

VOL VI

Estudos em Ciências Agrárias e Ambientais

Eduardo Spers
(Organizador)



EDITORA
ARTEMIS

2026

VOL VI

Estudos em Ciências Agrárias e Ambientais

Eduardo Spers
(Organizador)



EDITORA
ARTEMIS

2026



O conteúdo deste livro está licenciado sob uma Licença de Atribuição Creative Commons Atribuição-Não-Comercial NãoDerivativos 4.0 Internacional (CC BY-NC-ND 4.0). Direitos para esta edição cedidos à Editora Artemis pelos autores.

Permitido o download da obra e o compartilhamento, desde que sejam atribuídos créditos aos autores, e sem a possibilidade de alterá-la de nenhuma forma ou utilizá-la para fins comerciais.

A responsabilidade pelo conteúdo dos artigos e seus dados, em sua forma, correção e confiabilidade é exclusiva dos autores. A Editora Artemis, em seu compromisso de manter e aperfeiçoar a qualidade e confiabilidade dos trabalhos que publica, conduz a avaliação cega pelos pares de todos manuscritos publicados, com base em critérios de neutralidade e imparcialidade acadêmica.

Editora Chefe	Prof. ^a Dr. ^a Antonella Carvalho de Oliveira
Editora Executiva	M. ^a Viviane Carvalho Mocellin
Direção de Arte	M. ^a Bruna Bejarano
Diagramação	Elisangela Abreu
Organizador	Eduardo Eugênio Spers
Imagem da Capa	Bruna Bejarano, Arquivo Pessoal
Bibliotecário	Maurício Amormino Júnior – CRB6/2422

Conselho Editorial

Prof.^a Dr.^a Ada Esther Portero Ricol, *Universidad Tecnológica de La Habana “José Antonio Echeverría”*, Cuba

Prof. Dr. Adalberto de Paula Paranhos, Universidade Federal de Uberlândia, Brasil

Prof. Dr. Agustín Olmos Cruz, *Universidad Autónoma del Estado de México*, México

Prof.^a Dr.^a Amanda Ramalho de Freitas Brito, Universidade Federal da Paraíba, Brasil

Prof.^a Dr.^a Ana Clara Monteverde, *Universidad de Buenos Aires*, Argentina

Prof.^a Dr.^a Ana Júlia Viamonte, Instituto Superior de Engenharia do Porto (ISEP), Portugal

Prof. Dr. Ángel Mujica Sánchez, *Universidad Nacional del Altiplano*, Peru

Prof.^a Dr.^a Angela Ester Mallmann Centenaro, Universidade do Estado de Mato Grosso, Brasil

Prof.^a Dr.^a Begoña Blandón González, *Universidad de Sevilla*, Espanha

Prof.^a Dr.^a Carmen Pimentel, Universidade Federal Rural do Rio de Janeiro, Brasil

Prof.^a Dr.^a Catarina Castro, Universidade Nova de Lisboa, Portugal

Prof.^a Dr.^a Cirila Cervera Delgado, *Universidad de Guanajuato*, México

Prof.^a Dr.^a Cláudia Neves, Universidade Aberta de Portugal

Prof.^a Dr.^a Cláudia Padovesi Fonseca, Universidade de Brasília-DF, Brasil

Prof. Dr. Cleberton Correia Santos, Universidade Federal da Grande Dourados, Brasil

Dr. Cristo Ernesto Yáñez León – New Jersey Institute of Technology, Newark, NJ, Estados Unidos



Prof. Dr. David García-Martul, *Universidad Rey Juan Carlos de Madrid*, Espanha
Prof.ª Dr.ª Deuzimar Costa Serra, *Universidade Estadual do Maranhão*, Brasil
Prof.ª Dr.ª Dina Maria Martins Ferreira, *Universidade Estadual do Ceará*, Brasil
Prof.ª Dr.ª Edith Luévano-Hipólito, *Universidad Autónoma de Nuevo León*, México
Prof.ª Dr.ª Eduarda Maria Rocha Teles de Castro Coelho, *Universidade de Trás-os-Montes e Alto Douro*, Portugal
Prof. Dr. Eduardo Eugênio Spers, *Universidade de São Paulo (USP)*, Brasil
Prof. Dr. Eloi Martins Senhoras, *Universidade Federal de Roraima*, Brasil
Prof.ª Dr.ª Elvira Laura Hernández Carballido, *Universidad Autónoma del Estado de Hidalgo*, México
Prof.ª Dr.ª Emilas Darlene Carmen Lebus, *Universidad Nacional del Nordeste*, Argentina
Prof.ª Dr.ª Erla Mariela Morales Morgado, *Universidad de Salamanca*, Espanha
Prof. Dr. Ernesto Cristina, *Universidad de la República*, Uruguay
Prof. Dr. Ernesto Ramírez-Briones, *Universidad de Guadalajara*, México
Prof. Dr. Fernando Hitt, *Université du Québec à Montréal*, Canadá
Prof. Dr. Gabriel Díaz Cobos, *Universitat de Barcelona*, Espanha
Prof.ª Dr.ª Gabriela Gonçalves, *Instituto Superior de Engenharia do Porto (ISEP)*, Portugal
Prof.ª Dr.ª Galina Gumovskaya – *Higher School of Economics*, Moscow, Russia
Prof. Dr. Geoffroy Roger Pointer Malpass, *Universidade Federal do Triângulo Mineiro*, Brasil
Prof.ª Dr.ª Gladys Esther Leoz, *Universidad Nacional de San Luis*, Argentina
Prof.ª Dr.ª Glória Beatriz Álvarez, *Universidad de Buenos Aires*, Argentina
Prof. Dr. Gonçalo Poeta Fernandes, *Instituto Politécnico da Guarda*, Portugal
Prof. Dr. Gustavo Adolfo Juarez, *Universidad Nacional de Catamarca*, Argentina
Prof. Dr. Guillermo Julián González-Pérez, *Universidad de Guadalajara*, México
Prof. Dr. Håkan Karlsson, *University of Gothenburg*, Suécia
Prof.ª Dr.ª Iara Lúcia Tescarollo Dias, *Universidade São Francisco*, Brasil
Prof.ª Dr.ª Isabel del Rosario Chiyon Carrasco, *Universidad de Piura*, Peru
Prof.ª Dr.ª Isabel Yohena, *Universidad de Buenos Aires*, Argentina
Prof. Dr. Ivan Amaro, *Universidade do Estado do Rio de Janeiro*, Brasil
Prof. Dr. Iván Ramon Sánchez Soto, *Universidad del Bío-Bío*, Chile
Prof.ª Dr.ª Ivânia Maria Carneiro Vieira, *Universidade Federal do Amazonas*, Brasil
Prof. Me. Javier Antonio Albornoz, *University of Miami and Miami Dade College*, Estados Unidos
Prof. Dr. Jesús Montero Martínez, *Universidad de Castilla - La Mancha*, Espanha
Prof. Dr. João Manuel Pereira Ramalho Serrano, *Universidade de Évora*, Portugal
Prof. Dr. Joaquim Júlio Almeida Júnior, *UniFIMES - Centro Universitário de Mineiros*, Brasil
Prof. Dr. Jorge Ernesto Bartolucci, *Universidad Nacional Autónoma de México*, México
Prof. Dr. José Cortez Godinez, *Universidad Autónoma de Baja California*, México
Prof. Dr. Juan Carlos Cancino Diaz, *Instituto Politécnico Nacional*, México
Prof. Dr. Juan Carlos Mosquera Feijoo, *Universidad Politécnica de Madrid*, Espanha
Prof. Dr. Juan Diego Parra Valencia, *Instituto Tecnológico Metropolitano de Medellín*, Colômbia

Prof. Dr. Juan Manuel Sánchez-Yáñez, *Universidad Michoacana de San Nicolás de Hidalgo*, México
Prof. Dr. Juan Porras Pulido, *Universidad Nacional Autónoma de México*, México
Prof. Dr. Júlio César Ribeiro, *Universidade Federal Rural do Rio de Janeiro*, Brasil
Prof. Dr. Leinig Antonio Perazolli, *Universidade Estadual Paulista (UNESP)*, Brasil
Prof.ª Dr.ª Lúvia do Carmo, *Universidade Federal de Goiás*, Brasil
Prof.ª Dr.ª Luciane Spanhol Bordignon, *Universidade de Passo Fundo*, Brasil
Prof. Dr. Luis Fernando González Beltrán, *Universidad Nacional Autónoma de México*, México
Prof. Dr. Luis Vicente Amador Muñoz, *Universidad Pablo de Olavide*, Espanha
Prof.ª Dr.ª Macarena Esteban Ibáñez, *Universidad Pablo de Olavide*, Espanha
Prof. Dr. Manuel Ramiro Rodríguez, *Universidad Santiago de Compostela*, Espanha
Prof. Dr. Manuel Simões, *Faculdade de Engenharia da Universidade do Porto*, Portugal
Prof.ª Dr.ª Márcia de Souza Luz Freitas, *Universidade Federal de Itajubá*, Brasil
Prof. Dr. Marcos Augusto de Lima Nobre, *Universidade Estadual Paulista (UNESP)*, Brasil
Prof. Dr. Marcos Vinicius Meiado, *Universidade Federal de Sergipe*, Brasil
Prof.ª Dr.ª Mar Garrido Román, *Universidad de Granada*, Espanha
Prof.ª Dr.ª Margarida Márcia Fernandes Lima, *Universidade Federal de Ouro Preto*, Brasil
Prof.ª Dr.ª María Alejandra Arecco, *Universidad de Buenos Aires*, Argentina
Prof.ª Dr.ª Maria Aparecida José de Oliveira, *Universidade Federal da Bahia*, Brasil
Prof.ª Dr.ª Maria Carmen Pastor, *Universitat Jaume I*, Espanha
Prof.ª Dr.ª Maria da Luz Vale Dias – *Universidade de Coimbra*, Portugal
Prof.ª Dr.ª Maria do Céu Caetano, *Universidade Nova de Lisboa*, Portugal
Prof.ª Dr.ª Maria do Socorro Saraiva Pinheiro, *Universidade Federal do Maranhão*, Brasil
Prof.ª Dr.ª MªGraça Pereira, *Universidade do Minho*, Portugal
Prof.ª Dr.ª Maria Gracinda Carvalho Teixeira, *Universidade Federal Rural do Rio de Janeiro*, Brasil
Prof.ª Dr.ª María Guadalupe Vega-López, *Universidad de Guadalajara*, México
Prof.ª Dr.ª Maria Lúcia Pato, *Instituto Politécnico de Viseu*, Portugal
Prof.ª Dr.ª Maritza González Moreno, *Universidad Tecnológica de La Habana*, Cuba
Prof.ª Dr.ª Mauriceia Silva de Paula Vieira, *Universidade Federal de Lavras*, Brasil
Prof. Dr. Melchor Gómez Pérez, *Universidad del Pais Vasco*, Espanha
Prof.ª Dr.ª Ninfa María Rosas-García, *Centro de Biotecnología Genómica-Instituto Politécnico Nacional*, México
Prof.ª Dr.ª Odara Horta Boscolo, *Universidade Federal Fluminense*, Brasil
Prof. Dr. Osbaldo Turpo-Gebera, *Universidad Nacional de San Agustín de Arequipa*, Peru
Prof.ª Dr.ª Patrícia Vasconcelos Almeida, *Universidade Federal de Lavras*, Brasil
Prof.ª Dr.ª Paula Arcoverde Cavalcanti, *Universidade do Estado da Bahia*, Brasil
Prof. Dr. Rodrigo Marques de Almeida Guerra, *Universidade Federal do Pará*, Brasil
Prof. Dr. Saulo Cerqueira de Aguiar Soares, *Universidade Federal do Piauí*, Brasil
Prof. Dr. Sergio Bitencourt Araújo Barros, *Universidade Federal do Piauí*, Brasil
Prof. Dr. Sérgio Luiz do Amaral Moretti, *Universidade Federal de Uberlândia*, Brasil
Prof.ª Dr.ª Silvia Inés del Valle Navarro, *Universidad Nacional de Catamarca*, Argentina

Prof.ª Dr.ª Solange Kazumi Sakata, Instituto de Pesquisas Energéticas e Nucleares (IPEN)- USP, Brasil
Prof.ª Dr.ª Stanislava Kashtanova, *Saint Petersburg State University*, Russia
Prof.ª Dr.ª Susana Álvarez Otero – Universidad de Oviedo, Espanha
Prof.ª Dr.ª Teresa Cardoso, Universidade Aberta de Portugal
Prof.ª Dr.ª Teresa Monteiro Seixas, Universidade do Porto, Portugal
Prof. Dr. Valter Machado da Fonseca, Universidade Federal de Viçosa, Brasil
Prof.ª Dr.ª Vanessa Bordin Viera, Universidade Federal de Campina Grande, Brasil
Prof.ª Dr.ª Vera Lúcia Vasilévski dos Santos Araújo, Universidade Tecnológica Federal do Paraná, Brasil
Prof. Dr. Wilson Noé Garcés Aguilar, *Corporación Universitaria Autónoma del Cauca*, Colômbia
Prof. Dr. Xosé Somoza Medina, *Universidad de León*, Espanha

Dados Internacionais de Catalogação na Publicação (CIP)
(eDOC BRASIL, Belo Horizonte/MG)

E87 Estudos em ciências agrárias e ambientais VI [livro eletrônico] /
Organizador Eduardo Eugênio Spers. – Curitiba, PR: Editora
Artemis, 2026.

Formato: PDF

Requisitos de sistema: Adobe Acrobat Reader

Modo de acesso: World Wide Web

Inclui bibliografia

Edição bilíngue

ISBN 978-65-81701-92-5

DOI 10.37572/EdArt_240326925

1. Formação docente. 2. Aprendizagem socioemocional –
Educação. 3. Bem-estar docente – Prática pedagógica. 4. Educação
superior. I. Gutiérrez, Paula Correa. II. Delgado, Fabiola Sáez. III.
Coatt, Pilar Jara.

CDD 370.71

Elaborado por Maurício Amormino Júnior – CRB6/2422



PRÓLOGO

O volume VI da coletânea *Estudos em Ciências Agrárias e Ambientais* reúne um conjunto de trabalhos que evidenciam a diversidade e a complexidade das investigações contemporâneas no campo agrário e ambiental, articulando perspectivas que vão desde a gestão dos territórios até os sistemas produtivos e o cuidado com a saúde e o bem-estar animal.

Organizado em três eixos temáticos, o volume inicia com discussões voltadas ao meio ambiente, à sustentabilidade e às dinâmicas socioecológicas, contemplando estudos que abordam questões relacionadas à governança territorial, aos saberes locais, às estratégias de gestão ambiental e à conservação da fauna. As contribuições deste eixo evidenciam a importância da articulação entre conhecimento científico e práticas sociais na compreensão dos desafios ambientais contemporâneos, bem como na construção de respostas sustentáveis e na preservação da biodiversidade em diferentes contextos.

O segundo eixo, dedicado à produção agrária, aos sistemas produtivos e aos recursos naturais, reúne pesquisas que exploram aspectos fundamentais da produção agrícola, incluindo qualidade de sementes, rendimento de culturas, organização de sistemas produtivos e manejo fitossanitário. Os trabalhos destacam a relevância de abordagens técnicas e científicas para o fortalecimento da produção, ao mesmo tempo em que apontam para a necessidade de práticas mais sustentáveis e eficientes no uso dos recursos naturais.

Por fim, o eixo voltado à saúde, produção e bem-estar animal apresenta estudos que discutem aspectos sanitários, comportamentais e de manejo na produção pecuária. As investigações evidenciam a importância de integrar conhecimento científico, tecnologia e práticas de cuidado para garantir não apenas a produtividade, mas também o bem-estar dos animais e a sustentabilidade dos sistemas produtivos, reforçando a centralidade dessas dimensões na pecuária contemporânea.

Ao reunir essas diferentes perspectivas, este volume reafirma o caráter interdisciplinar das Ciências Agrárias e Ambientais e sua relevância para enfrentar os desafios atuais relacionados à produção, à conservação dos recursos naturais e à sustentabilidade. Trata-se de uma obra que contribui para o avanço do conhecimento científico e para o fortalecimento de práticas mais responsáveis e integradas no campo agrário e ambiental.

Eduardo Eugênio Spers

SUMÁRIO

MEIO AMBIENTE, SUSTENTABILIDADE E DINÂMICAS SOCIOECOLÓGICAS

CAPÍTULO 1..... 1

GENDER, FOREST LAND TENURE, AND AGRARIAN GOVERNANCE IN MEXICO: A COMPARATIVE ANALYSIS ORIENTED TOWARD PUBLIC POLICY

Marcial Reyes Cázarez

 https://doi.org/10.37572/EdArt_2403269251

CAPÍTULO 2..... 19

GEOGRAFICIDAD DEL TERRITORIO: LA COMPRESIÓN DE LAS ZONAS ÁRIDAS DESDE LOS SABERES LOCALES PARA IDENTIFICAR IMPACTOS AMBIENTALES Y ESTRATEGIAS FRENTE AL CAMBIO CLIMÁTICO. EL CASO DE LA RESERVA DE LA BIOSFERA MAPIMÍ

Leslie Steffany Sánchez Escobar

 https://doi.org/10.37572/EdArt_2403269252

CAPÍTULO 3..... 31

LA GESTIÓN SOCIAL PARTICIPATIVA COMO HERRAMIENTA EFECTIVA EN LA PREVENCIÓN DE INCENDIOS FORESTALES

Fredy Aranda Tamayo

 https://doi.org/10.37572/EdArt_2403269253

CAPÍTULO 4..... 42

MEASUREMENT OF THE DUST CONCENTRATION ELIMINATED BY A COMPOUND FEED FACTORY FOR THE PURPOSE OF ENVIRONMENTAL PROTECTION

Cristian Vasile

 https://doi.org/10.37572/EdArt_2403269254

CAPÍTULO 5..... 51

EXPERIENCIA DE REHABILITACIÓN DE DOS ESPECIES DE FLAMENCOS, EN PREDIOS DEL BIOPARQUE MUNICIPAL VESTY PAKOS, LA PAZ – BOLIVIA

Alvaro Antonio Quispe Flores

Fortunato Macedonio Choque Bautista

Luis Enrique Beltrán Mendoza

Omar Emilio Rocha Olivio

 https://doi.org/10.37572/EdArt_2403269255

PRODUÇÃO AGRÁRIA, SISTEMAS PRODUTIVOS E RECURSOS NATURAIS

CAPÍTULO 6..... 60

LA PRUEBA DE GERMINACIÓN EN MAÍCES CRIOLLOS DE LOS ESTADOS DE GUANAJUATO Y MICHOACAN

José Luis Gutiérrez Liñán

Carmen Aurora Niembro Gaona

Alfredo Medina García

Oscar Arce Cervantes

Luis Felipe Ramírez Santoyo

 https://doi.org/10.37572/EdArt_2403269256

CAPÍTULO 770

CALIDAD FÍSICA Y RENDIMIENTO EN VARIEDADES DE AVENA, EN DIFERENTES FECHAS DE SIEMBRA

Alfredo Josué Gámez Vázquez

Miguel Angel Avila Perches

Rocio Edelmira Hernández Caldera

Leandris Argente Martínez

Mirna Bobadilla-Meléndez

 https://doi.org/10.37572/EdArt_2403269257

CAPÍTULO 8..... 83

ZONIFICACIÓN DEL SISTEMA AGROSILVOPASTORIL DE LA PRIMERA ETAPA DEL PROYECTO DE RIEGO CARRIZAL-CHONE, PROVINCIA DE MANABÍ, ECUADOR

Lizardo Reina Castro

Alberto Julca-Otiniano

Manuel Canto Sáenz

Hugo Soplín Villacorta

 https://doi.org/10.37572/EdArt_2403269258

CAPÍTULO 9..... 98

SENSIBILIDAD DE HONGOS FITOPATÓGENOS DE RAÍCES DE PORTAINJERTOS DE AGUACATE AL ACEITE DE NEEM (*Azadirachta indica*, GERANIALES: MELIACEAE)

Abraham Bibiano-Flores

Ivette Ortiz-Lopez

 https://doi.org/10.37572/EdArt_2403269259

CAPÍTULO 10..... 108

DESPARASITANTE ECOLÓGICO PARA REDUCIR LA CARGA PARASITARIA EN PEQUEÑOS RUMIANTES

Amalia Cabrera Núñez

Miguel Ángel Lammoglia Villagómez

María Rebeca Rojas Ronquillo

Daniel Sokani Sánchez Montes

Jorge Luis Chagoya Fuentes

 https://doi.org/10.37572/EdArt_24032692510

SAÚDE, PRODUÇÃO E BEM-ESTAR ANIMAL

CAPÍTULO 11..... 115

DISEASES OF HOOFS TO THE HOLSTEIN FRESIAN DAIRY CATTLE IN THE INTENSIVE FARM SYSTEM OF BREEDING

Ivanka hadžić

Ivan Pavlović

 https://doi.org/10.37572/EdArt_24032692511

CAPÍTULO 12..... 160

SEROVARIEDADES DE *LEPTOSPIRA* Y SU RESPUESTA INMUNOLÓGICA AL USO DE BACTERINAS EN LOS BOVINOS LECHEROS DE LA FMVZ-BUAP

Gabriel Gerardo Aguirre Espíndola

Felicitas Vázquez Flores

Mari Carmen Larios-García

Mara Isabel Santiago Luna

 https://doi.org/10.37572/EdArt_24032692512

CAPÍTULO 13.....172

ADAPTAÇÃO COMPORTAMENTAL AO CLIMA DE BOVINOS EM PASTOREIO:
INTEGRAÇÃO DA MONITORIZAÇÃO DE PRECISÃO E EVIDÊNCIA DE CAMPO DE
ANIMAIS DE RAÇA MINHOTA

Gustavo Paixão

Fernando Mata

Joaquim Lima Cerqueira

José Pedro Araújo

 https://doi.org/10.37572/EdArt_24032692513

SOBRE O ORGANIZADOR.....183

ÍNDICE REMISSIVO 184

CAPÍTULO 1

GENDER, FOREST LAND TENURE, AND AGRARIAN GOVERNANCE IN MEXICO: A COMPARATIVE ANALYSIS ORIENTED TOWARD PUBLIC POLICY

Data de submissão: 13/02/2026

Data de aceite: 03/03/2026

Marcial Reyes Cázares

Doctor en Género y Derecho por el
Instituto Universitario Puebla
Tecnológico Nacional de México
campus Pátzcuaro
Av. Tecnológico N°1, Tzúrumutaro
Pátzcuaro, Michoacán, México
<https://orcid.org/0000-0002-5987-949X>

ABSTRACT: The analysis of structural gender inequalities in forest land tenure is one of the most complex topics in the study of Mexico's ejidal and communal systems from a comparative international perspective oriented toward public policy. Through quantitative indicators, sociological theory, and governance frameworks, this study demonstrates how formal frameworks of equality coexist with exclusionary practices rooted in customary land tenure regimes. The findings highlight a persistent gap between legal recognition and the effective exercise of women's rights to land tenure, with direct implications for local territorial governance, sustainability, and the design of public policies. Throughout Mexico's history, women's participation in the agrarian domain

has been constant and effective, as women have fought on equal terms in various social armed conflicts, through which large territorial extensions were recovered and distributed equitably among family heads. However, faced with an Agrarian Law decontextualized from an egalitarian reality and tailored to the conditions of the 1950s, it opened the criteria for communities and ejidos to be governed by customary laws, thereby intensifying exclusion and discrimination in a more radical manner. Current legislation stipulates the terms "owner," "possessor," and "children," considering males preferentially, thereby nullifying women's rights, even though constitutional decrees specify such rights. It is taken into account that women can only access property if they are heads of household, but under Agrarian Law and customary practices, only when widowed is she considered a possessor until one of her male children reaches majority age; if she has no male child, her rights would be diminished, as she would be excluded from the ejidal and/or communal nucleus. In the context of Mexico's current government, characterized by a greater presence of women in high-level political and administrative power spaces, a structural contradiction persists between the discourse of substantive equality and the material reality of agrarian rights. While female leadership has been promoted in institutional spheres and public decision-making, this symbolic and normative preference has not translated into substantive transformations

in social land ownership or community forest governance. The gender gap in access to agrarian property continues to be reproduced through rooted practices and patriarchal structures that limit women's effective access to property, control over forest resources, and ejidal and communal decision-making bodies. This dissociation evidences that women's political empowerment, without structural reform of the agrarian regime and its implementation mechanisms, is insufficient to guarantee substantive equality in access to land and the management of common goods, constituting one of the main pending challenges for agrarian public policy with a human rights and gender focus.

KEYWORDS: women; equality; right to property; customs and practices.

1. INTRODUCTION

Gender inequality in land tenure and forest resources constitutes one of the most persistent structural challenges, not only in Mexico but as a constant in Latin America. Despite normative advances in formal equality between women and men, effective access, control, and decision-making over land continue to be profoundly conditioned by historical power structures, patriarchal sociocultural norms, and property regimes that reproduce intersectional inequalities linked to gender, ethnicity, and rurality (Deere & León, 2001; FAO, 2018).

Various comparative studies have documented that, in South American countries such as Peru, Bolivia, Colombia, and Brazil, rural and indigenous women face systematic barriers to accessing land titles, even though they play a central role in agricultural production, community forest management, and local food security (Lastarria-Cornhiel et al., 2014; Razavi, 2009). These inequalities not only limit the full exercise of women's economic rights but also have direct implications for environmental sustainability, natural resource governance, and territorial resilience in the face of climate change (Agarwal, 2010; Larson et al., 2019).

In Mexico, this issue takes on particular characteristics derived from the social agrarian property regime, which governs ejidos and indigenous and peasant communities, and which concentrates a significant proportion of the national forest area. While the legal framework formally recognizes equal rights between women and men to become ejidatarias and comuneras, empirical evidence shows that female participation has been historically marginal, both in agrarian rights titles and in collective decision-making spaces (Deere et al., 2017; INEGI, 2022).

The national average of women with rights to agrarian property oscillates between 26% and 27%, noting that according to information from the National Agrarian Registry and the 2024 Census and Atlas of Social Property by the National Institute of Statistics and Geography (INEGI), the distribution and percentage of women's access to agrarian

property varies by region. In Tabasco, with 35% of the territory, women are subjects of rights to property access, while the lowest is Yucatán with only 13%, where more marked gender gaps in land tenure persist due to deeply rooted customs and practices that exclude women from land tenure.

This gap between legal equality and substantive inequality responds to deeply rooted structural factors. Among them are patrilineal inheritance patterns, the traditional assignment of productive and reproductive roles, as well as community practices that privilege men as legitimate subjects of property and agrarian representation (Lastarria-Cornhiel & Garcia-Frías, 2005). In this sense, the 1992 agrarian reform, while expanding certification and regularization mechanisms for social property, did not sufficiently incorporate a gender perspective, which in many cases reinforced female exclusion dynamics in rights formalization processes (Appendini & De Luca, 2006). Amid repeated exclusion in Mexico among women who have access to agrarian property (similar to men but in lesser proportion), not all have equal equity regarding the use, enjoyment, and benefit of property, as depending on their category, they will have rights to parcel rights certificates and thus participation in decision-making, in the best cases, but in the vast majority, they will only have access to housing in the agrarian nucleus without any additional rights or programs. (Table 1)

Table 1: Types of Women's Access to Property and Agrarian Status in Mexico.

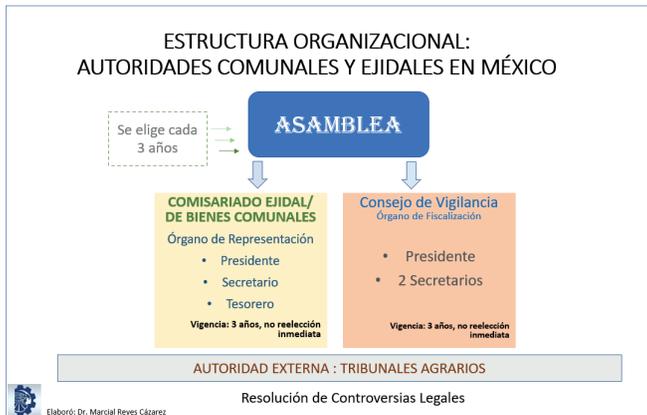
Category	Percentage Women	Description
Ejidatarias	25%	Hold parcel rights certificates and voting rights in assemblies.
Comuneras	29%	Hold rights in communal lands (more common in the south).
Poseionarias	29%	Work the land but do not have full certificates or full voting rights.
Avecindadas	32%	Live in the agrarian nucleus without rights over croplands, only homesteads.

Source: Author's elaboration based on data from the National Agrarian Registry 2024.

The exclusion of women from land and forest tenure has consequences that transcend the patrimonial sphere. Various studies have shown that the lack of formal rights limits women's access to public programs, credits, technical assistance, and sustainable forest management schemes, reproducing cycles of economic dependence and social vulnerability (World Bank, 2020; FAO, 2021). Likewise, the scarce female presence in ejidal and communal authority bodies (Illustration 1) restricts the incorporation of differentiated

perspectives in decision-making on the use and conservation of natural resources (Reyes Cázarez and Cázarez, 2020).

Illustration 1: Organizational Structure of Ejidal and Communal Authorities.



From a human rights and sustainable development perspective, equality in land tenure is recognized as a key element for the empowerment of rural women and for achieving the Sustainable Development Goals, particularly those linked to gender equality, inequality reduction, and terrestrial ecosystem protection (UN Women, 2019). However, in collective property contexts like Mexico's, a tension persists between the formal recognition of rights and their materialization in inclusive community practices.

In this framework, this study proposes a critical analysis of gender inequality in land and forest tenure in Mexico, situating it in a comparative Latin American context and examining the legal, institutional, and sociocultural factors that explain the persistence of these gaps. Starting from the assumption that legal equality is a necessary but insufficient condition to guarantee substantive equality, the study seeks to contribute to the academic and public policy debate on the need for integral approaches that articulate normative reforms, affirmative actions, and cultural transformations in rural and forest territories.

In this line of analysis, a critical reading is essential to understand gender inequality in land tenure and forest resources from a structural and institutional perspective, arguing that the historical exclusion of women in ejidos and communities is not a residual or culturally isolated phenomenon, but the result of a legal and administrative architecture that, even under discourses of formal equality, reproduces power asymmetries in the allocation, certification, and exercise of agrarian rights, emphasizing that social property, far from being gender-neutral, operates as a space where customary norms, bureaucratic practices, and patriarchal relations converge to limit women's effective access to land and forest governance (Reyes Cázarez, 2022).

Likewise, from a public policy and environmental justice perspective, it can be identified that the lack of female titles over land and forests has direct implications for the effectiveness of conservation strategies, sustainable forest management, and territorial development, where the absence of women in community decision-making processes weakens environmental governance schemes and reduces territories' adaptive capacity to extractive pressures and climate change, without overlooking the illegal and unfair commercialization of ejidal and communal lands.

In this sense, the harmonization of what is proposed herein with international literature has a well-founded structure, noting that the substantive incorporation of women as full subjects of agrarian rights not only constitutes a legal and ethical obligation but a strategic condition for the socio-environmental sustainability of forest ejidos and communities (Reyes Cázarez, 2022).

2. FEMINIST POLITICAL ECOLOGY AND LAND TENURE

The foundation of **feminist political ecology** sets a precedent in the analytical framework that examines power relations structuring access, control, and use of natural resources from a gender perspective. Feminist political ecology argues that environmental inequalities are not neutral but are deeply traversed by patriarchal, colonial, and capitalist systems that differentially assign rights, responsibilities, and benefits associated with nature (Rocheleau, Thomas-Slayer & Wangari, 1996).

In integrating a feminist ecology policy in Mexico, it is imperative to revisit the legacy of Wangari Maathai, who through the Green Belt Movement demonstrated that forest development is inseparable from women's autonomy. Her transcendent model not only reforested degraded lands but subverted power hierarchies by positioning peasant women as guardians of natural heritage and decision-makers.

From this perspective, land and forest tenure cannot be analyzed solely as a formal legal arrangement but as a field of political dispute where gender hierarchies are reproduced. Comparative studies in Asia, Africa, and Latin America show that women, even when actively participating in daily forest resource management, are often excluded from formal property rights and decision-making spaces, limiting their ability to influence sustainable management practices (Agarwal, 2010; Nightingale, 2011).

In the Latin American context, feminist political ecology has been particularly relevant for analyzing collective property regimes (such as ejidos, indigenous communities, and communal territories) where customary norms often reinforce patriarchal patterns, even in the presence of egalitarian legal frameworks (Deere & León, 2001). This tension

between positive law and social practices is central to understanding the persistence of gender inequality in land and forest tenure in Mexico.

3. INSTITUTIONAL ECONOMICS AND PROPERTY RIGHTS

The second theoretical axis of the study is institutional economics, particularly approaches to property rights and collective action. From this strand, tenure security is a key factor in incentivizing long-term investments, improving natural resource management, and strengthening local governance (North, 1990; Ostrom, 1990).

International literature shows that when women have clear and secure property rights over land, positive effects are generated at both micro and macro levels: increased agricultural productivity, greater investment in soil and forest conservation, improvements in food security, and rural poverty reduction (World Bank, 2020; FAO, 2021). In contrast, tenure insecurity limits access to credit, public programs, and forest management mechanisms, reproducing structural inequalities.

In collective property systems, institutional economics recognizes that rights are not limited to individual titles but include rights of use, exclusion, and decision. However, empirical evidence indicates that these rights are often distributed unequally within communities, with persistent gender biases placing women in subordinate positions (Agarwal, 2001). Institutional analysis is particularly pertinent to the Mexican case, where social agrarian property combines state norms, community arrangements, and informal practices that differentially affect women and men, as documented by recent national evidence.

4. THEORY OF LAND AND FOREST RESOURCE GOVERNANCE

The third theoretical pillar is **land governance theory**, which emphasizes the processes, actors, and institutions that determine how decisions are made about territorial access and use. From this perspective, effective land and forest governance requires inclusion, transparency, and equitable participation of different social groups (FAO, 2012).

International literature has shown that women's active participation in community governance bodies is associated with better environmental outcomes, including lower deforestation, greater compliance with community rules, and more sustainable forest management practices (Agarwal, 2009; Larson et al., 2019). However, in many rural contexts of the Global South, women remain underrepresented in decision-making spaces, especially in positions with real power over territory.

In Mexico, empirical evidence shows that, although women represent around a quarter of people with agrarian rights, their presence in ejidal and communal leadership positions is below 10%, limiting their influence on land and forest resource governance. This institutional imbalance reinforces the need to analyze land governance from a gender perspective, articulating theory and empirical evidence.

International instruments on the prevention and eradication of all forms of violence against women associate that women's rights and inequality in land tenure is not solely a problem of access to assets but a factor of discrimination leading to vulnerability as full rights subjects, holders of all human rights and fundamental freedoms on equal terms with men; failing to guarantee the right to agrarian and forest property is a practice that for decades has evidenced a pattern of poverty reproduction, food insecurity, and social exclusion. It is also important to associate this dynamic based on the hegemony of male possession and dominion over agrarian property where forest resources are located, being a perpetual form of inequality where women face legal, cultural, and institutional barriers restricting their right to possess, inherit, and control land, even though their contribution to agricultural production is central to rural subsistence. This evidence reinforces the argument that formal equality in legislation is insufficient without effective implementation mechanisms and institutional change.

Likewise, agricultural property in women's hands has multiplier effects on rural development. Empirical findings show that when women have secure land rights, investment in productive improvements increases, crops diversify, and household resilience to economic and environmental crises strengthens. These results are consistent with the study's central hypothesis, evidencing that secure tenure not only benefits women individually but improves the collective performance of agrarian and territorial systems.

The exclusion of women from agricultural property weakens land governance by concentrating decision-making power in reduced groups and reproducing unequal relations within rural communities. The lack of formal rights limits women's capacity to participate in land use planning, access public programs, and demand accountability, with direct implications for natural resource sustainability. This empirical evidence supports the hypothesis's centrality and reinforces the need to integrate gender equality as a structural component of land governance and rural development policies.

Based on the international theoretical framework, comparative literature, and documented empirical evidence, the study's hypothesis is presented below:

The substantive inclusion of women as full holders of property rights over land and forests significantly improves territorial governance, natural resource sustainability,

and rural development outcomes by strengthening collective decision-making, long-term management, and endogenous equity in a rural context free of gender gaps in agricultural property, with lesser socio-environmental vulnerability and egalitarian outcomes in well-being and abundance of natural resources, with forest heritage being of utmost importance.

5. METHODOLOGY

The methodological development is structured under a logic of scientific construction oriented toward understanding gender inequality in forest land tenure and its structural relationship with agrarian governance in Mexico, integrating an international comparative analysis and an explicit orientation toward public policy impact. The methodological architecture starts from the recognition that agrarian and territorial phenomena are configured within complex institutional systems, where formal norms, customary arrangements, economic structures, and historical power relations interact, so the investigative process is oriented toward building complex causal explanations and not exclusively descriptive ones (North, 1990; Ostrom, 1990; FAO, 2012).

From this perspective, forest land tenure is conceived as a socio-institutional system where formal legal frameworks, administrative practices, sociocultural dynamics, and informal power exercise mechanisms converge. Under this premise, the methodological process is oriented toward identifying gaps between the formal recognition of women's agrarian rights and their effective materialization in territories, understanding such gaps as structural phenomena reproduced through institutional, social, and cultural mechanisms across the three levels of government (Deere & León, 2001; Agarwal, 2010).

The adopted multilevel logic allows for simultaneous analysis of the macrostructural dynamics of the Mexican agrarian regime, meso-territorial institutional arrangements associated with ejidal and communal governance, and micro-social expressions linked to the daily exercise of property rights by women. This approach avoids legal or culturalist reductionisms, favoring structural interpretations that link institutional decision-making with the persistence of inequalities in access to agrarian and forest property (Larson et al., 2019; FAO, 2018).

In the realm of public policy, the methodology incorporates the analysis of systemic failures in the design-implementation-outcome chain, starting from the assumption that gender inequality in agrarian property does not respond solely to normative gaps but to differentiated implementation processes, institutional capture at different government levels, and reproduction of patriarchal practices within territorial governance systems

(World Bank, 2020; Razavi, 2009). In this framework, it is recognized that participation dynamics in ejidal and communal assemblies reproduce historical exclusion schemes that limit women's effective participation in decision-making, allowing the linkage of empirical analysis with the formulation of strategic recommendations for redesigning public policy instruments with a gender focus (FAO, 2021).

The construction of the empirical object is developed through the systematic integration of territorial, statistical, and institutional analysis, enabling the identification of structural exclusion patterns. This process allows establishing relationships between institutional variables – such as agrarian rights certification, representation in decision-making bodies, and access to public programs – and observable social outcomes in terms of female participation in territorial governance and control of forest resources (INEGI, 2022; Deere et al., 2017).

Complementarily, international comparative analysis is incorporated as an external validation mechanism, allowing the identification of similarities and divergences between the Mexican case and other collective property regimes in Latin America and the Global South. This approach does not seek mechanical model transfer but the identification of institutional trajectories, public policy instruments, and inclusion mechanisms that have proven effective in comparable sociopolitical contexts (Lastarria-Cornhiel et al., 2014; Agarwal, 2001).

The investigative process is also oriented toward analyzing institutional configurations that favor or limit the substantive inclusion of women as full agrarian rights subjects. To this end, the analysis of the current legal framework is considered, including agrarian legislation, its regulations, and other normative instruments, recognizing that social agrarian property constitutes a hybrid system where legal norms, community rules, and informal practices coexist (Appendini & De Luca, 2006; North, 1990).

This integration allows reducing biases derived from the institutional fragmentation of the agrarian and forest sector, as well as the country's territorial heterogeneities. The analysis of institutional performance enables identifying inconsistencies between the formal design of public policies and their territorial implementation, contributing to the generation of evidence-based recommendations (FAO, 2012; World Bank, 2020).

The temporal dimension is incorporated through a longitudinal perspective oriented toward analyzing the historical evolution of female participation in agrarian property, normative changes, and transformations in territorial governance schemes. This approach allows understanding gender inequality as a dynamic historical-institutional phenomenon, avoiding static or decontextualized interpretations (Deere & León, 2001; Razavi, 2009).

From the governance approach, the analysis considers the distribution of decisional power within agrarian nuclei, establishing relationships between rights titles, assembly participation, access to representation positions, and capacity to influence forest resource management. This framework allows understanding territorial governance as a political process, evidencing the relationship between property, power, and control of natural resources (Ostrom, 1990; Larson et al., 2019).

Likewise, the methodology incorporates an intersectional approach that articulates gender inequality with variables such as ethnic belonging, socioeconomic condition, geographic location, and social property regime, favoring territorially situated interpretations and avoiding simplified generalizations (FAO, 2018; Nightingale, 2011).

Epistemologically, the research is inscribed in a critical tradition oriented toward producing knowledge applied to institutional transformation. Under this logic, the investigative process seeks not only to describe inequalities but to identify the mechanisms that reproduce them, the system's critical points, and opportunities for public policy intervention (Agarwal, 2010; Rocheleau et al., 1996).

Finally, the methodological approach incorporates a prospective orientation that links the analysis of current inequalities with future institutional transformation scenarios. This component is fundamental for constructing public policy recommendations oriented toward strengthening substantive equality in agrarian property and community forest governance (UN Women, 2019; FAO, 2021).

In terms of scientific validity, the research is based on coherence between the theoretical framework, empirical analysis, and construction of policy-oriented conclusions. Analytical traceability is established as a guiding principle, ensuring that each interpretive assertion derives from systematically analyzed empirical evidence (World Bank, 2020; FAO, 2012).

In sum, recurrent practices of discrimination, inequity, and inequality must be oriented toward generating scientifically sound, socially relevant, and politically useful knowledge, positioning the results as technical input for formulating agrarian and forest public policies with a human rights and gender perspective, contributing to strengthening territorial governance, socio-environmental sustainability, and the construction of more equitable rural development models (FAO, 2021; Deere et al., 2017).

6. RESULTS

The statistics and models presented evidence that gender inequality in access to forest property in Mexico constitutes a persistent structural phenomenon, characterized

by a systematic gap between the formal recognition of agrarian rights and their effective exercise in territories. The systematization of statistical, institutional, and international comparative information allows identifying consistent patterns of female exclusion reproduced through the design-implementation-outcome chain of agrarian and forest public policy.

In aggregate terms, national statistical evidence shows that women represent between 26% and 27% of the total people with formally recognized agrarian rights, reflecting a structural underrepresentation relative to their demographic weight and real participation in rural productive activities. According to data from the National Institute of Statistics and Geography and the National Agrarian Registry, this proportion decreases significantly when specifically analyzing titles over productive or commercially exploitable forest areas, where female participation can drop to levels close to 18–20% in strategic forest regions of the south and southeast of the country (INEGI, 2022).

Regional analysis reveals profound territorial inequalities. While entities with more advanced agrarian regularization processes and inclusion policies present female proportions above the national average, in regions with strong predominance of traditional customary regimes, female participation in forest property is significantly reduced. For example, states with strong communal indigenous property presence show percentages below 20% in direct female titles over forest areas, confirming the coexistence of egalitarian legal frameworks with exclusionary community practices.

From the perspective of public policy outcomes, the analysis evidences that the gender gap in forest property generates cumulative effects in three critical dimensions: access to productive promotion instruments, participation in territorial governance, and community socio-environmental resilience. Comparative information shows that women with formal agrarian rights have up to 35% higher probabilities of accessing forest productive support programs, rural credits, and sustainable management schemes, compared to women without recognized titles (World Bank, 2020).

In terms of territorial governance, the evidence shows that female underrepresentation in property directly translates into exclusion from decision-making spaces. Although women represent approximately a quarter of people with agrarian rights, their participation in ejidal or communal representation positions with real decision-making capacity over forest resources remains below 10% nationally. This gap generates a masculine concentration of territorial power that reproduces exclusion patterns in land use definition, distribution of forest exploitation benefits, and allocation of institutional supports.

Comparative analysis with other Latin American countries confirms that the Mexican case presents similar structural patterns, though with particularities associated with collective social property. Regional studies document that in contexts where women access full forest property rights, reductions of up to 20% in community deforestation rates are observed, as well as significant improvements in sustainable management norm compliance (Larson et al., 2019). These results confirm that female exclusion is not solely an equity issue but a factor limiting territorial sustainability strategies' efficiency.

The evidence systematized by the Food and Agriculture Organization demonstrates that inequality in land and forest tenure has direct impacts on food security, rural poverty reduction, and environmental sustainability. In the Mexican case, limited female titles restrict women's access to payments for environmental services programs, forest certification, and sustainable community management, reproducing intergenerational cycles of economic and territorial exclusion (FAO, 2021).

From the institutional approach, the results evidence the existence of institutional capture processes that limit the effectiveness of equality public policies. Although normative frameworks formally recognize equal rights, operational mechanisms for agrarian certification, rights succession, and agrarian status recognition continue to operate under structural gender biases. These biases manifest particularly in agrarian inheritance processes, where patrilineal patterns continue to predominate in the transmission of rights over parcels and forest areas.

Longitudinal analysis allows identifying that, although there has been a gradual increase in female participation in agrarian property over recent decades, the growth rate is insufficient to close the structural gap in the short and medium term. Projections based on current trends suggest that, without structural public policy interventions, parity in agrarian property could take more than 40 years to achieve.

The results also evidence that female exclusion from forest property has direct implications for territories' socio-environmental vulnerability. Communities with lesser female participation in forest governance present higher environmental degradation levels, lesser productive diversification, and lesser adaptive capacity to extreme climate events. This correlation reinforces the hypothesis that gender equality constitutes a strategic factor for territorial sustainability.

The evidence generated by the World Bank confirms that women's tenure security over land increases investment in soil conservation and sustainable forest management, in addition to improving family well-being and community development indicators (World Bank, 2020). In contrast, women's exclusion from forest property limits communities' capacity to implement integral natural resource management strategies.

Finally, the results allow identifying that gender inequality in forest property in Mexico cannot be explained solely by normative gaps but by a combination of institutional, sociocultural, and economic factors operating systemically. The evidence demonstrates that this gap's persistence responds to the interaction between community patriarchal structures, agrarian certification bureaucratic processes, and limitations in effective implementation of public policies with a gender focus.

In synthesis, the results confirm that inequality in female access to forest property constitutes one of the main bottlenecks for consolidating sustainable, inclusive, and resilient territorial governance models in Mexico, positioning substantive equality in land tenure as a strategic component of contemporary agrarian and environmental public policy.

7. DISCUSSION

The obtained results allow situating gender inequality in access to forest property in Mexico within a broader historical-institutional framework, in which different agrarian reform cycles have differentially configured the structural conditions of territorial access, control, and governance. In this sense, the comparative analysis between the Cárdenas agrarian models, the structural liberalization period associated with Salinismo, and the current political cycle of the Mexican State allows understanding that contemporary inequality is not the product of a single historical stage but of the superposition of institutional arrangements that, although responding to different economic and political logics, have maintained constant gender biases in social land property.

From a historical perspective, the agrarian model promoted during Lázaro Cárdenas's government (1936-1940) laid the structural foundations of Mexico's social property regime, consolidating the ejido as a productive, territorial, and political unit. The Cárdenas reform represented a large-scale redistributive process that allowed broad peasant sectors access to land; however, its institutional design was structured under a "family head" logic that, in practice, operated as an indirect exclusion mechanism for rural women (Deere & León, 2001; Stephen, 1997).

While the Cárdenas discourse incorporated social justice and redistribution elements, the operational design of agrarian distribution articulated around patriarchal family structures that prioritized rights assignment to adult men as household representatives. This design generated an institutional trajectory effect that persists to the present, where formal agrarian rights titles continue to be associated with masculine household representation, particularly in forest territories where property implies strategic territorial control and access to high economic value resources (Agarwal, 2010; Deere et al., 2017).

The empirical results presented earlier, showing female participation between 18% and 21% in formal forest rights, can be interpreted as a historical extension of this initial institutional model. The Cárdenas reform democratized peasant access to land but did not transform gender relations within the social property regime. From institutional theory, this can be understood as a process of “inequality institutionalization,” where formal redistributive rules coexisted with patriarchal social norms that limited women’s substantive inclusion (North, 1990; Ostrom, 1990).

The second major inflection point in the Mexican agrarian regime’s trajectory occurs with the structural reforms promoted during Carlos Salinas de Gortari’s government (1988-1994), particularly the 1992 reform to Constitutional Article 27. This process transformed the social redistribution agrarian model toward a land market liberalization scheme, individual rights certification, and openness to private investment mechanisms (Appendini & De Luca, 2006).

From a gender perspective, Salinismo represented an ambivalent transition. On one hand, individual rights certification allowed, in theory, formal recognition of women as agrarian title holders. However, empirical results show that this process was implemented over historically unequal structures, reproducing exclusion patterns. The evidence shows that certification processes mainly favored those already exercising *de facto* control over land, i.e., predominantly men (Lastarria-Cornhiel & García-Frías, 2005).

The results presented in this research, particularly data on agrarian succession where over 65% of transfers continue to privilege male descent, can be interpreted as a direct consequence of the Salinista reform. Certification formalized existing rights but did not transform the power relations determining who accessed those rights. This phenomenon can be explained from institutional political economy as a case of “formalization of pre-existing inequalities” (Razavi, 2009).

In the forest realm, this effect was particularly profound. Land market openness and increasing economic valorization of forest resources generated incentives for territorial control concentration in actors with greater political and economic power within communities, reproducing structural exclusions toward women, youth, and indigenous groups with lesser decision-making incidence (Larson et al., 2019).

The third relevant historical moment corresponds to the contemporary political cycle, associated with the transformation project promoted during Andrés Manuel López Obrador’s government (2018-2024), and the current governmental movement’s political continuity. This period has been characterized by a political discourse centered on social justice, inclusion, and strengthening the social agrarian sector. However, this research’s

empirical results show that, although there has been significant symbolic advancement in visibilizing women's role in public life, structural changes in agrarian and forest property have been more limited.

The systematized data indicate that the annual growth of women holding forest rights remains below 0.7%, suggesting that current public policies have had limited impact on transforming female access to strategic territorial assets. This can be explained by the persistence of failures in the design-implementation-outcome chain, where social and productive programs operate over an institutional base that continues to reproduce historical inequalities.

From the territorial governance approach, the current political stage has strengthened the inclusion social narrative but has not structurally transformed rights assignment mechanisms within agrarian nuclei. The evidence that less than 12% of decisional forest positions are occupied by women confirms the persistence of informal institutional barriers limiting substantive female participation in territorial governance.

A particularly relevant element is that, unlike *Cárdenismo* – centered on territorial redistribution – and *Salinismo* – oriented toward land market liberalization – the current public policy model has prioritized direct economic resource transfers over structural transformation of the property regime. While these programs have reduced short-term economic vulnerabilities, the results show they have not substantially modified territorial power distribution.

From the feminist political ecology perspective, the results confirm that land and forest property constitutes a field of political dispute where gender relations, economic power, and territorial control converge (Rocheleau et al., 1996; Agarwal, 2010). The persistence of inequality in forest property limits not only female economic empowerment but also the efficacy of community environmental governance models.

International comparative evidence shows that territories with greater female participation in forest property tend to present better environmental sustainability indicators, reinforcing the study's central hypothesis: gender equality in territorial property is not solely a social justice goal but a structural condition for socio-environmental sustainability (FAO, 2021; World Bank, 2020).

In public policy terms, the discussion allows concluding that real transformation of gender inequality in forest property requires structural interventions beyond formal legal reforms or compensatory social programs. The evidence suggests the need for integral reforms including redesign of agrarian succession mechanisms, participation quotas in territorial governance, differentiated incentives in forest programs, and strengthening collective rights with a gender perspective.

Finally, the discussion confirms that gender inequality in forest property in Mexico constitutes a historically constructed structural phenomenon, where different agrarian reform cycles have generated partial advances without completely transforming underlying power relations. This gap's persistence represents one of the main challenges for contemporary agrarian policy, particularly in a context of climate crisis, pressure on forest resources, and the need to strengthen rural territories' socio-environmental resilience.

BIBLIOGRAPHY

Agarwal, B. (2001). Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development*, 29(10), 1623–1648.

Agarwal, B. (2009). Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics*, 68(11), 2785–2799.

Agarwal, B. (2010). *Gender and green governance: The political economy of women's presence within and beyond community forestry*. Oxford University Press.

Agarwal, B. (2018). Gender equality, food security and the sustainable development goals. *Current Opinion in Environmental Sustainability*, 34, 26–32. <https://doi.org/10.1016/j.cosust.2018.07.002>

Aguilar, L. F. (2010). *Política pública: Una visión general*. Siglo XXI Editores.

Aguilar, L. F. (2012). *Gobernanza y gestión pública*. Fondo de Cultura Económica.

Ali, D. A., Deininger, K., & Goldstein, M. (2014). Environmental and gender impacts of land tenure regularization in Africa. *World Development*, 61, 262–276. <https://doi.org/10.1016/j.worlddev.2014.04.006>

Appendini, K., & De Luca, M. (2006). Women's land rights in Mexico: A policy perspective. *Land Use Policy*, 23(4), 365–375. <https://doi.org/10.1016/j.landusepol.2005.02.002>

Appendini, K., & De Luca, M. (2006). Changes in social reproduction and rural livelihoods in Mexico. *Journal of Agrarian Change*, 6(3), 345–366.

Astelarra, J. (2005). *Políticas públicas de igualdad de género*. Naciones Unidas / CEPAL.

Astelarra, J. (2008). *Género y políticas públicas*. Universitat de Barcelona.

Banco Mundial. (2023). *Derechos de las mujeres a la tierra y desarrollo rural*. World Bank.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE.

Deere, C. D., & León, M. (2001). *Empowering women: Land and property rights in Latin America*. University of Pittsburgh Press.

Deere, C. D., Alvarado, G. E., & Twyman, J. (2017). Gender inequality in asset ownership in Latin America: Female owners vs household heads. *Development and Change*, 48(2), 505–530. <https://doi.org/10.1111/dech.12314>

- FAO. (2012). *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests*. Food and Agriculture Organization of the United Nations.
- FAO. (2018). *Gender and land rights database*. Food and Agriculture Organization of the United Nations.
- FAO. (2018). *The gender gap in land rights*. Food and Agriculture Organization of the United Nations.
- FAO. (2021). *Base de datos sobre género y derechos a la tierra*. Organización de las Naciones Unidas para la Alimentación y la Agricultura.
- FAO. (2021). *Gender and land statistics*. Food and Agriculture Organization of the United Nations.
- FAO. (2021). *Governing land for women and men: A technical guide to support the achievement of responsible gender-equitable governance of land tenure*. FAO.
- INEGI. (2022). *Censo Agropecuario 2022*. Instituto Nacional de Estadística y Geografía.
- INEGI. (2022). *Censo Agropecuario y Atlas de la Propiedad Social*. Instituto Nacional de Estadística y Geografía.
- Larson, A. M., Monterroso, I., & Mwangi, E. (2019). Community forestry and the challenge of gender equity. *International Forestry Review*, 21(S1), 1–12. <https://doi.org/10.1505/146554819827906799>
- Larson, A. M., Monterroso, I., & Cronkleton, P. (2019). Community rights, enforcement and access to forest resources. *World Development*, 120, 41–53.
- Lastarria-Cornhiel, S., & García-Frías, Z. (2005). Gender and land tenure reform in Mexico. *Rural Sociology*, 70(4), 545–575. <https://doi.org/10.1526/003601105775012714>
- Lastarria-Cornhiel, S., & García-Frías, Z. (2005). Gender and land rights: Findings and lessons from country studies. *World Development*, 33(3), 409–429.
- Lastarria-Cornhiel, S., et al. (2014). *Women's land rights and tenure security in Latin America*. Landesa.
- Meinzen-Dick, R., Quisumbing, A., Doss, C., & Theis, S. (2019). Women's land rights as a pathway to poverty reduction. *Global Food Security*, 21, 50–58. <https://doi.org/10.1016/j.gfs.2019.01.002>
- Nightingale, A. J. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum*, 42(2), 153–162.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
- ONU Mujeres. (2019). *El progreso de las mujeres en el mundo: Familias en un mundo cambiante*. Naciones Unidas.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.
- Razavi, S. (2009). Engendering the political economy of agrarian change. *Journal of Peasant Studies*, 36(1), 197–226.

Reyes Cázarez, M. (2022). *Propiedad agraria en México: Mujeres, derechos, historia, usos y costumbres* (1.ª ed.). Editorial La Colmena.

Reyes Cázarez, M., & Reyes Cázarez, D. (2019). The right of women to agricultural property in the context of customs and cultural practices in ejidos and communities in Mexico. *BEST: International Journal of Humanities, Arts, Medicine and Sciences*, 7(12), 11–20.

Reyes Cázarez, M., & Reyes Cázarez, D. (2020). El derecho de las mujeres a la propiedad agraria: Un contexto de usos y costumbres en ejidos y comunidades en México. En *Novas Possibilidades rumo ao Futuro das Ciências Humanas e suas Tecnologias* (Vol. 1, pp. 88–99). Atena Editora. <https://doi.org/10.22533/at.ed.7682002047>

Ribot, J. C., & Peluso, N. L. (2003). A theory of access. *Rural Sociology*, 68(2), 153–181. <https://doi.org/10.1111/j.1549-0831.2003.tb00133.x>

Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (1996). *Feminist political ecology: Global issues and local experiences*. Routledge.

World Bank. (2020). *Gender dimensions of land tenure and forest governance*. World Bank Publications.

World Bank. (2020). *Women, business and the law 2020*. World Bank Publications.

SOBRE O ORGANIZADOR

EDUARDO EUGÊNIO SPERS realizou pós-doutorado na Wageningen University (WUR), Holanda, e especialização no IGIA, França. Possui doutorado em Administração pela Universidade de São Paulo (USP). Foi Professor do Programa de Mestrado e Doutorado em Administração e do Mestrado Profissional em Comportamento do Consumidor da ESPM. Líder do tema Teoria, Epistemologia e Métodos de Pesquisa em Marketing na Associação Nacional de Pós-Graduação e Pesquisa em Administração (ANPAD). Participou de diversos projetos de consultoria e pesquisa coordenados pelo PENZA e Markestrat. É Professor Titular no Departamento de Economia, Administração e Sociologia, docente do Mestrado em Administração e Coordenador do Grupo de Extensão MarkEsalq no campus da USP/Esalq. Proferiu palestras em diversos eventos acadêmicos e profissionais, com diversos artigos publicados em periódicos nacionais e internacionais, livros e capítulos de livros sobre agronegócios, com foco no marketing e no comportamento do produtor rural e do consumidor de alimentos.

ÍNDICE REMISSIVO

A

Accidente 51, 52, 54

Avena sativa L. 71, 72, 73, 81, 82

B

Bacterinas 160, 161

Biofumigación 98, 100, 106

Bioparque 51, 52, 53

C

Combustion installation 42, 48, 49

Componentes principales 71, 74, 77, 78, 79, 80, 81

Comunidades 18, 19, 22, 23, 24, 25, 27, 28, 29, 31, 32, 33, 35, 36, 40, 87

Conocimiento local 19, 23, 25, 27

Conservación 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 52, 53, 54, 57, 61, 63, 68, 69, 85, 86, 96

Criollos 60, 61, 63, 65, 66, 69

Customs and practices 2, 3

D

Dairy cattle 115, 117, 134, 135, 137, 156, 181

Desierto 19, 20, 21, 23, 24, 26, 28, 30

Desparasitación 109, 112, 113

Dust concentration 42, 43, 47, 48, 49, 50

E

Equality 1, 2, 3, 4, 7, 10, 12, 13, 15, 16

F

Flamencos 51, 52, 53, 54, 57, 58

G

Gado de carne 173

Gases 42, 43, 44, 45, 46, 47, 48, 49, 50

Germinación 60, 61, 64, 65, 66, 67, 68, 72, 104, 105
Gestión social 31, 32, 33, 34
Granules 42, 44
Guanajuato 60, 61, 62, 65, 66, 67, 68, 70, 72, 73, 74, 75, 76, 77, 78, 80, 81

H

Hoof diseases 115, 123, 124, 128, 139, 144, 145, 153, 156

I

Imagen 83, 86, 87, 88
Inhibición 98, 102, 104
Interacción genotipo-ambiente 71

L

Leptospirosis 160, 161, 162, 163, 164, 169, 170, 171

M

Maíces 60, 61, 63, 65, 66, 68, 69
Memoria 19, 23, 24, 25, 27, 28, 30, 36
Michoacán 1, 60, 61, 62, 65, 66, 67, 68
Modelos digitales 83, 88

N

Nematodos gastrointestinales 108, 109, 110, 114

O

Ovinos 109, 111, 114

P

Paraparesia 51, 52, 56
Pecuária de precisão 173, 174
Persea americana var. drymifolia 98, 99, 100, 101, 103, 105
Prevención 31, 32, 35, 37, 39, 41, 160, 161, 171
Prueba 60, 61, 64, 65, 66, 68, 69, 75, 76, 77, 162, 163, 164, 165, 166, 167, 168, 170, 171

Q

Quemas 31, 34, 37, 39

R

Raça autóctone 173

Representaciones sociales 19, 21, 23, 24, 29

Respuesta inmune 161

Right to property 2

S

Semilla de guanabana 108, 109, 110, 112, 113

Serovariedades 160, 161, 162, 165, 166, 167, 168, 169

SIG 83, 87, 95

Stress térmico 173, 174, 178, 179

T

Tecnología apropiada y mapas 83

Temperature 42, 44, 45, 46, 47, 48, 128, 138, 173, 181, 182

Termorregulação animal 173

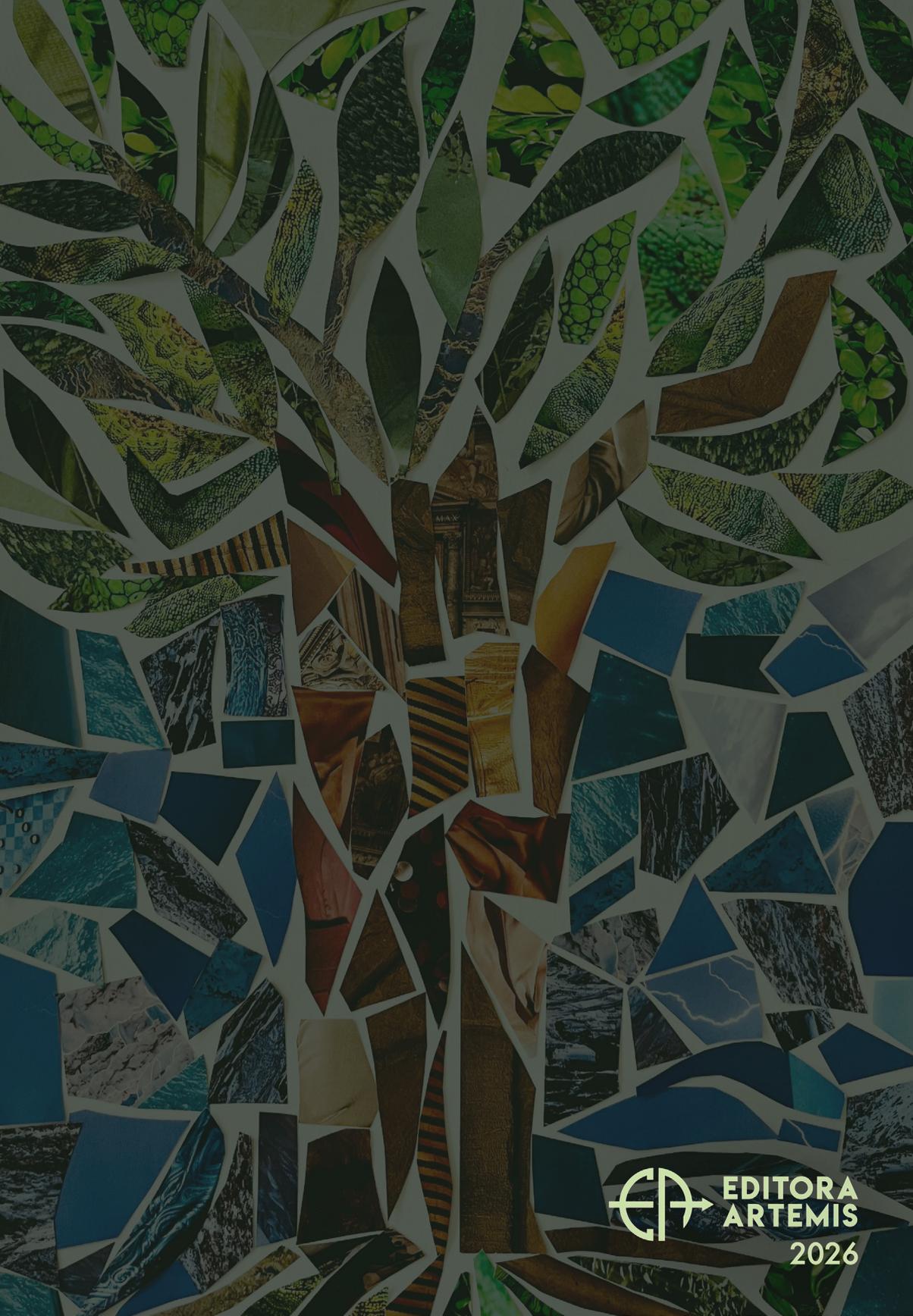
Territorio 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 39, 90

W

Women 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Z

Zoohigiene 115



**EDITORIA
ARTEMIS**

2026