yucatán Peninsula. It has ecological, cultural, and socioeconomic importance. The objective of this study was to analyze the contribution of *M. ocellata* to food security and ecotourism in southern Campeche, Mexico, through a literature review. The review was conducted in scientific databases, institutional repositories, and gray literature, using keywords in Spanish and English related to the species, wildlife use, subsistence hunting, tourism, and conservation. The selected literature was organized into two themes: food security and ecotourism. For food security, the categories of availability, access, utilization, and stability were considered. For ecotourism, categories such as birdwatching, wildlife observation, nature photography, environmental education, community-based tourism, and conservation tourism were analyzed. The results indicate that *M. ocellata* contributes directly to food security as a source of wild meat and indirectly through its cultural value, local exchange, and wildlife management practices. Regarding ecotourism, the species shows high potential as a flagship bird for birdwatching, nature photography, environmental interpretation, and non-extractive tourism in the landscapes of southern Campeche. In conclusion, it is suggested that the wild turkey should be understood as a multifunctional socio-ecological resource, whose integrated management can foster more comprehensive strategies for conservation, sustainable use, and territorial development in southern Campeche.

KEYWORDS: wildlife, food security, ecotourism, birdwatching, sustainable use, Campeche.

Published Online: April 13, 2026

Cite the Article: Luna-Medina, F.A., Gómez-Camal, M.D.C, Vanoye-Eligio, M., Viveros-Moreno, P., Estrada-Ramírez, L.J., Lazo, E.G., Medina Hernández, R.E., Mier Guerra, J.R. (2026). Socio-ecological importance of the wild turkey (Meleagris ocellata) in southern Campeche, Mexico: implications for food security and ecotourism. International Journal of Life Science and Agriculture Research, 5(4), 232-238. https://doi.org/10.55677/ijlsar/V05I04Y2026-05

Corresponding Author:
Maximiliano Vanoye-Eligio

INTRODUCTION

According to CONABIO (2021) for the state of Campeche, which is part of the region known as the Yucatan Peninsula, 489 species of birds have been recorded. No strictly endemic birds have been recorded; however, in the south of the state, endemic or almost endemic species of the Yucatan Peninsula have been reported, including the ocellated turkey (*Meleagris ocellata* Cuvier, 1820), the Yucatan parrot (*Amazona xantholora* Gray, 1859), the Yucatan flycatcher (*Myiarchus yucatanensis* Lawrence, 1871), and the Yucatan woodpecker (*Melanerpes pygmaeus* Ridgway, 1885), mainly associated with medium and tall sub-evergreen forests and preserved secondary vegetation. The ocellated turkey is a galliform bird belonging to the Phasianidae family, endemic to the Yucatán Peninsula with records in Belize and northern Guatemala. It is characterized by its iridescent bronze-green plumage, the presence of ocelli on its tail, and the blue-orange coloration of its bare head (CONABIO, 2021, GY, 2026). This is one of the most emblematic avifauna species of the Yucatán Peninsula, whose natural distribution is restricted to southeastern Mexico, Belize, and northern Guatemala, giving it high biogeographical, ecological, and conservation interest (McRoberts et al., 2020; Animal Diversity Web, 2008; U.S. Fish & Wildlife Service, n.d.). In Central America, the Andean turkey is considered a species of high value due to its historical association with relatively well-preserved tropical ecosystems, as well as its relevance in ecological processes, traditional uses, and wildlife management strategies (McRoberts et al., 2020; CONABIO, 2021; GY, 2026). The morphological characteristics of the Andean turkey are visually distinguished from its congener, *Meleagris gallopavo* Linnaeus, 1758, by the intense iridescence of its plumage, dominated by bronze-green and metallic blue tones, making it easily distinguishable in the field (Animal Diversity Web, 2008; McRoberts et al., 2020). Regarding its geographic distribution, the ocellated turkey has been recorded as endemic to the Yucatán Peninsula, with solid records in Campeche, Yucatán, and Quintana Roo, as well as in countries such as Belize and Guatemala (Animal Diversity Web, 2008; Cornell Lab of Ornithology, 2020). In the state of Campeche, the ocellated turkey represents a significant factor for the conservation of the species, particularly in forested areas associated with Calakmul, Escárcega, Candelaria, and adjacent zones, where extensive remnants of lowland tropical rainforest and agroforestry mosaics still persist, allowing for the survival of wild populations of the species (Retana Guiascón et al., 2021; CONABIO, 2021). The Calakmul Biosphere Reserve and surrounding areas represent one of the most important forest landscapes in Mesoamerica and a key refuge for numerous terrestrial vertebrate species, including *M. ocellata*, whose presence reinforces the ecological and conservation value of this area in Campeche (Fuentes Olivares, 2024). In the state, this species is associated with low and medium-height semi-deciduous forests, semi-evergreen forests, and tropical lowland forests with varying degrees of conservation, although it can also utilize vegetation edges, secondary growth, clearings, and agroforestry systems when these are connected (Animal Diversity Web, 2008; Retana Guiascón et al., 2021; GY, 2026). Therefore, the connection between different vegetation types is a useful indicator for studies on ecological connectivity, habitat functionality, and fauna conservation in transformed tropical landscapes. From an ecological perspective, *M. ocellata* fulfills important functions within the tropical ecosystems of southeastern Mexico (Animal Diversity Web, 2008; Retana Guiascón et al., 2021). This species plays a significant role in biodiversity conservation, recognized as a priority species due to its relatively restricted geographic distribution, historical population declines in some parts of its range, and persistent pressure from habitat transformation and hunting (González-García et al., 2011; McRoberts et al., 2020; GY, 2026). Kampichler et al. (2010) reported significant losses in the distribution and local abundance of this species between 1980 and 2000 in the Yucatán Peninsula, with anthropogenic factors affecting its distribution and abundance by altering forest cover and landscape structure. Current regulations in Mexico recognize the wild turkey as a conservation indicator both for its biological value and for its social and cultural relevance. In the Yucatán Peninsula, the wild turkey is known as kutz in the Mayan language and has historically been used as a food, ornamental, and hunting resource, demonstrating its deep integration within the region's socio-ecological systems. Therefore, studies of the wild turkey, as it is colloquially known in the Yucatán Peninsula and Campeche, particularly in ecologically influential areas such as Escárcega and Calakmul, are of great importance for understanding the relationship this species has with humans. With this in mind, the objective of this literature review is to identify the contribution of the wild turkey to food security and ecotourism in southern Campeche.

MATERIALS AND METHODS

This literature review was conducted with a qualitative approach, analyzing the contribution of the wild turkey (*Meleagris ocellata*) in food security and ecotourism in southern Campeche, Mexico. The literature search was conducted in scientific databases (Scopus, Web of Science, Google Scholar, ScienceDirect, SpringerLink, SciELO, Redalyc, among others), institutional repositories, and relevant grey literature were searched. Keywords in Spanish and English related to the species, its distribution, and its links to subsistence hunting, wildlife use, nature tourism, and conservation were used. Document selection followed explicit inclusion and exclusion criteria and was documented based on PRISMA 2020 principles. The information was captured in a matrix, organized into two themes: food security and ecotourism. The first theme was categorized into subthemes such as availability, access, utilization, and stability; the second subtheme included birdwatching, wildlife observation, environmental education, and community-based tourism. The information was also compiled into a table for analysis.

RESULTS AND DISCUSSION

The results of the literature review indicate that the ocellated turkey (*Meleagris ocellata*) is of significant importance to human populations in southern Mexico, as it contributes significantly to food security in rural communities (Table 1). Its primary use is as a direct source of animal protein, and it has historically been hunted for meat in rural communities of the Yucatán Peninsula for subsistence (Santos-Fita et al., 2012). In addition to its direct contribution to food security, it also indirectly supports livelihoods by being integrated into wildlife management practices, regulated hunting schemes, agroforestry landscape conservation, ornamental uses, and potential ecotourism and wildlife observation activities (McRoberts et al., 2020). Therefore, it can be observed that the wild turkey contributes directly or indirectly to food security due to its availability. This species promotes food availability by providing wild meat for family consumption, especially in rural communities where wild fauna remains an important complementary resource (Santos-Fita et al., 2012). Access to this food is facilitated through local exchange, occasional sales, or indirect economic benefits derived from management schemes, regulated hunting, nature tourism, and productive conservation. Another aspect to consider is its comprehensive utilization, as not only the meat is used, but also the feathers and other products. Furthermore, the presence of this species in rural communities provides stability when it is integrated into sustainable management systems, community conservation programs, and the rational use of wildlife.

Table 1. Direct and indirect uses of the wild turkey (*Meleagris ocellata*) and its potential contribution to food security in southeastern Mexico.

Usage category	Use	Description	Contribution to food security	Food security dimension	Scale
Direct use	Meat consumption	The wild turkey is used as food through subsistence hunting.	It provides animal protein and complements the family diet.	availability and utilization	Home
Direct use	Wild meat for self-consumption	Its capture allows rural families to be supplied with meat without being entirely dependent on the market.	It functions as a local food source and reduces food insecurity.	Availability	Home
Direct use	Contribution of food biomass	The species contributes a significant fraction of the total biomass obtained by hunting.	It increases the amount of meat available for human consumption.	Availability	Home/Community
Direct use	Seasonal food reserve	Hunting them can occur at certain times of the year or when opportunities arise during rural activities.	It acts as a form of occasional food insurance in the face of scarcity or need.	Stability	Home
Direct use	Multiple uses of the individual	In addition to the meat, feathers and other parts of the bird can be used.	Maximize the yield of the biological resource obtained.	Utilization	Home

Indirect use	Occasional local sale/exchange	In some rural contexts, meat or wildlife resources may be exchanged or traded locally.	Generates supplemental income for food purchases.	Access	Home/Community
Indirect use	Regulated hunting use	The species can be integrated into sustainable management schemes, such as UMA or regulated hunting.	It can provide indirect economic benefits that strengthen livelihoods.	Access and stability	Community/Territory
Indirect use	Management in agroforestry territories	The presence of the species in agroecosystems favors its conservation and possible future use.	It strengthens the socio-ecological resilience of the territory and long-term food security.	Stability	Community/Territory
Indirect use	Cultural and biocultural value	The wild turkey is part of the biocultural heritage of the Mayan region.	It maintains traditional knowledge linked to the use and management of fauna, with an impact on subsistence strategies.	Stability and utilization	Community
Indirect use	Ornamental use of feathers	Its feathers have been used for ornamental and decorative purposes.	It adds utilitarian and cultural value to the resource, although not directly as food.	(Indirect) Access	Home/Community
Indirect use	Hunting trophy	The species is prized for its striking appearance and value as a game bird.	It can translate into income if there is regulation and management; without control, it also represents risk.	Access	Community/Territory
Indirect use	Ecotourism and bird watching	Because it is endemic, showy and emblematic, it is attractive to wildlife observers.	It can generate alternative income that strengthens livelihoods and food purchases.	Access and stability	Community/Territory

Indirect use	Flagship species for community conservation	Their presence can support monitoring, conservation, and environmental education projects.	It contributes to territorial sustainability, a key condition for future food security.	Stability	Territory

Referencias: Santos-Fita et al., 2012; McRoberts et al., 2020; Retana Guiascón et al., 2021; GY, 2026.

From an ecotourism perspective, the Andean turkey is highly valued for its striking plumage, conspicuous size, and restricted distribution to the Yucatán Peninsula, making it a species of great interest for birdwatching and nature photography. Furthermore, the integration of its biological, scenic, and cultural attributes enhances its value as a community-based tourism resource, associated with the preserved tropical rainforest environments and biocultural landscapes of the Maya area (McRoberts et al., 2020; GC, 2026a.). This species serves as a visual element in birdwatching, nature photography, interpretive hiking, academic tourism, and environmental education activities, particularly in the southern part of the state, where biodiversity is one of the region's main attractions (GC, 2026b.). On the other hand, the ecotourism value of the wild turkey increases because its use can be carried out under non-extractive schemes, which makes it an alternative compatible with conservation and management strategies, which contributes to strengthening community tourism and conservation tourism, promoting management schemes that integrate biodiversity, cultural heritage and community participation (Retana Guiascón et al., 2021; McRoberts et al., 2020) (Table 2).

Table 2. Ecotourism values of the wild turkey (*Meleagris ocellata*) in southern Campeche, Mexico.

Category	Ecotourism value	Potential contribution to ecotourism	Scale
Birdwatching	Focal species for birdwatching	The destination's appeal to birdwatchers is enhanced by the presence of a striking, large species with a distribution restricted to the Mayan region.	Territory
Wildlife observation	High visibility for visitors	Observing them on roads, gaps, and jungle edges improves the probability of sightings and the visitor experience.	Visitor/Community
Nature photography	Charismatic and photogenic species	Its iridescent plumage and conspicuous appearance make it a highly valuable resource for wildlife photography.	Visitor
Nature tourism	Component of the rainforest experience	It enriches the visitor experience by being part of the emblematic fauna of the southern Campeche jungle.	Territory
Biocultural tourism	Species associated with Mayan culture	It strengthens the interpretation of the territory by linking biodiversity, regional history and traditional knowledge.	Community/Territory
Environmental education	Flagship species for ecological interpretation	It facilitates environmental awareness activities, scientific outreach and education for visitors and communities.	Community/Visitor
Community tourism	Resource for guided trails	It can be incorporated as a focal species in wildlife observation tours and interpretive walks.	Community
Specialized Birdwatching	Species of interest to	It has the potential to attract national and international birdwatchers	Territory

	specialized tourists	interested in regional or endemic species.	
Conservation with non-extractive use	Flagship species for conservation ecotourism	It allows linking habitat conservation with indirect benefits derived from tourism activities.	Territory
Academic tourism	Species of interest for field practices	It can be integrated into university activities, courses, stays and natural history tours.	Visitor/Institution

Referencias: McRoberts et al., 2020; Retana Guiascón et al., 2021, GC, 2026ª, GC, 2026b, GY, 2026

The research documents the importance of the wild turkey from both a food security and ecotourism perspective. In the former, its importance is related to the supply of animal protein, rural subsistence, and the traditional use of wildlife, while in the latter, it acquires value as an emblematic species for birdwatching, environmental interpretation, nature photography, and biocultural tourism. This duality suggests that the species should not be analyzed solely as a food resource or exclusively as a tourist attraction, but rather as a multifunctional socio-ecological asset that depends on sustainable management in the region, habitat conservation, and the participation of local communities. Therefore, integrating these two approaches facilitates the design of more comprehensive strategies for resource use, conservation, and territorial development in southern Campeche (Table 3).

Table 3. Comparison between the importance of the wild turkey (*Meleagris ocellata*) from the perspectives of food security and ecotourism in southern Campeche.

Category	Focus on food security	Ecotourism approach	Implications for species management
Type of use	Direct use predominates, mainly as a source of meat through subsistence hunting.	Indirect and non-extractive use predominates, through observation, interpretation and nature tourism.	It requires balancing extractive and non-extractive uses through sustainable management strategies.
Main benefit	It provides animal protein, food availability and support for rural livelihoods.	It provides indirect recreational, educational, cultural and economic value.	The species can generate multiple benefits if it is managed holistically.
Scale of benefit	household and community level.	community and territorial level.	Its management must consider both local needs and regional opportunities.
Relationship with conservation	Food use can put pressure on the species if there is no regulation.	Ecotourism can encourage habitat conservation and the appreciation of wildlife.	Conservation tourism can complement or reduce pressure on extractive use.
Habitat dependence	It requires the availability of accessible wild populations for hunting or exploitation.	It requires preserved habitats, connectivity, and observational opportunities for visitors.	Tropical forest conservation is key in both approaches.
Link with local communities	It is part of traditional subsistence practices and wildlife management.	It can strengthen activities such as guiding, hiking, environmental education, and community tourism.	Local knowledge is fundamental for both uses.
Cultural value	Associated with traditional practices of use and consumption of wildlife.	Associated with regional identity, biocultural heritage and interpretive narratives of the territory.	Its biocultural value can strengthen participatory management strategies.
Potential sustainability	It can be sustainable under regulation, monitoring,	It has high sustainability potential as it is a non-extractive use.	Ecotourism represents a strategic alternative to

	and community management.		reduce pressure on the species.
Contribution to local development	It contributes directly to food and, to a lesser extent, to exchange or income.	It contributes indirectly through economic benefits, diversification of activities, and territorial strengthening.	Combining both approaches can increase socio-ecological resilience.
Potential for local policies	It can be integrated into food security, wildlife management and food sovereignty programs.	It can be integrated into ecotourism programs, community conservation and the enhancement of natural heritage.	The species can function as a central element of integrated territorial policies.

REFERENCES

1. Animal Diversity Web. (2008). *Meleagris ocellata* (ocellated turkey). University of Michigan Museum of Zoology. https://animaldiversity.org/accounts/Meleagris_ocellata/
2. CONABIO, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. (2021). La biodiversidad en Campeche: Estudio de Estado. https://www.biodiversidad.gob.mx/region/eeb/estudios/ee_campeche?utm_source=chatgpt.com.
3. Cornell Lab of Ornithology. (2020). Ocellated Turkey (*Meleagris ocellata*). eBird. https://ebird.org/species/ocetur1.
4. Fuentes Olivares, I. E. (2024). Uso de fauna silvestre en tres áreas destinadas voluntariamente a la conservación de Calakmul, Campeche. https://repositorio.unicach.mx/handle/20.500.12753/5628.
5. GY, Gobierno de Yucatán. (2026). Pavo de Monte. https://www.yucatan.gob.mx/?p=pavo_monte.
6. Instituto Nacional de Antropología e Historia (INAH). (s. f.). *Calakmul*. Repositorio INAH. https://repositorio.inah.gob.mx/o-27205
7. Kampichler, C., Calmé, S., Weissenberger, H., & Arriaga-Weiss, S. L. (2010). Indication of a species in an extinction vortex: The ocellated turkey on the Yucatan peninsula, Mexico. Acta Oecologica, 36(6), 561-568. https://doi.org/10.1016/j.actao.2010.08.004.
8. McRoberts, J. T., Rich, T. D., Rodríguez-Flores, C. I., Soberanes-González, C. A., & Arizmendi, M. del C. (2020). Ocellated Turkey *(Meleagris ocellata)*, version 1.0. En T. S. Schulenberg (Ed.), *Birds of the World*. Cornell Lab of Ornithology. https://doi.org/10.2173/bow.ocetur1.01
   Consulta: https://birdsoftheworld.org/bow/species/ocetur1/cur/introduction
9. GC, Portal Oficial de Turismo del Estado de Campeche. (2026a.). Calakmul. Campeche Travel. https://campeche.travel/packages/calakmul/
10. GC, Portal Oficial de Turismo del Estado de Campeche. (2026b). UMA Nuevo Becal. Campeche Travel. https://campeche.travel/packages/uma-nuevo-becal/
11. Retana Guiascón, O. G., Cuenca Villamonte, D. A., Bastar Sierra, A., & Vargas Soriano, J. (2021). Composition and structure of the diet of the ocellated turkey (*Meleagris ocellata*) in an agroforestry territory, Campeche, Mexico. *Tropical and Subtropical Agroecosystems*, *24*(3). https://doi.org/10.56369/tsaes.3715
12. Santos-Fita, D., Naranjo, E. J., & Rangel-Salazar, J. L. (2012). Wildlife uses and hunting patterns in rural communities of the Yucatan Peninsula, Mexico. *Journal of Ethnobiology and Ethnomedicine*, *8*, 38. https://doi.org/10.1186/1746-4269-8-38 PDF / descarga: https://link.springer.com/article/10.1186/1746-4269-8-38
13. U.S. Fish & Wildlife Service. (s. f.). Ocellated turkey (*Meleagris ocellata*). https://www.fws.gov/species/ocellated-turkey-meleagris-ocellata.